

RESEARCH

Open Access



Perceptions, opportunities and barriers of social engagement among the Chinese older adults: a qualitative study

Jining Li^{1,2}, Xinzhao Cai³ and Marius Wamsiedel^{4*}

Abstract

Background Understanding and promoting healthy aging are increasingly important as China transitions into an aging society. Our study examines the challenges and opportunities faced by the older adults in urban areas regarding social engagement, potentially informing the development of effective, context-sensitive interventions and policies.

Methods The study is based on in-depth interviews with 30 participants from a Northern city in Mainland China regarding their daily lives, attitudes towards and subjective experiences of aging, and involvement in social activities. The participants were selected through purposive sampling, with the aim to maximize the diversity of perspectives and experiences. The data was subjected to thematic analysis.

Results The factors that facilitate social engagement among the older adults in urban China include financial security, available free time, heightened health awareness, access to organized recreational activities, community amenities, and well-developed urban infrastructure. Among the barriers to social engagement for urban Chinese older adults, the study identifies physical limitations, chronic illnesses, shrinking social networks, institutional ageism, and limited digital literacy.

Conclusion The social engagement of the older adults in urban China reflects and is influenced by the wider socio-economic transformation of the country in the recent decades. Financial security afforded by the pension system has lessened the older adults' need to engage in income-generating activities. Combined with an increase in leisure time, this represents a luxury previously unavailable to earlier generations. However, institutional ageism and low digital literacy are important constraints, particularly for the 'oldest old' and those with limited socio-economic status.

Keywords Social engagement, Healthy aging, Well-being, Thematic analysis, Chinese older adults, China

*Correspondence:

Marius Wamsiedel

marius.wamsiedel@dukekunshan.edu.cn

¹Department of Health and Environmental Sciences, Xi'an Jiaotong-Liverpool University, 111 Ren'ai Road, Suzhou, Jiangsu Province 215123, China

²Department of Public Health, Policy and Systems, Institute of Population Health, University of Liverpool, Brownlow Hill, Liverpool L697ZX, UK

³First People's Hospital of Kunshan, Suzhou, Jiangsu Province 215300, China

⁴Global Health Research Center, Duke Kunshan University, No. 8 Duke Avenue, Kunshan, Jiangsu Province 215316, China



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Background

China is experiencing an unprecedented rise in its older population. In 2023, the population aged 60 or older reached 297 million, and projections estimate this figure will increase to 402 million by 2040, constituting about 28% of the total population [1]. Between 1990 and 2021, life expectancy in China increased from 67.7 to 77.6 years, while Healthy Life Expectancy (HALE) rose from 60.3 to 68.6 years [2]. This suggests that although people are living longer lives, they are also spending more years in disability or poor health as compared to the past, particularly due to the increased prevalence of chronic diseases, such as diabetes and cardiovascular diseases [3]. As a consequence, healthcare costs have exceeded \$900 billion in 2021 [4] and are expected to continue to grow in the years to come [5].

However, the pandemic of disability is not an inevitable consequence of people living longer lives. As James Fries famously argued, adopting healthier lifestyles can mitigate this trend and lead to a compression of morbidity, that is a reduction in the period of illness and disability, concentrated towards the end of life [6]. Growing evidence suggests that older adults who maintain healthier lifestyles not only live longer but also experience fewer total years of disability compared to those with less healthy habits [7], reducing the pressure on the healthcare system and decreasing the overall healthcare costs.

Therefore, healthy aging policies need to prioritize the promotion of healthier lifestyles, with social engagement being a key component [8, 9]. Social engagement has been interpreted in various ways in the literature. In its narrowest sense, it refers to ‘social participation,’ that is the involvement in activities that have a social component. More broadly, it encompasses any meaningful interactions with others [10, 11], including participation in social networks and benefiting from social support [12, 13].

Studies conducted in China in the recent years concur in showing that social engagement is beneficial for the health of older adults. Regular social engagement, through interactions with friends, taking part in sports and hobby groups, and volunteering mitigates the risk of physical frailty [14, 15], which is a common concern among the older people. This protective role is due to several mechanisms, including carrying out physical activities, maintaining cognitive abilities and positive emotions through playing cards or mahjong, and acquiring health-related information [16]. However, once frailty develops, it becomes a major barrier to staying socially active [15].

Social engagement is also important for older adults’ mental health. Participation in leisure activities has been associated with reduced perceived stress and increased social support, both contributing to better overall mental

health [17]. Social participation also decreases loneliness, an affective state particularly prevalent among older adults living in rural areas or as empty-nesters [18, 19]. The impact of social participation on loneliness is both direct and indirect, through the mediation of social support [20]. Moreover, frequent participation in specific activities has been linked to reduced depressive symptoms. The benefits are gendered: older women tend to benefit more from involvement in sports groups, while older men derive more mental health benefits from hobby groups and community organizations [21].

Social engagement has been shown to also improve cognitive function, with older adults who frequently spend time with friends and participate in group activities being less likely to experience cognitive decline [22]. Activities such as meeting friends, joining hobby or sports groups are beneficial for both men and women, while volunteer work offers specific cognitive advantages for women [23]. These cognitive benefits contribute to maintaining independence and improving quality of life in older age.

The social engagement among older adults in China is influenced by a variety of factors, including gender, class, education, and family status. For instance, healthier, educated, and married individuals tend to engage in higher levels of social activity [24]. Older women, who prioritize health and social interactions more than men [25], often participate in collective activities like square dancing [26]. Older men, on the other hand, are more likely to engage in formal activities, such as volunteering through civic organizations or taking part in political, sports, and professional associations [27]. This gender difference reflects both disparities in education and income levels between older men and women in China [28] and traditional norms that position men in more public roles, while confining women to family and community-based activities [29].

Although there is a relatively large body of knowledge surrounding social engagement among the older people in China, it is primarily quantitative and based on large-scale surveys, such as the Chinese Longitudinal Healthy Longevity Survey (CLHLS) or the Chinese Health and Retirement Longitudinal Study (CHARLS). While such surveys provide valuable statistical insights, they are limited in explaining *why* older adults engage in social activities, *how* they perceive these activities, and *in which ways* structural and contextual factors influence their decisions. In a country like China, with rapid economic development and a transformation of traditional ways of life, older adults’ meanings are likely to be fluid and context-dependent.

Qualitative research is particularly strong in capturing participants’ meanings and the considerations that inform their decision-making [26]. Understanding how

urban older people make sense of social engagement and identifying the opportunities and barriers they encounter are important for designing more effective, tailored, and culturally sensitive healthy aging policies and interventions. Therefore, our study addresses the following three research questions: [1] How do older adults in urban China view social engagement [2]? What are the perceived opportunities for social engagement [3]? What barriers do they encounter in engaging socially?

While the few qualitative studies about social engagement among China’s older population have focused on specific groups, such as people in long-term care facilities [30, 31], stroke survivors [32], and widowed individuals [33], we shift the focus to community-dwelling older adults, a group known for their higher health awareness [34] and greater likelihood of engaging in social activities [35].

Methods

Study design

The research adopted a qualitative approach, exploring the lived experiences of aging within the context of contemporary urban China. The semi-structured interview guide covered the understanding and perceptions of healthy aging, the experiences of social engagement,

and its perceived facilitators and barriers. In this paper, we consider social engagement as participation in any activity, formal or informal, jointly conducted with others. Such activities include, but are not limited to, walking together, gossiping [36], playing card games, traveling, volunteering, or being formally enrolled in and participating in courses offered by local universities for the elderly. The interview guide also included questions about family life and pre-retirement occupation to get a better sense of participants’ biographical context. The questions were predominantly open-ended and complemented by probes to explore the issues in depth. The first author pretested the guide to ensure the clarity and appropriate sequencing of the questions. The semi-structured interview guide was developed for this study, and the English version has been uploaded as a supplementary file.

Data collection occurred in March–April 2022 in Taiyuan, the capital city of the northern Shanxi Province. An industrial city with a population of over 5 million, Taiyuan fares better economically than similar-sized cities in China’s central region but doesn’t have the economic might of larger coastal cities. With its mix of urban and suburban communities, Taiyuan accommodates an economically and socially diverse population, which gave us access to a broad range of personal experiences and perspectives related to aging and social engagement.

Participant selection was driven by purposive sampling. Our aim was to maximize the diversity of beliefs, experiences, views, and concerns, in order to reach a comprehensive understanding of social engagement in the wider context of people’s lives. Thus, the participants were heterogeneous in terms of gender, age category, social class, and family situation (see Table 1). The sample consisted of individuals aged 60 and above, who had been residing in the city for at least five years at the moment of the interview, and who demonstrated the ability to concentrate and respond to questions clearly. Some respondents were approached by the first author directly, in different public places in the city. Others have been reached through different gatekeepers, such as community members who connected the research with the participants [37].

We used the COREQ checklist [38] to guide reporting of the qualitative methodology and results.

In total, 30 participants were recruited for this study, with data saturation being reached. Of the 30 participants, 28 were interviewed face-to-face in their homes or public places, while 2 were interviewed via telephone due to pandemic-related restrictions. All participants were interviewed individually, except for 2 married participants who preferred being interviewed together. A gatekeeper was present during the interviews for 4 participants, at their request, while only the interviewer and

Table 1 Socio-demographic profile of participants

	Total (n=)	Percent
Sample	30	100
Gender		
Male	14	46.7
Female	16	53.3
Age		
60–69	15	50
70–79	10	33.3
80–89	5	16.7
Marital status		
Married	24	80
Divorced/widowed	6	20
Highest level of education		
Elementary and below	2	6.7
Secondary and professional certificate	22	73.3
University bachelor and above	6	20
Monthly income (RMB)		
None	1	3.3
2000–3500	6	20
3000–4000	5	16.7
4000–5000	5	16.7
More than 5000	13	43.3
Frequency of seeing children		
Don’t have children	1	3.3
Less than once a week	19	63.3
Less than a month	3	10
Once in several month	4	13.3
Once in a year	3	10

participants were present for the remaining interviews. Two participants dropped out due to the length of the interviews, while 54 individuals declined participation due to a reluctance to discuss their personal life. The interviews ranged from 22 to 94 min, with an average length of 46 min. All interviews were audio recorded, and the researcher created memos following each interview. The recordings were transcribed verbatim by the first author.

Data analysis

After transcribing the interview recordings, we have subjected them to thematic analysis following the six-phase approach [39, 40]. First, two of the authors (JL and MW) read the transcripts independently to gain familiarity with the data. Secondly, we performed the initial coding independently by using NVivo 12 software. The coding was inductive. Thirdly, we have constructed the initial themes by grouping together similar codes and examining the relationship between them. Fourthly, we have reviewed the emerging themes in relation to the entire dataset, refining them and identifying subthemes. This step also involved a quality check. Fifthly, we have defined and named the themes in order to capture their content and ensure that they accurately reflect the data. The sixth stage consisted in drafting the findings and writing the current report.

Ethical considerations

The research protocol of this qualitative study was reviewed and approved by the Institutional Review Board of the first author's university.

Findings

The perception of social engagement

The participants indicate engagement in a diverse array of social activities, including familial gatherings; grandparenting; social gatherings with former coworkers and classmates; community-oriented pursuits like tai chi, singing, dancing, and performances; recreational games such as cards and mahjong; participation in various sports including swimming, tennis, and cycling; exercise routines conducted in community spaces or public parks, notably square dancing. Furthermore, several participants have enjoyed travel experiences after retirement, either with friends or through tours organized by travel agencies. Some of them also attended educational courses offered by universities for the older adults or even took private classes to learn foreign languages. Several participants continue to pursue self-development by engaging in conferences and professional seminars (See Table 2).

While several participants report limited or no participation in social activities due to reasons that will be

explained later, all view social engagement in a positive light. Certain interviewees consider social interactions as an inherent aspect of life and, therefore, see them as intrinsically beneficial:

"People can't live without [other] people." (P24, female, 85).

"A person cannot stay isolated. Humans are social animals. A person's body plus [their] social relations, this is the human nature. One must have social relations." (P35, male, 70).

Others adopt an instrumental approach to social engagement, highlighting its practical benefits. These benefits include enhanced emotional support, improved mental health, and greater overall life satisfaction. One of the most commonly mentioned advantages is the enjoyment of spending time with others: "I just meet with old friends and sit together, that's quite fun." (P14, male, 65) It is considered a practical benefit because it contributes to psychological well-being and reinforces social bonds that can provide support and enhance the quality of life. The pleasure derived from interacting with friends, acquaintances, neighbors, and fellow participants is short-lived, but its effects are long-lasting. This finding is consistent with the literature, activity theory suggesting that emotional well-being is partly influenced by social interaction and the strength of social connections [41, 42]. Enhancing mood is a consequence of engaging socially and, at the same time, one of the reasons for which social activities are popular among the interviewed older adults: "Whenever I go out, I lift my spirits up." (P7, female, 81) Several participants have connected emotional well-being with physical health, considering that people who are angry or in a bad mood are more prone to getting sick.

The health benefits of social engagement are repeatedly mentioned in the interviews, reflecting the participants' preoccupation with healthy aging. Many routine activities entail physical movement or exercise. Subscribing to the beliefs that "life lies in movement" and "aging begins with one's legs," an 85-years old participant emphasizes the salience of an active lifestyle. At the same time, he mentions shifting from high intensity sports to more moderate, age-suited physical activity after retirement, a pattern that is common among the interviewees of advanced age:

"When I was young, I played strenuous sports, high jump, long jump, basketball, ping pong, and so on. Now it's all about walking and sports appropriate for my age. If you force yourself to participate in sports that are not age-appropriate, you will break down." (P36, male, 85).

Table 2 Emergent themes, subthemes, and illustrations

Themes	Subthemes	Relevant quotes
Perception of social engagement	Inherently good	"People can't live without [other] people." (P24, Female, 85)
	Social benefits	"I just meet with old friends and sit together; that's quite fun." (P14, Male, 65)
	Physical health benefits	"If you stay at home for a long time, you will see and hear less and less." (P18, Male, 62)
	Mental health preservation	"When I first retired, I felt a little bored. [...] Later, after I joined these social activities, I didn't have these problems, I didn't have the anxiety and loneliness." (P1, Male, 68)
Opportunities for social engagement	Prevention of neurodegenerative diseases	"Today we understand some information on today's headlines, talk about it, [...] communicate with each other, sharing information, so that we can prevent Alzheimer." (P13, Female, 62)
	Financial security	"I have a pension; I have no worries." (P27, Female, 62)
	Availability of free time	"When I was young, I didn't have time because I had to work from Monday to Friday, and I had to do housework on Saturday and Sunday. Now there is time." (P31, Female, 79)
	Health awareness	"A few decades ago, people didn't have any idea of [healthy living], but now, with the economic development of the country, people's ideas and information sources are more." (P34, Female, 76)
	Organized recreational activities	"Learning brings happiness." (P26, Female, 66)
	Community facilities and urban infrastructure	"Look at this community: the older adults are out walking, the children also come out to play. In the past, it was not like this. Later, with the construction of each community, there is fitness equipment." (P28, Male, 75)
Barriers to social engagement	Physical limitations	"I don't participate in many social activities because I am too old to run or walk." (P23, Female, 80)
	Preexisting chronic conditions	"I regret that I didn't go to Tibet when I was young, [...] now I have heart problems and I cannot go" (P22, Male, 62)
	Shrinking social networks	"Some of my colleagues have gone back to their hometown, to Changshu, Beijing, Shanghai, and abroad, to the United States. From our batch of colleagues, only I am still here." (P28, Female, 75)
	Institutional ageism	"Travel agencies don't let people over 70 years old participate." (P31, Female, 79)
	Lack of digital literacy	"You have to register once a year, you have to register online. I don't know how to register online, so I only studied for one year." (P30, Female, 72)
	Time shortage	"I used to do square dancing at night, many people go there, but now I don't do anymore, not since [my husband] got sick." (P32, Female, 78)

Social engagement is also perceived as a way to preserve or enhance mental health. Retirement is a major biographic change that in many cases affects individuals' sense of self and relation with others. Feelings of boredom, loneliness, and disconnection are frequently experienced by people transitioning into retirement, but the involvement in social activities can counterbalance them, as the following excerpt illustrates:

"When I first retired, I felt a little bored, I was at home every day, and I felt a little dull, because I had just retired, and I had been in a state of intense work, and then I was at home. Later, after I joined these social activities, I didn't have these problems, I didn't have the anxiety and loneliness." (P1, male, 68).

Inactivity, on the other hand, is generally seen as detrimental to mental well-being. In the participants' view, the limited social contact ("If you stay at home for a long time, you will see and hear less and less"; P18, male, 62) and the rumination on negative thoughts ("If you don't participate and stay at home, you tend to think about bad things"; P17, male, 62) can lead to adverse mental health outcomes, including anxiety and depression.

Social engagement is also seen as a means of preventing or delaying the onset of neurodegenerative diseases, such as Alzheimer's – a lay belief that is consistent with the scientific literature [43, 44]. Several participants expressed the idea that regular interaction with others, exposure to new ideas, information, and perspectives, along with the mental stimulation provided by activities like games and learning, are instrumental in maintaining cognitive health:

"Today we understand some information on today's headlines, talk about it, [...] communicate with each other, sharing information, so that we can prevent Alzheimer." (P13, female, 62).

Beyond the potential health benefits, social engagement is viewed as crucial to a fulfilling post-retirement life. Several participants are concerned that the lack of contact with others can result in "a very closed and narrow state [of mind]" (P8, male, 68), leading to societal detachment. While traditional and social media offer some connection with the wider world, they are considered a poor substitute for face-to-face social exchanges, which appear as more genuine and profound. At the same time, social interactions provide the older adults with valuable practical information on a wide range of issues, from

pandemic-related policy updates to cooking recipes. Additionally, these interactions enable them to develop a shared perspective on different aspects of daily life, such as eating, dressing, shopping, solving household issues, and maintaining good health.

Opportunities for social engagement

The popularity of social engagement among the older adults in urban China is closely related to the country's wider social, economic, and cultural transformation over the past few decades. The most salient proximal factors supporting social engagement that emerged from the interviews are financial security, free time, health awareness, availability of organized recreational activities, community amenities, and urban infrastructure.

Financial security

The participants acknowledged a significant evolution in older adults' lifestyles, including social engagement, that separates their generational experiences from those of their parents and grandparents. Reflecting on the past, the interviewees recalled that many older adults, especially from rural areas, primarily focused on securing basic sustenance. While their strenuous physical labor could, in hindsight, be viewed as conducive to health, it was not originally motivated by health concerns. On the contrary, as two participants explain it, "at that time, old people were not like the [old] people now, who take care of themselves, who take care of their health" (P7, female, 81); because "their generation did not always eat enough, they could not think of the issue of health[y living]." (P22, male, 62) The situation underwent a drastic transformation, mainly attributable to the economic development and the introduction of a state pension scheme.

Except for three interviewees, the remaining participants receive benefits from the national pension scheme, thanks to their prior public sector employment. For several individuals, their income is bolstered by part-time work and various allowances. The reported personal income varies from 3,000 RMB (about 414 US\$) to 11,000 RMB (about 1,519 US\$), with an average of 4,540 RMB (about 627 US\$). According to most participants, this amount covers their basic needs and, in several instances, also enables expenditure on travel, elderly university tuition fees, or personal interests.

Moreover, economic security gives the participants a disposition that is consistent with the engagement in social activities. As one participant articulated, "I have a pension, I have no worries." (P27, female, 62) This view is mirrored by another participant who, despite not receiving retirement benefits due to prior agricultural employment, observes that urban residents with a stable pension are frequently engaged in social activities such as square dancing and casual socialization. He notes: "Every

month, they receive a few thousand yuan of pension, and you can see that there are people dancing on the roadside, hanging out, doing nothing for sure." (P18, male, 62).

Free time

The availability of leisure time emerges as another salient opportunity for social engagement among the older adults. The creation of this leisure time can be attributed to the coexistence of various conditions, including retirement from employment, some financial security due to pensions, changes in family structures and relationships, and the nature of urban lifestyle.

Numerous participants reminisced about their pre-retirement years, which were overwhelmingly occupied with professional responsibilities and domestic chores, leaving them with little, if any, free time: "When I was young, I didn't have time because I had to work from Monday to Friday, and I had to do housework on Saturday and Sunday. Now there is time." (P31, female, 79) Previous familial duties, encompassing elderly care and child-rearing, were also identified as time-consuming, especially by female participants: "When I was young, I didn't have much of a life. [...] Life was only eating, going to work, taking care of the children, and no exercise. After work, you had to supervise children's studies, you had to cook." (P34, female, 76).

After retirement, most participants encounter a novel experience wherein they command the liberty to use their time at their discretion. Although some continue to work to supplement meagre pensions or make a living in the absence of a pension, the retirement phase is generally characterized by the absence of formal work and diminishing familial responsibilities, influenced by the one-child policy and transformation of the economy.

Participants who became parents following the institution of the one-child policy in 1979 often inhabit a 4-2-1 family structure, with a single child cared for by six adults (parents and grandparents). While grandparental involvement in child-rearing is common, the shared responsibilities among in-laws significantly alleviate the burden: "Before we sent [grandchildren] to kindergarten, we looked after them like this: our in-laws looked after them two or three days a week, and we looked after them the other two or three days." (P22, male, 62) This arrangement yields considerable free time, even for those actively involved in child-rearing.

The rapid economic transformation has also instigated shifts in traditional living arrangements, prompting most young adults to move out after completing education and getting a job. This transition to nuclear families reduced the domestic chores for the older adults, generating additional opportunities for engagement in pleasurable activities.

Finally, leisure time is influenced by the urban lifestyle, which is less taxing compared to rural living. Several participants who were born and grew up in rural areas mentioned that the difficult living conditions in the countryside reduced individual autonomy in organizing time: “More people [in the city] are active outdoors now because we have fewer trivial chores at home such as burning the coal. [...] When you still sleep in the morning, the older people [in the countryside] have to get up early to check the fire, to see if it still burning, and then prepare breakfast.” (P22, male, 62) The absence of such constraints in the urban context further empowers older city dwellers to utilize their time as they deem appropriate.

Health awareness

Most interviewees revealed an inclination towards maintaining healthy lifestyles, acknowledging this health consciousness as a relatively recent development. The generation of their parents, who experienced old age amidst economic strife and political turmoil, “didn’t pay attention to health, they didn’t understand it at the time.” (P34, female, 76) Meeting basic life necessities such as food and clothing often posed a formidable challenge in their context.

The evolution of health consciousness among urban older citizens is partially attributable to economic growth. Enhanced living conditions, increased longevity, and extended leisure periods, coupled with the empirical observation of an increased incidence of non-communicable diseases in older age, sparked interest in health preservation and illness prevention. Access to information facilitated by social media further bolstered this health consciousness: “A few decades ago, people didn’t have any idea of these things, but now, with the economic development of the country, people’s ideas and information sources are more, so there is naturally mutual influence.” (P9, male, 64) As implied by the participant, discussions on healthy aging often ensue among older adults during social interactions.

Organized recreational activities

The repertoire of organized recreational activities in which the older adults take part is diverse, encompassing singing, performance, square dancing, sports ranging from table tennis to hiking to tai chi, and local to international travel, among others. Notably, universities for the elderly emerged as the most attractive option among the middle-class individuals.

As compared to other organized recreational activities, these institutions provide avenues to explore new horizons and enhance personal capabilities. Participants who enrolled in these continuing education institutions pursued courses in literature, calligraphy, pottery, painting,

singing and vocal theory, photography, recitation, and origami. This decision was fueled by the belief that “learning brings happiness” (P26, female, 66), contributes to personal development, and is consonant with healthy aging (P13, female, 62) The affordability of these courses (typically 120 RMB/year, slightly higher for saxophone and photography) further contributes to their popularity.

While these continuing education institutions represent a top-down initiative to enrich retired individuals’ lives, square dancing exemplifies a grassroots approach to enhancing social engagement. Despite its accessibility to both genders, square dancing often displays gendered participation, with male participation deterred by the perceived feminine nature of certain performances. However, it is worth mentioning that male participation, although minimal, is not entirely absent in square dancing groups.

Community facilities and urban infrastructure

Most participants reside in modern gated communities that incorporate diverse facilities, such as green spaces, walking paths, outdoor fitness equipment, community centers, and seating areas. The design of these communities promotes social interaction and the initiation of shared activities: “Look at this community: the older adults are out walking, the children also come out to play. In the past, it was not like this. Later, with the construction of each community, there is fitness equipment.” (P07, female, 81).

The broader urban infrastructure incorporates parks and public squares, a library that hosts film screenings six times a week, and various venues for games such as mahjong, table tennis, chess, and billiards. These facilities, free or economically viable for the majority, attract a substantial older adults’ presence: “There are many activities in the park, they have singing, there are older adults dancing, at 6 o’clock in the morning they are dancing.” (P28, female, 75) Parks, in particular, are the preferred locale for social activities due to their aesthetic appeal and the perception of superior air quality: “Inside the park the air is fresh, the scenery beautiful - two people walking together is indeed enjoyable.” (P21, male, 78).

To conclude, there are many opportunities for social engagement among the urban older adults in China. The alleviation of financial concerns via state pensions, the surplus of leisure time, an emergent health awareness, and the development of supportive urban communities facilitate older adults’ social activities and communication. However, it is important to also acknowledge the existence of barriers to social engagement.

Barriers to social engagement

The data unveiled various barriers to social engagement among the urban older adults, many of them related to

the aging process itself. Physical limitations, chronic illnesses, and shrinking social networks hinder older individuals' involvement in social activities. Additionally, formal and informal restrictions, compounded by time constraints, surfaced as important barriers to social engagement.

Physical limitations and chronic illnesses

Physical constraints related to aging constitute the most often cited reason for reducing involvement in social activities or avoiding them altogether. This limitation manifests even when the older adults perceives social activities favorably, as exemplified by the following statement: "Social activities are good, but I don't participate in many social activities because I am too old to run or walk, so I just take care of myself, not to fall down, not to get sick, and that's about it." (P23, female, 80). Leg and back discomfort, poor eyesight, fatigue, and other symptoms create reluctance towards physically demanding activities and indirectly lead to diminished social interaction.

Chronic illnesses further limit the older population's ability to engage in certain activities. A male participant's narrative about the desire to travel to Tibet – a region with high altitude – being thwarted by his cardiac issues illustrates this point:

"If I were healthy, I could still go out and have fun after I retired. I regret that I didn't go to Tibet when I was young, because my family had a relative in Tibet, and I had good conditions to go there. But now I have heart problems and I cannot go, the risk factor is at least several times higher than before, and I do not want to find trouble. The doctor also doesn't recommend me going there." (P22, male, 62).

This position is not isolated. Several participants reflected nostalgically on their past, when they had the freedom to pursue a wide variety of activities. The onset of advanced age, frail health, and persisting health issues significantly influence the decision to participate in specific activities or abstain. An overarching theme in the data is the need to find age-appropriate social activities: "There are some activities for young people that look good, but if you can't do them, you shouldn't do them. Older people should do what they can do." (P36, male, 85) The appropriate activities undoubtedly vary from person to person; however, the selection of viable activities generally diminishes with advancing age.

Shrinking social networks

Most participants report maintaining close ties with several people, comprising family members, former coworkers, schoolmates, long-standing neighbors, and friends acquired over many years. However, with aging, the social

circle inexorably grows smaller: some people pass away, others move out to live with their children or in retirement homes, still others become too frail to maintain social connections. The contraction of social networks sometimes results in isolation and disengagement from social activities, as narrated by one participant: "Some of my colleagues have gone back to their hometown, to Changshu, Beijing, Shanghai, and abroad, to the United States. From our batch of colleagues, only I am still here, so I don't go to other people's homes. [...] I spend time by myself." (P28, female, 75).

The loss of peers, who were formerly partners in shared activities, particularly amplifies the emotional toll and accelerates social disengagement. One female participant, who previously enjoyed group activities like walking, singing, and dancing along the local riverbank, ceased her participation after the sickness or demise of her companions. She recounts, "Some of them got sick, some of them died, and there was no one left [to sing and dance with]. I took the photo today and showed it to my partner. I said, 'Look, these people are all old men who died, the men generally died earlier than the women.'" (P34, female, 76) In some instances, the decrease in participants ultimately renders group activities, like tai chi, untenable.

Formal and informal restrictions

Institutional ageism

Despite several policy interventions and grassroots initiatives aimed at fostering social engagement among the older adults, some formal and informal practices inhibit participation in activities of interest. For instance, certain travel agencies enforce an age limit for trip enrollment, as stated by two participants: "Travel agencies don't let people over 70 years old to participate" (P31, female, 79); "Last year, only those under the age of 70 were allowed to go, and those over 70 were not allowed to go, so I went to Xinjiang at the age of 70." (P33, female, 71). However, the participants also noted that such age restrictions are not uniformly applied across all travel agencies.

Likewise, an older male participant, a local expert in calligraphy and creative writing, expressed his observation that invites for seniors to deliver seminars or attend relevant events are becoming less frequent: "Nowadays, no one asks you to go out when you are over 80, they are afraid of accidents." (P36, male, 85). This trend seems to have been precipitated by a recent incident involving an older writer fainting during a speech. The unfortunate event made organizers exercise caution when inviting older individuals.

Lack of digital proficiency

The local university for the elderly reportedly restricts enrollment to people below the age of 80 (P12, female,

61). Alongside such intentional restrictions, there are also others that are most likely unintentional. For instance, the same university for the elderly has recently introduced an electronic course registration system that inadvertently excluded the older adults lacking digital literacy or having no one to assist them. As one participant explained, “It’s too much work to register, you have to register once a year, you have to register online, I don’t know how to register online, so I only studied for one year.” (P30, female, 72).

Economic barriers and perceptions of costs

The costs also contribute to seniors’ hesitancy in participating in certain activities. For instance, an older individual conveyed her displeasure towards the practice of peer pressuring participants to buy unnecessary items of services during communal activities. It is not the cost itself (typically “a few dozen RMB”) that is upsetting, but rather the moral transgression. (P16, male, 66). On the other hand, necessary expenses such as operating costs for square dancing groups are generally perceived as reasonable and do not constitute a barrier to social engagement.

Time shortage

While the preceding section highlighted increased leisure time as a significant opportunity for social engagement among the older adults, it is notable that several participants maintained highly occupied schedules after retirement. Assisting in grandchild-rearing, providing care for older adults parents or ill family members, or engaging in solitary activities such as creative writing or at-home language learning can significantly curtail the time and energy an older individual can dedicate to social activities. One participant narrates how the abrupt decline in her spouse’s health drastically altered her daily routine: “I don’t go to the playing field anymore, I don’t have time. I used to do square dancing at night, many people go there, but now I don’t do anymore, not since he got sick.” (P32, female, 78).

Some participants from working class reported that they were unable to engage in social activities because they were working after retirement and had fixed working hours. They wanted to earn more money to improve their family conditions and prioritized this over social engagement. “When I was working here, I couldn’t leave. Because of the time, this place has fixed working hours.” (P16, male, 66).

In sum, a diverse range of factors – physical constraints, chronic illnesses, contraction of social networks, formal and informal restrictions, and time shortage – interact to form barriers to social engagement among the urban older adults in China.

Discussion

The findings suggest that older adults view social engagement as both pleasant and beneficial for their physical and mental health, unlike previous generation who tended to approach old age as a natural phenomenon beyond people’s ability to control. This transformation reflects wider structural changes (economic development, urbanization, increased education, etc.) as well as policies aimed at improving the living conditions of the older population. As early as 1994, when the first relevant policy was adopted, China began addressing the social determinants of health by expanding the pension system and welfare support, increasing insurance coverage, and reducing economic disparities [9]. The increase in income is positively correlated with social participation among older Chinese individuals [45, 46] which in turn supports better mental and physical health [47].

Urbanization and economic growth have indirectly increased the availability of leisure time by radically transforming family structures and relations. The transition from extended to nuclear family systems [48], the migration of younger generations to more economically developed cities and regions [49], the declining fertility rates [50], and the increased accessibility and affordability of childcare facilities in large urban areas have collectively reduced the caregiving responsibilities older individuals traditionally had for their grandchildren [51]. As a result, many older individuals find themselves with a consistent amount of free time, a luxury neither their parents in their old age nor they themselves in their younger years could afford.

The findings of this study also emphasize the salient role of urban infrastructure in shaping social engagement among older adults in China. Previous research has demonstrated that the availability and accessibility of community spaces, public parks, and organized recreational activities support active and socially engaged lifestyles [52, 53], which benefit physical and mental well-being [10, 54]. Our data further suggest that while urban infrastructure benefits the entire senior population, it is particularly beneficial for those whose low economic status limits their ability to engage in more costly forms of social participation, such as travel or continuing education programs. For these individuals, access to free or low-cost community resources becomes essential in maintaining an active and socially connected lifestyle. However, the uneven distribution of these resources in Taiyuan, particularly in areas like urban-rural junctions and newly developed urban areas [55], poses a barrier to equitable social engagement opportunities. China’s National Office on Ageing initiative to create 5,000 urban and rural age-friendly communities by 2025 [56] has the potential to reduce this problem.

Another class difference in the experience of social engagement among the older adults is related to employment. While most middle-class participants enjoy the leisure time of retirement, with a few continuing working to preserve cognitive skills and maintain social connections, many working-class older adults continue doing blue-collar jobs out of financial necessity. This greatly reduces the time available for social engagement.

The social engagement of the urban older people is also gendered, reflecting broader cultural influences. According to the traditional delineation of gender norms, men are typically expected to be the breadwinners while women are confined to social roles surrounding the family and the household [57, 58]. Although the gender regime has changed significantly in the recent years, female participants reported greater engagement in domestic chores, recreational activities such as square dancing, and educational endeavors such as attending elderly universities. On the other hand, male participants tended to display a predilection for physical activities such as ping-pong, as well as socializing with friends over food and drink, a practice deemed unhealthy by their female counterparts. These patterns indicate that the traditional gender roles continue to exist despite the radical economic transformation of the country. However, both genders have similar motivations of engaging in social activities, such as reducing social isolation and boredom, as well as maintaining an active lifestyle [59, 60].

Another important finding is that institutional ageism prevents many older people from taking part in the social activities in which they are interested. There is a fine line between caring for the older adults and protecting them, as guided by Confucian principles [61], and inadvertently marginalizing them under the guise of such care and protection. Especially for the people in the deep old age, who are often viewed as *a priori* vulnerable, this line is frequently blurred, with detrimental consequences for their well-being. Moreover, the exclusionary practices sometimes contribute to the internalization of a sense of not belonging, reducing the desire to engage socially and exacerbating feelings of loneliness and unworthiness. The adoption of a law that explicitly condemns institutional ageism [62] would be an important step in addressing this problem.

Another significant barrier to social engagement among the older adults identified by this study is the insufficient digital literacy. During the COVID-19 pandemic, the extensive use of digital health surveillance measures by the authorities, as well as the increased necessity for online communication and shopping, compelled a large number of older individuals to adapt to smartphone use. Unsurprisingly, the number of older adults internet users in China nearly doubled in the first year of the pandemic [63] and has continued to rise since

[64]. Notwithstanding this remarkable transformation, only 54.5% of all the people aged 60 or above in China are internet users [64, 65]¹. Moreover, our study highlights that digital literacy among urban elders is unevenly distributed. Those with limited skills in using smartphones, tablets, or computers often encounter insurmountable challenges in accomplishing tasks of moderate complexity, such as the online enrollment in courses provided by the local university for the elderly.

In other words, the insufficient digital proficiency inadvertently serves as a mechanism for social exclusion. It disproportionately affects people who are economically disadvantaged, less educated, or possess limited social capital [62]. As the Chinese society continues to digitalize, it is likely that participation in an increasing array of social activities will require online registration. Unless proactive measures are taken to address this issue, it is reasonable to anticipate that many elders eager to partake in these activities will encounter serious technical barriers, which will exacerbate existing class-based inequities.

Strengths and limitations

The study has the merit of examining the social engagement of urban older adults in China within the broader context of their lives. The semi-structured interviews provided a balance between structure and flexibility, allowing the participants to introduce personal interests and concerns. This approach uncovered the beliefs, norms, and values influencing social engagement, demonstrating at the same time the impact of socio-economic and cultural transformation on older adults.

However, the study's qualitative design prevents statistical generalizability. Also, it is worth noting that all participants self-identified as ethnically Han. This is the largest ethnic group in China, accounting for 91.11% of the population [66]. Future research should include diverse urban settings and ethnic minorities to see the extent to which local contexts impact the perception and experience of social engagement among the older people in China.

Conclusion

This study examined the significant role of social engagement in promoting healthy aging and improving the quality of life among urban elders in China. It found that the popularity of social engagement is due to economic, social, cultural, and environmental transformation that empowered the older adults and redefined their role in society. In addition to the improved material conditions and the relaxation of demands due to changes in family

¹ Data compiled by the authors based on the statistical data released by the China Internet Network Information Center (2023) and demographic data announced by China's National Bureau of Statistics [65].

structure and population mobility, the social engagement of the older adults was facilitated by the urban physical environment. The findings suggest that developing accessible, safe, and engaging environments for the elders enriches their lives and contributes to healthy aging.

The study has also identified two important barriers to social engagement: institutional ageism and the lack of digital proficiency. It is important for policymakers to address these issues in order to construct a more inclusive and equitable society, in which the elders feel valued and get the opportunity to engage in activities that are pleasurable and contribute to their physical and mental well-being.

In order to develop a comprehensive understanding of social engagement in China, further studies are needed involving rural populations, ethnic minorities, and members of disadvantaged groups.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12877-024-05629-3>.

Supplementary Material 1

Acknowledgements

We would like to appreciate all participants who accepted our invitations for interviews and shared their valuable experiences with us.

Author contributions

J.L. and M.W. were responsible for the conception, design, analysis, and interpretation of the data. J.L. and M.W. drafted and substantively revised the manuscript. J.L. was also responsible for data acquisition. X.C. was involved in the data analysis. All authors read and approved the final manuscript.

Funding

The research results of this article are sponsored by the Kunshan Municipal Government research funding.

Data availability

The datasets generated and/or analysed during the current study are not publicly available due to maintain the anonymity of the participants, but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The research protocol was reviewed and approved by the University Ethics Committee in Xi'an Jiaotong–Liverpool University (proposal number 18-02-46). The participants provided their informed consent to participate in this study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 11 May 2024 / Accepted: 12 December 2024

Published online: 23 December 2024

References

1. Cheng S. One fifth of China's population elderly aged 60 and above [Internet]. 2024 [cited 2024 Sep 17]. Available from: <http://global.chinadaily.com.cn/a/202409/05/WS66d96d76a3108f29c1fca6a9.html>
2. Institute for Health Metrics and Evaluation. Global Burden of Disease Study 2021 [Internet]. 2024 [cited 2024 Oct 22]. Available from: <https://vizhub.healthdata.org/gbd-results>
3. United Nations. Leaving no one behind in an ageing world. New York, NY: United Nations; 2023. p. 149. (World social report).
4. World Health Organization. 2024 [cited 2024 Oct 22]. China: Country Health Data. Available from: <http://data.who.int/countries/156>
5. Zhai T, Goss J, Dmytraczenko T, Zhang Y, Li J, Chai P. China's Health Expenditure projections to 2035: future trajectory and the estimated impact of reforms. *Health Aff (Millwood)*. 2019;38(5):835–43.
6. Fries JF. The Compression of Morbidity: Near or Far? *Milbank Q*. 1989;67(2):208.
7. Fries JF, Bruce B, Chakravarty E. Compression of Morbidity 1980–2011: a focused review of paradigms and Progress. *J Aging Res*. 2011;2011:1–10.
8. The Lancet. Population ageing in China: crisis or opportunity? *Lancet*. 2022;400(10366):1821.
9. Krings MF, Van Wijngaarden JDH, Yuan S, Huijsman R. China's elder care policies 1994–2020: a narrative document analysis. *Int J Environ Res Public Health*. 2022;19(10):6141.
10. Liu J, Rozelle S, Xu Q, Yu N, Zhou T. Social Engagement and Elderly Health in China: evidence from the China Health and Retirement Longitudinal Survey (CHARLS). *Int J Environ Res Public Health*. 2019;16(2):278.
11. Levasseur M, Richard L, Gauvin L, Raymond É. Inventory and analysis of definitions of social participation found in the aging literature: proposed taxonomy of social activities. *Soc Sci Med*. 2010;71(12):2141–9.
12. World Health Organization. China country assessment report on ageing and health [Internet]. Geneva: World Health Organization. 2015 [cited 2023 Apr 14]. 42 p. Available from: <https://apps.who.int/iris/handle/10665/194271>
13. Bath PA, Deeg D. Social engagement and health outcomes among older people: introduction to a special section. *Eur J Ageing*. 2005;2(1):24–30.
14. Wang Y, Chen Z, Zhou C. Social engagement and physical frailty in later life: does marital status matter? *BMC Geriatr* [Internet]. 2021 Dec [cited 2024 Sep 17];21(1). Available from: <https://bmccgeriatr.biomedcentral.com/articles/https://doi.org/10.1186/s12877-021-02194-x>
15. Fang B, Huang J, Zhao X, Liu H, Chen B, Zhang Q. Concurrent and lagged associations of social participation and frailty among older adults. *Health Soc Care Community* [Internet]. 2022 Nov [cited 2024 Sep 17];30(6). Available from: <https://onlinelibrary.wiley.com/doi/https://doi.org/10.1111/hsc.13888>
16. Gao M, Sa Z, Li Y, Zhang W, Tian D, Zhang S et al. Does social participation reduce the risk of functional disability among older adults in China? A survival analysis using the 2005–2011 waves of the CLHLS data. *BMC Geriatr* [Internet]. 2018 Dec [cited 2024 Sep 17];18(1). Available from: <https://bmccgeriatr.biomedcentral.com/articles/https://doi.org/10.1186/s12877-018-0903-3>
17. Zhang C, Qing N, Zhang S. The Impact of Leisure Activities on the Mental Health of Older Adults: The Mediating Effect of Social Support and Perceived Stress. *Taiar R, editor. J Healthc Eng*. 2021;2021:1–11.
18. Wang G, Hu M, Xiao S, yuan, Zhou L. Loneliness and depression among rural empty-nest elderly adults in Liuyang, China: a cross-sectional study. *BMJ Open*. 2017;7(10):e016091.
19. Zhang D, Lin Z, Chen F, Li S. Reconfiguring Social Disconnectedness and its link to Psychological Well-Being among older adults in Rural China. *J Appl Gerontol*. 2023;42(1):99–110.
20. Zhao L, Wu L. The Association between Social Participation and loneliness of the Chinese older adults over Time—the Mediating Effect of Social Support. *Int J Environ Res Public Health*. 2022;19(2):815.
21. Xiao S, Lin H, Zhao C, Zheng X, Shi L, Zhang J, et al. Impact of different type and frequency of Social Participation on depressive symptoms among older Chinese adults: is there a gender difference? *Front Psychiatry*. 2021;12:758105.
22. Li H, Li C, Wang A, Qi Y, Feng W, Hou C et al. Associations between social and intellectual activities with cognitive trajectories in Chinese middle-aged and older adults: a nationally representative cohort study. *Alzheimers Res Ther* [Internet]. 2020 Dec [cited 2024 Sep 17];12(1). Available from: <https://alzres.biomedcentral.com/articles/https://doi.org/10.1186/s13195-020-00691-6>
23. Fu C, Li Z, Mao Z. Association between Social activities and cognitive function among the Elderly in China: a cross-sectional study. *Int J Environ Res Public Health*. 2018;15(2):231.

24. Chen J, Zeng Y, Fang Y. Effects of social participation patterns and living arrangement on mental health of Chinese older adults: A latent class analysis. *Front Public Health* [Internet]. 2022 Aug 5 [cited 2024 Sep 17];10. Available from: <https://www.frontiersin.org/articles/https://doi.org/10.3389/fpubh.2022.915541/full>
25. Wu F, Sheng Y. Social isolation and health-promoting behaviors among older adults living with different health statuses: a cross-sectional study. *Int J Nurs Sci*. 2021;8(3):304–9.
26. Zhang W, Feng Q, Liu L, Zhen Z. Social Engagement and Health: findings from the 2013 survey of the Shanghai Elderly Life and Opinion. *Int J Aging Hum Dev*. 2015;80(4):332–56.
27. Lu N, Peng C, Jiang N, Lou VWQ. Cognitive Social Capital and formal volunteering among older adults in Urban China: does gender matter? *J Appl Gerontol*. 2020;39(4):404–12.
28. Ye L, Xiao J, Fang Y. Heterogeneous trajectory classes of Social Engagement and Sex differences for older adults in China. *Int J Environ Res Public Health*. 2020;17(22):8322.
29. Ke Y, Jiang J, Chen Y. Social capital and the health of left-behind older adults in rural China: a cross-sectional study. *BMJ Open*. 2019;9(11):e030804.
30. Pan H, Dury S, Duppen D, Lehto V, Wang R, Donder LD. Social Participation in older adults after Relocation to Long-Term Care Institutions in China: a qualitative study. *J Community Health Nurs*. 2020;37(3):164–76.
31. Pan H, Dury S, Duppen D, Wang R, De Donder L. Motivators and barriers to social participation in two Chinese long-term care institutions: a focus-group study. *Geriatr Nur (Lond)*. 2022;44:90–6.
32. Zhang L, Yan T, You L, Gao Y, Li K, Zhang C. Functional activities and social participation after stroke in rural China: a qualitative study of barriers and facilitators. *Clin Rehabil*. 2018;32(2):273–83.
33. Hong Y, Fu J, Kong D, Liu S, Zhong Z, Tan J, et al. Benefits and barriers: a qualitative study on online social participation among widowed older adults in Southwest China. *BMC Geriatr*. 2021;21(1):450.
34. Lim EJ, Noh JH, Kim EY. A study of factors affecting Health-promoting behaviors to Young-Elderly adults in Urban and Rural communities. *Int J Bio-Sci Bio-Technol*. 2015;7(5):367–74.
35. Jones CA, Jhangri GS, Yamamoto SS, Hogan DB, Hanson H, Levasseur M, et al. Social participation of older people in urban and rural areas: Canadian longitudinal study on aging. *BMC Geriatr*. 2023;23(1):439.
36. Torres S. Aging Alone, Gossiping Together: Older Adults' Talk as Social Glue. Warren-Findlow J, editor. *J Gerontol Ser B*. 2019;74(8):1474–82.
37. de Laine M. Fieldwork, participation and practice: ethics and dilemmas in qualitative research. 1. Publ. London: SAGE; 2000. p. 231.
38. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349–57.
39. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101.
40. Braun V, Clarke V. Thematic analysis. In: Cooper H, Camic PM, Long DL, Panter AT, Rindskopf D, Sher KJ, editors. *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* [Internet]. Washington: American Psychological Association; 2012 [cited 2023 Jul 5]. pp. 57–71. Available from: <http://content.apa.org/books/13620-004>
41. Lemon BW, Bengtson VL, Peterson JA. An exploration of the activity theory of aging: activity types and life satisfaction among In-movers to a Retirement Community. *J Gerontol*. 1972;27(4):511–23.
42. Longino CF, Kart CS. Explicating activity theory: a formal replication. *J Gerontol*. 1982;37(6):713–22.
43. Fratiglioni L, Paillard-Borg S, Winblad B. An active and socially integrated lifestyle in late life might protect against dementia. *Lancet Neurol*. 2004;3(6):343–53.
44. Biddle KD, d'Oleire Uquillas F, Jacobs HIL, Zide B, Kirn DR, Rentz DM, et al. Social Engagement and Amyloid- β -Related cognitive decline in cognitively normal older adults. *Am J Geriatr Psychiatry*. 2019;27(11):1247–56.
45. Feng Z, Cramm JM, Jin C, Twisk J, Nieboer AP. The longitudinal relationship between income and social participation among Chinese older people. *SSM - Popul Health*. 2020;11:100636.
46. Zhang Y, Gao Q, Zhai F, Anand P. Income and Health in Predicting older adults' social capabilities in China: the mediating role of Social Engagement. *Soc Indic Res*. 2023;165(1):163–80.
47. Cruwys T, Haslam C, Steffens NK, Haslam SA, Fong P, Lam BCP. Friendships that money can buy: financial security protects health in retirement by enabling social connectedness. *BMC Geriatr*. 2019;19(1):319.
48. Xu A, Xia Y. The changes in mainland Chinese families during the Social Transition: a critical analysis. *J Comp Fam Stud*. 2014;45(1):31–53.
49. Garriga C, Hedlund A, Tang Y, Wang P. Rural-urban migration and house prices in China. *Reg Sci Urban Econ*. 2021;91:103613.
50. Basten S, Jiang Q. Fertility in China: an uncertain future. *Popul Stud*. 2015;69(sup1):S97–105.
51. Du F, Dong X. yuan. Women's Employment and Child Care Choices in Urban China during the Economic Transition. *Econ Dev Cult Change*. 2013;62(1):131–55.
52. Bagnall AM, South J, Di Martino S, Southby K, Pilkington G, Mitchell B, et al. Places, spaces, people and wellbeing: full review. A systematic review of interventions to boost social relations through improvements in community infrastructure (places and spaces). *What Works Wellbeing*; 2018.
53. Song Y, Chen B, Kwan MP. How does urban expansion impact people's exposure to green environments? A comparative study of 290 Chinese cities. *J Clean Prod*. 2020;246(119018).
54. Xie B, An Z, Zheng Y, Li Z. Healthy aging with parks: Association between park accessibility and the health status of older adults in urban China. *Sustain Cities Soc*. 2018;43:476–86.
55. He J, Ren F, Dong J, Zhang H, Yan W, Liu J. Social inequity of park accessibility in Taiyuan: highlighting the unfair layout of parks in second-tier cities of China and the relative role of contributors. *Geo-Spat Inf Sci*. 2022;27(4):1–23.
56. Cai Y. Age-friendly Development in China [Internet]. Lee Li Ming Programme in Ageing Urbanism, Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design.; 2024 [cited 2024 Aug 30]. Available from: https://kycc.sutd.edu.sg/wp-content/uploads/2024/02/Building-an-Age-friendly-China_Cai.pdf
57. Dury S, Stas L, Switers L, Duppen D, Domènech-Abella J, Dierckx E, et al. Gender-related differences in the relationship between social and activity participation and health and subjective well-being in later life. *Soc Sci Med*. 2021;270:113668.
58. Sabbath EL, Matz-Costa C, Rowe JW, Leclerc A, Zins M, Goldberg M, et al. Social predictors of active Life Engagement: a time-use study of young-old French adults. *Res Aging*. 2016;38(8):864–93.
59. Martinez IL, Kim K, Tanner E, Fried LP, Seeman T. Ethnic and class variations in promoting Social activities among older adults. *Act Adapt Aging*. 2009;33(2):96–119.
60. Isherwood LM, King DS, Luszcz MA. Widowhood in the fourth age: support exchange, relationships and social participation. *Ageing Soc*. 2017;37(1):188–212.
61. Ayalon L, Roy S. Combatting ageism in the Western Pacific region. *Lancet Reg Health - West Pac*. 2023;35:100593.
62. Jia J, Ning Y, Chen M, Wang S, Li Y, Yang H. Ending age discrimination and stigma to promote healthy ageing in China. *Lancet*. 2022;400(10367):1907–9.
63. Yao Y, Zhang H, Liu X, Liu X, Chu T, Zeng Y. Bridging the digital divide between old and young people in China: challenges and opportunities. *Lancet Healthy Longev*. 2021;2(3):e125–6.
64. China Internet Network Information Center. The 51st Statistical Report on China's Internet Development. 2023.
65. McCarthy SCNN. 2023 [cited 2023 Oct 27]. China records first population decline in 60 years | CNN Business. Available from: <https://www.cnn.com/2023/01/16/economy/china-population-decline-sixty-years-intl-hnk/index.html>
66. National Bureau of Statistics of China. China Statistical Yearbook 2022 [Internet]. 2022 [cited 2023 Apr 18]. Available from: <http://www.stats.gov.cn/sj/ndsj/2022/indexeh.htm>

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.