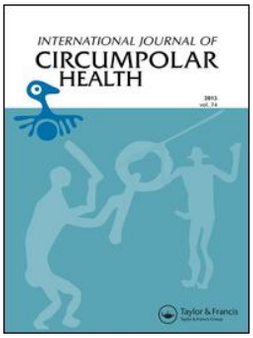

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Healthy ageing in the far North: perspectives and prescriptions

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ABSTRACT

Objectives: This study captured factors integral to healthy ageing in central Alaska. To date, conceptual models fail to meaningfully address how healthy ageing is impacted by location and context, particularly in remote or sparsely populated areas. The way "healthy", or "successful", ageing is defined in an extreme environment, and how that contrasts with global definitions of healthy ageing, has yet to be examined.

Method: Residents of central Alaska aged 60 and older completed background demographics and several measures of personality and well-being and then engaged in a guided discussion.

Results: Themes identified as important to healthy ageing were attitude/perspective, socialisation, sense of community, purpose and staying active, and independence. Challenges endorsed included service gaps, transportation, seasonality, cost of living, and isolation.

Discussion: The current data parallels previous investigations of healthy ageing and provides a new understanding of the importance of resilience factors for those living in central Alaska.

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Healthy ageing; successful ageing; well-being; Alaska

Introduction

The United States is rapidly reaching an important demographic turning point, by 2030 20% of all residents will be within retirement age. By that time it is anticipated 78 million people in America will be 65 years of age or older [1]. For the first time in American history, the number of individuals that are 65+ will outnumber individuals under age 18. In light of such demographic shifts, which observe the last of the "Baby Boomers" reaching retirement age, the importance of understanding the factors that contribute to the experience of ageing cannot be underestimated.

Over time, numerous conceptual models have been put forward in an attempt to define the ageing process and, more specifically, what "successful ageing" might look like. For instance, Rowe and Kahn's well-known gerontological model defines three main criteria that must co-occur for successful ageing to have taken place: (1) low probability of disease and disease-related disability, (2) maintenance of high cognitive and physical functioning, and (3) continued engagement in life [2–4]. The many critiques of this model have led to ongoing dialogue about how to define and measure successful ageing [5,6]. Research suggests that this model should include spirituality in order to be complete [7]. Lewis [8],criticised the model for its lack of inclusiveness because it excludes indigenous and non-white models of ageing. Other critiques of Rowe and Kahn's model include its apparently static nature and failure to consider the developmental process throughout the individual's lifespan, and the lack of added nonclinical dimensions in its definition [9].

Another model of successful ageing, Selection, Optimisation, and Compensation (SOC) [10], posits that older adults who negotiate their physical and cognitive declines by emphasising their strengths are more successful. Here, the definition of "success" centres on doing one's best in light of personal circumstances while pursuing a particular goal or set of goals. Likewise, successful ageing has also been theorised within the preventive and corrective proactivity (PCP) model [11]. According to the PCP framework, older adults are likely to experience normative stressors associated with the ageing process, including illness, social loss, and person-environment incongruence. However, they are also able to experience successful ageing to the extent that they can call upon internal and external coping resources, such as hopefulness (internal) and available social supports (external), and engage in corrective and adaptive behaviours (e.g. planning for the future; environmental modifications).

Additionally, emotional well-being plays a critical role in the ageing process and is influenced by a number of factors, the most important of which are social relationships [12]. Emotional well-being is one's experience of

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positive and negative emotions [12]. Older adults often report higher levels of emotional well-being when compared their younger counterparts [13]. Resilience is yet another factor that has been identified as contributing to health and well-being in older adults. Resilience has been defined as one's capacity for maintaining and restoring physical and psychological health when confronted with stressor, both daily and major [14].

In light of the foregoing, it is necessary to consider the importance of preventive approaches to healthcare among older adults, and the promotion of those factors that contribute to healthy ageing among such a large population of individuals globally. A number of questions arise when considering the literature's attempt to identify and define those factors that facilitate healthy ageing. For instance, conceptual models that attempt to define proper ageing fail to address, in any meaningful sense, how healthy ageing is impacted by one's physical location and context, particularly when circumstances that may be considered "outside of the norm" ensue, such as living in a remote area. Ageing-in-place has been receiving increased attention in the literature in recent years [15–18]. Additionally, the question of how ageing is approached, whether the word "successful" or "healthy" is most appropriate, whether the difference is relevant, and how those words are defined has yet to be resolved. Of particular importance is how healthy ageing is defined and approached by older adults in a given area. The perception of one's circumstances may matter more than reality itself.

Within Alaska, the issue of ageing is especially prominent. Seventeen percent of Alaskans are over the age of 60 and, by 2030, nearly 25% of all persons in Alaska will be senior citizens [19]. These numbers greatly outpace the national average within the U.S. The projected number of Alaskan residents over the age of 65 is expected to increase by 86% between 2015–2045 [20]. Current health-related services in Alaska will be inadequate to accommodate this drastic increase in the population of older adults [21]. To date, the few studies of ageing in Alaska have focused on a specific group of individuals or a particular perspective within the state [for example see, 22, 23]. In Alaska, unique living conditions (i.e. physical and social isolation, extreme climate, high cost-of-living, limited health care resources, etc.) combined with overall physical and psychological health can result in a myriad of outcomes with respect to the ageing process, further highlighting the importance of understanding this phenomenon. This study hopes to shed light on the ways older Alaskans perceive healthy ageing and how they conceptualise the unique challenges and opportunities they face in the far North.

Methods

The current study examined successful ageing practices and beliefs in central Alaska using a sample from the Fairbanks North Star Borough. Discussion groups were conducted that examined the elements of daily living which older adults believe contribute to and challenge their well-being. Participants also completed demographic questionnaires, personality and mood assessments, a measure of well-being, and a stress inventory.

Participants

Participants (N = 30) were recruited from local learning-based and social programmes designed for seniors through Ageing at Home Fairbanks, and the Oscher Lifelong Learning Institute at the University of Alaska Fairbanks (UAF) via flyers and announcements through these organisations. Participants completed several self-administered instruments and participated in one of eight discussion groups or individual discussions. Participants were required to be age 60 or older, live in the Fairbanks North Star Borough, be free of dementia or other disorders that would affect communication, and had to read and speak English. Additional group discussions took place at a local senior residential housing facility. Group size was six or fewer participants, with some participants preferring to meet individually with the researchers due to privacy concerns. Participants were predominately female (90%), with ages ranging from 60 to 87 (m = 73.65, sd = 7.92). The majority of the participants were long-time local residents (m = 35.56 years) with only a few exceptions (one participant < 1 year and four participants < 10 years) that lead to a large deviation in residency time (sd = 20.51). The entire sample identified as Caucasian. The majority of participants, 63%, had completed some college or obtained an undergraduate degree. Participants reported their household income and number of people residing in the household: 21% reported income less than 2000 USD per month and 45% reported income less than 3500 USD, with one or two people residing in the household. Because of concerns about the local cost-of-living and other possible sources of support that cannot be easily quantified we also asked for a self-reported perception of financial security on a 1 to 7 Likert-scale using the question "I am financially secure." Participants reporting they disagreed or somewhat disagreed with the statement was 21% and this number increased to 38% when those stating "Neither Agree nor Disagree" were included.

Procedure

The research sessions were conducted between November 2017 and early March 2018. Signed informed consent (approved UAF IRB # 1144171) was obtained after orally reviewing the document with participants. The participants completed all inventories at their own pace, which included the demographics form (the WHO-5 was embedded within the demographics form), the Big Five Inventory [24], the PANAS [25], and the Cohen PSS-10 [26]. The group discussion began once the forms were completed. The interviewer reminded the participants that the conversations would be audio recorded but that their identifying information would not be associated with their statements and that they would be identified only with participant numbers.

The discussion leader prompted all discussion groups with the same initial question "What does healthy ageing mean to you?" This question was followed by semi-structured prompts to define terms such as "healthy" when participants did not do so [27]. To maintain consistency in data collection, the same discussion leader (JRP) conducted all of these semi-structured discussion groups [28,29]. Follow-up questions were added as needed to redirect the conversation back to the topics under investigation. At the conclusion of the discussion, the participants were thanked for their input and were asked to provide additional comments. Sessions lasted between 55 and 98 minutes.

Data analysis

All inventories were completed by hand by the participants and later keyed into a spreadsheet by the research team. Group discussions were recorded simultaneously with two digital recorders and were later transcribed verbatim. Data were analysed using the principles of Grounded Theory to identify factors that defined healthy ageing to the participants [30]. The data was thematically analysed into low-inference categories based on key words and meaningful segments [31]. Themes were subcategorised into those associated with healthy ageing and challenges faced by the participants. This initial coding process (a.k.a. open-coding) is considered the basis of Grounded Theory and entails sorting and labelling data and allows for the systematic comparison of qualitative responses [31]. Cross-theme analysis included categorising statements into each theme they supported where several main and minor themes emerged. It was common that statements made from our participants endorsed more than one theme and were therefore included in each grouping [32,33]. Major themes are those that were endorsed by half or more of our participants, minor themes were discussed by multiple participants but did not meet the 50% threshold.

Spearman's rank correlations were used to assess the relationships between variables of the quantitative instruments. Missing data points were excluded from the analysis and calculations were made using all data provided.

Results

The overall measure of health, the WHO index, was related to many factors (see Table 1). The calculated WHO scores ($m = 17.89$, $sd = 4.6$) ranged from 7 to 24. Well-being and perceived stress were negatively related ($r^s = -0.43$, $p = .028$), indicating that as perceived stress increased, well-being scores decreased. There were also several correlations between perceived stress and personality. Perceived stress was negatively correlated with agreeableness ($r^s = -0.46$, $p = .0208$), extroversion ($r^s = -0.61$, $p < .001$), and positive affect ($r^s = -0.61$, $p < .001$), suggesting that perceived stress is strongly related to increased negative aspects of personality. Interestingly, financial security was not significantly related to affect, personality, or perceived stress, although there was a small, non-significant relationship between financial security and well-being ($r^s = 0.29$, p =.15).

Qualitative theme analysis

The participants endorsed multiple major and minor themes as essential factors contributing to ageing healthily in central Alaska. In order of significance, the major themes supported were attitude/perspective, socialisation, sense of community, purpose and staying active, and independence. Additional minor themes were, in order, resources, eating habits, exercise, pets, mental stimulation/health, pace of life, and nature.

Attitude/Perspective

Participants identified positive or negative life perspective, adaptability (the ability to adjust to changing circumstances), and/or flexibility as important to the

Table 1. Spearman's correlations indication significant relationships between WHO well-being score and reported variables.

	Correlation with WHO well-being index r^s	p value
Age	0.41	.030
Years of residency	0.42	.036
Positive affect	0.46	.014
Negative affect	−0.39	.035
Extroversion	0.42	.040
Regular physical activity	0.50	<.01
Neuroticism	−0.44	.020

healthy ageing process. For example, one 71-year-old female said, "there's more people up here who have that spirit of adventure and excitement about life" which was echoed by a 69-year-old female, stating, "you have to have some kind of a pioneer spirit" to live in Alaska. One 70-year-old female participant indicated, "My definition of healthy ageing is being happy at the stage you're at," highlighting the importance of being able to adapt, having a positive attitude, and enjoying old age.

Socialisation

Connecting with others, participating in group activities, engaging with family members and friends, and intentional interactions with others were thematically coded together. This category also included volunteering/helping others (with the purpose of engaging), engaging at a senior centre, playing bingo or other games, and interacting with young people. In this regard, a 75-year-old female participant stated, "I love talking with people, because I learn so much from them, from the dialogue." Another participant, a 60-year-old female noted her close relationship with friends, stating, "That's why friends are so important. If you don't have family that live here in Fairbanks, your friends become your family." Participants perceived their social relationships to encompass both family and friends and strongly emphasised the importance of these social relationships to their health.

Sense of community

Participants described the importance of feeling connected to the community and feeling a sense of fellowship with those living in the area who care about and look out for one another as important to healthy ageing. This theme did not include socialising but a feeling that if one needed help that their community would be there for them. A male participant cited, "a certain cosiness in being up here [Fairbanks]" to which a 70-year-old female agreed, stating, "People really look out for each other." A69-year-old female said, "There's a real strong sense of community … its need-based" and a 75-year-old female elaborated that, "In Fairbanks it's like, we are all in this together. Down south [in the continental U.S.] it's like every man for himself." A 75-year-old female stated that Fairbanks is, "a very different sort of place to be than other places. Partly because it's a small community. But it's a very inviting community for most people." The sense of community reported by participants extended beyond a need for socialising to the idea that the entire borough was an entity that would protect the people residing in it, and that such close relationships were fundamentally different and more important than relationships found between seniors in "the Lower 48."

Purpose and staying active

Purpose and staying active was operationally defined as: (1) having an activity that one takes part in; (2) ongoing learning, purpose, and meaning in life; and, (3) engaging in activities that are found to be worthwhile and bring self-fulfilment. In describing this theme, the participants cited behaviours such as taking university classes, the pursuit of lifelong learning, volunteer work, helping others, taking care of pets, and engagement with hobbies. A 75-year-old male participant endorsed purpose by stating, "I learned a long time ago that the purpose of life is to share as much as you can". Another participant said, "Having things to … look forward to doing. Not being stuck in the past" (73-year-old female participant). Others supported this theme by stating, "Doing something with your time, making sure you have a purpose" (69-year-old female participant) and, "service to others is huge" (60-year-old female participant). However, not all participants had a positive outlook. One 65-year-old female participant stated, "I've always needed a goal, a purpose, and I … find I don't have a goal or purpose in life anymore, and I can't imagine doing this for twenty more years." The participants highlighted the importance of recreational pursuit, remaining mobile, "continuing to be active and involved in your community", and "getting out and getting involved in something and having interests beyond yourself and not sitting around and talking about your aches and pains" (70-year-old female participant). They also discussed the importance of volunteerism, learning new things, and not staying home alone and isolating oneself. An 86-year-old female participant stated, "I have found that the mantra for retired people is, "I don't know when I had time to work!" Purpose, a feeling of meaning in life, staying active and providing for others were common themes endorsed by the participants for healthy ageing.

Independence

Participants identified self-sufficiency and autonomy as important components to ageing healthily. An 87-year-old female participant stated, "I think you have to be independent-spirited so that you can be independent in your older age." A 70-year-old female participant said, "I'm fiercely independent but I don't have a vehicle so I walk and I take the bus and I'm very content with that." Participants stressed the importance of not having to rely on others, one 69-year-old woman said "The goal is to stay as healthy as I can so I can stay

independent and not rely on my kids." Participants discussed the importance of being able to live on their own and to do what they want. Although they spoke at length about the importance of relationships with friends, family, and the community, they were adamant about being in full control of their own lives.

Additional themes endorsed by participants are categorised as minor themes. These themes did not readily fit into the major themes categories but were noted by many participants. Resources such as those available to individuals in the community, transportation options, and financial resources were discussed. One 73-year old female participant stated "Resources can be financial; they can also be people … "and a 86- year-old woman said "I think we have a great community here for older people and facilities and organisations … ". Participants also stated that eating habits, mental stimulation, a slower pace of life as well as exercise contributed to their healthy ageing. Having a pet and spending time in nature were additional factors discussed. One 75-year-old man stated "Animals know more than we know and what we give them credit for. And it think that it would be ideal if every senior could have an animal, a pet. Even if it is a Goldfish. Maybe I should start a program."

Challenges to healthy ageing

The participants identified a few major challenges to the healthy ageing process, which were, in order of significance: gaps in services, transportation and mobility, seasonality, cost of living, and isolation. Gaps in services was a highly endorsed category that included lack of health care options and programs for seniors, One 75-year-old female participant stated "I think health insurance is even more important than income." The isolation theme included both physical and social isolation. For example, several research participants indicated they sometimes went for long periods (days) without talking to or seeing anyone. In some cases, they never left their houses owing to the vehicle or weather constraints. In others, it appeared, they simply had no one to talk to.

Some participants indicated that, particularly where the existence of immediate family members was lacking, maintaining strong relationships with various social groups was important. Transportation difficulties could limit social interactions. In fact, the participants endorsed transportation-related challenges as the second major challenge to ageing well. This included poor access to public transportation, the expense of owning and maintaining a vehicle, or no longer being able to drive. The cost-of-living in central Alaska was discussed by participants as another major challenge, they stressed that older adults have specific costs that are especially expensive here. One 60-year-old female stated "A lot of people in my age bracket do work just to have health insurance." This sentiment was expanded on by another (69-year-old female) participant who said "And the visits … the medical bills here, doctors' visits, are double what they are in the lower forty-eight." The theme of seasonality was defined as challenges precipitated by the season, especially related to the winter months in the subarctic, but also including the rapidly changing light cycles and short growing seasons. A 79-year-old participant remarked "Long days without sun that are really cold and you don't want to go out at 40 below and drive anywhere. Winters are difficult." Research participants endorsed some challenges they personally experienced but also discussed difficulties that would exist in certain circumstances. For example, one 75-year-old participant stated, "I think mobility issues as you age would be more of a factor here [Fairbanks] than some places." The challenges discussed by the participants encompassed issues specific to the local area but also several universal challenges faced by seniors throughout the country.

Discussion

Many models of ageing have attempted to determine the factors that contribute to "healthy" or "successful" ageing. The current study investigated a sample of older adults in central Alaska to determine what elements local residents believe are important to remaining healthy and examined the possible relationships between personality factors, personal beliefs about healthy ageing, and health-motivated behaviours. Correlations between the measure of well-being and health behaviours viewed as "positive", such as regular physical exercise and positive affect, were found as expected. Especially interesting were the positive correlations noted between well-being and both age and the number of years one has been a resident of central Alaska. The former relationship is anecdotally supported in that those who do not thrive in this environment tend to move away as they age.

Most strongly endorsed by the participants as essential to healthy ageing in central Alaska was the theme of attitude/perspective. Participants emphasised the ability to adapt to changes in their lives. This is especially noteworthy in view of the potential for one's attitude in any set of circumstances, and their approach to challenges, to greatly influence well-being and shape behaviours. An individual's attitude and perspective has the potential to shape the way they experience cumulative stressors associated with ageing. This finding supports the Selection, Optimisation, and Compensation (SOC) model [10] insofar as adaptability is important to ageing well, according to

our participants. The participant's endorsements of "attitude" and "adaptability" as traits that contribute to their well-being are closely related to the concept of resilience. Resilience has been defined as one's capacity for maintaining and restoring physical and psychological health when confronted with stressors, both daily and major [14]. Their descriptions of these factors as an overall way of making positive changes when faced with difficulties aligns with the literature on resilience [34]. Resilience is especially important in extreme environments such as those in central Alaska. Environmental factors can affect one's outlook, for example, the Fairbanks area experiences less than four hours of daylight in the winter.

The participants highlighted contentment with one's stage of life and an enjoyment of older age as important to healthy ageing. We found this perspective to contrast with the negative stereotypes of ageing that frequently impact perspectives towards the ageing process [35]. Additionally, research demonstrates that certain factors such as financial security and the ability to live comfortably, access to public services and quality medical care, as well community involvement, among many others, contribute to happiness and well-being in old age [36]. These various, interacting factors reveal a complex picture regarding what ageing healthily and wellness might mean.

Socialisation, a well-known component of human well-being, was cited by the participants in our study as important to their health. This raises special questions about ageing in Alaska in particular, where loneliness and social isolation are realities for many individuals, whether young or old. The unique challenges for ageing adults in Alaska are well-documented with isolation being a common problem [37,38]. The increased use of technology globally has led to rising levels of loneliness and social isolation within all age groups [39,40]. By contrast, social connection encourages better health practices, buffers the impact of life stress, enhances self-esteem, and provides social support within a community. Social interactions and quality relationships are essential to well-being [41]. Those who are socially active have been shown to have a 50% higher survival rate than those who are less active [42]. The participants of this study reported the importance of a sense of community and regular socialisation as well as being "fiercely" independent. Although these factors may appear contradictory, they are the essence of a friendly yet independently-spirted Alaskan.

In Fairbanks, it may be useful to consider how settings for social interaction among older adults are arranged and actively promoted. Transportation limitations as a barrier to health for Alaskans has been reported in previous research [37]. Interestingly, few participants endorsed winter weather conditions such as cold and snow as specific challenges. The participants viewed winter in Alaska as a reality of daily life of only minor concern.

Participants in the current study reported having a purpose as an important part of healthy ageing; this is a concept well-supported in previous research. Purpose is a psychological construct associated with well-being in older adults [43]. Having purpose-in-life (PIL) is associated with a feeling of meaning and relevance. According to early work of Reker, Peacock, and Wong [44], symptoms of anxiety, depression, hopelessness, and physical decline are found in those who view their lives as meaningless. Those who had a higher sense of PIL also reported higher levels of life satisfaction later in life, had a greater acceptance of death, felt a greater sense of fulfilment when reflecting on their accomplishments, and had a stronger sense of control over their lives than those who report low PIL. More recent studies have found that having a sense of PIL sets up the individual for successful goal attainment, the maintenance of health and well-being during life's changes, and an increase in one's capacity for adaptation throughout the lifespan [45]. A greater sense of purpose protects against life stress, increases immune functioning, and positively influences mental and physical health. Moreover, an association between sense of purpose and delayed mortality has been detected [45].

Interestingly, financial stability was not an indicator of poor well-being, as expected, nor was it significantly related to affect, personality, or perceived stress. One possible explanation was the interpretation of "financial security." Some may have included assets other than money in this calculation. In fact, one of the minor themes that participants endorsed as contributing to healthy ageing was "resources" which included public and private services such as the senior "Van Tran," the Fairbanks Senior Centre, Ageing at Home Fairbanks, and health insurance. Moreover, when discussing challenges to healthy ageing, the theme of "gaps in services" included availability of health care and covered services. "Gaps in services" is of special concern for many in this area due to the lack of available resources particularly in geriatric health care. Accessing health care can be difficult and many must travel to Anchorage or Seattle for special care (359 miles and a 4 hour flight, respectively). Senior housing and assisted care is also limited with long wait lists especially for those with limited incomes.

Study limitations

The current study had some limitations. Volunteerism bias and selection bias are always considerations in this type of study because only certain people are willing to give their time for such a project; however, all

comparisons between literature are made with studies that had the same limitations. Although we were able to sample a wide array of socioeconomic backgrounds, the participants were all Caucasian and the majority (90%) were women. This may somewhat limit the generalisability of this study but does not reduce the significance of its overall findings. In some instances, six participants engaged in the guided discussion whereas in others, the interviews were conducted with only one or two participants. The larger groups may have reduced the number of comments made by some participants but every effort was made to give each participant equal time to speak.

Conclusion

The participants endorsed several major and minor themes as essential to the healthy ageing process. These varying factors, which include attitude/perspective, socialisation, sense of community, purpose and staying active, and independence, are interacting parts of a complex picture of healthy ageing in the far North. A sense of community and regular socialisation are factors that promote close relationships whereas independence and being able to live alone and accomplish tasks without the help of others aresolitary elements. Although these factors appear to be incongruent, they are common in the local mindset. Participants discussed spending time with close friends and family, having a sense of community, and a purpose in life as essential to their well-being. Few focused on challenges (even with prompting), which suggests that non-tangible factors such as mindset and relationships are more critical to health than measureable assets. This supports the current literature on the importance of resilience and purpose in life and extends our understanding of elders in the far North. Participants endorsed two relatively contradictory elements of healthy ageing "sense of community" and "independence". These opposing factors embody the Alaskan spirit, in that they describe a close-knit community that values hearty independence.

Recommendations and future directions

Recommendations for improving the lives of local seniors include increasing availability of transportation for seniors and making existing transportation options more accessible. During data collection for this study, it was noted that the closest bus stop to one senior housing development was over a block away from the entrance to the building. It is important to understand the special circumstances surrounding this issue. In Fairbanks, nearly all the snow that falls during the winter will remain on the ground until it thaws in March or April of the next spring. This means that sidewalks are generally snow and ice-packed for several months during the year. This makes a distance of a block unattainable for many with mobility or stability issues. Travelling an additional block to pick up passengers would not place a large burden on public transportation, but would increase the usability for these seniors immensely. More geriatric health care options would be highly beneficial to seniors in this area, but with the overall shortage of health care providers, this seems a difficult task that will take many years to remedy. The Fairbanks Senior Centre and programs such as Ageing at Home Fairbanks provide excellent opportunities for older adults to decrease isolation and increase the ability to socialise with others. Continued support of these programs is a critical component in individual and community well-being. These findings suggest that future studies examining the factors that contribute to healthy ageing should consider the context and norms of the locale. Indeed, some qualities will be more desirable and adventitious in certain regions. The results of this study have shaped a follow-up project that will examine the role of spending time in nature and health in older adults in central Alaska with a special emphasis on light exposure.

Disclosure statement

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