

Measuring healthy and suitable housing for older people: A review of international indicators and data sets

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A. Mihnovits, C.E. Nisos. *Measuring healthy and suitable housing for older people: A review of international indicators and data sets. Gerontechnology 2016;15(1):17-24; doi:10.4017/gt.2016.15.1.005.00* Everyone has a right to adequate housing. Housing is vital for shelter, private and personal space, and as a place to bring up a family. The cost and quality of housing can also impact on individuals' income security, health status, intergenerational relations, engagement with others, autonomy and quality of life in general. A number of international frameworks such as WHO Age-Friendly Cities, the Madrid International Plan of Action on Ageing, and the Sustainable Development Goals recognise this right and call for the measurement of accessibility and quality of housing. The following paper reviews internationally proposed indicators for healthy and suitable housing for older people. We examine availability of age-disaggregated data sets for these indicators and make recommendations on how the Global AgeWatch Index can be expanded to include healthy and suitable housing. The potential indicators of access to improved water source and sanitation are disaggregated by age and sex for EU countries only. Additionally, Eurostat offers a greater variety of indicators to capture healthy and suitable housing. There is a need for other national governments and multilateral organisations to report age, sex, and disability-disaggregated data for all countries to ensure progress on human development is measured more accurately and older people are not left behind in the development process.

Keywords: housing, age, older people, measurement, international, data sets

Everyone has a right to adequate housing, regardless of age, sex, background or ability. Housing is vital for shelter, private and personal space, and as a place to bring up a family. The right to adequate housing is a precondition^{1p3} for and interdependent with a number of other human rights: rights to health, to education, to employment, but also to non-discrimination and equality, to freedom of association or freedom from violence, and ultimately to the right to life. In this way, housing is more than 'four walls and a roof'^{1p3} but rather becomes a larger network of physical and social spaces integral to living a safe, dignified and peaceful life⁷, as well as achieving a basic standard of living.

CONTEXT

For older people, housing and opportunities for 'ageing in place' are often connected to dignity, security, autonomy, familiarity and connection to community^{3p49}. Changing capacities may trigger transitions in living arrangements, for example moving from a family home to an assisted care facility, which can undermine an older person's wellbeing and social participation through possibly projecting an identity of dependence on the individual^{3p49}. Benefits of adequate housing for older people include maintained connec-

tions to home and community, increased autonomy, positive mental health, and reductions of injuries^{3p165}.

Heterogeneity amongst people increases with age, and thus what is considered 'healthy and suitable housing' varies by individual and over time, as individual capacities and needs change. Cross-cutting factors such as sex, ability and location, urban or rural, often further distinguish one's individual needs and potential barriers to housing access. The cost and quality of housing can also impact on individuals' income security, health status, intergenerational relations, engagement with others, autonomy and general quality of life. 'What [older people] are actually able to do (their functional ability) will depend on the fit between them and their environments^{3p159}'; thus housing should be considered with a rights-based, life-course approach and contribute to the creation of enabling environments for older people.

Recent increases in population, urbanization and migration have led to new trends which are changing family structures and living arrangements^{3p12} which, coupled with longer life expectancies, leads to increases in lonely living amongst older people. In many places now, old-

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er people are proportionally more likely than in the past to live alone or separately from younger generations^{3p12}. This may reduce access to reciprocal care arrangements or the sharing of goods, such as food or utilities, impacting spending patterns and increasing one's risk of income insecurity and poverty in older age^{3p12}.

This trend highlights changing needs for physical elements of housing to be considered 'adequate' to support healthy and independent living in older age as needs and capacities change over the lifecourse^{3p12}. There are a growing number of creative solutions, including assistive technologies and housing modifications that can make housing more appropriate for older people^{4,5}.

HelpAge International's Global AgeWatch Index (GAWI), first launched in 2013, is the first global index to measure the well-being of older people, using internationally comparable data⁶. The Index aims to contribute to the global debate on ageing by highlighting successes and challenges that countries face when addressing population ageing.

The Index builds on the frameworks of the Human Development Index⁷, the Madrid International Plan of Action on Ageing (MIPAA)⁸, Active Ageing Index, and the findings of the HelpAge International and UN Population Fund (UNFPA) report 'Ageing in the Twenty First Century: A Celebration and A Challenge'⁹. It is a multidimensional measure, made up of four domains, identified as key enablers of well-being for older people: (i) income security, (ii) health status, (iii) employment and education, and (iv) enabling environment. The Index indicators were chosen based on the best available data at the time the Index was developed in 2012. Gaps in international data sets resulted in exclusion of a number of indicators (income of older people, political participation, violence and abuse, etc.) and 97 UN member states missing from the Index.

The development of the next iteration of GAWI for release in 2018 provides an opportunity to consider integration of housing into the Index for a number of reasons.

Housing has a particular significance to older people, as people often spend more time in the home later in life. The Sustainable Development Goal (SDG) 11.1 '[...] access for all to adequate, safe, and affordable housing and basic services and upgrade slums'¹⁰, and the UN Habitat III conference on Housing and Sustainable Urban Development in October 2016¹¹ are advancing international dialogue on housing and data required to measure it. Multiple notable interna-

tional and national indexes (American Association of Retired Persons (AARP) Livability Index¹², Organisation for Economic Cooperation and Development (OECD) Better Life Index¹³, etc.) serve as examples of how various aspects of housing are measured.

Inclusion of housing in GAWI would recognize the relevance of housing to the well-being of older people, respond to the international sustainable development agenda, and contribute to better understanding challenges of later life environmental requirements (minimum standards for assisted living, housing-related gerontechnology, etc.) across countries.

The following paper reviews internationally proposed indicators for healthy and suitable housing with a particular interest in the potential to measure housing for older people. The availability of age-disaggregated data sets for these indicators is examined and recommendations are made on how GAWI can be expanded to include healthy and suitable housing.

FRAMEWORK AND METHODOLOGY

Underpinning this inquiry is the UN Committee on Economic, Social and Cultural Rights' (UN-CESCR) concept of adequate housing due to its universal recognition and credibility, and its formulation through international consensus. Within this framework, 'adequate housing' is to be interpreted broadly to mean the right to live in security, peace and dignity, which includes the 'right to choose one's residence' and entitlement to participation in 'housing-related decision making'^{1p3}. Seven minimum criteria, or domains, are outlined: (i) Security of tenure, (ii) Affordability, (iii) Habitability, (iv) Availability of services, materials, facilities and infrastructure, (v) Accessibility, (vi) Location, and (vii) Cultural adequacy¹⁴. The WHO World Report on Ageing and Health (2015) identifies common threats to adequate housing for older people to be lack of affordability, habitability and access, including overcrowding, limited basic amenities and multiple safety risks^{3p165}.

Each criterion of adequate housing is uniquely important and should not necessarily take precedence over any other element. However due to the breadth of the topic, and desire to discover practically measurable criteria of adequate housing for older people specifically, two initial lines of inquiry directed the search for existing available indicators. First, significant age-based policy frameworks were reviewed for the inclusion of housing indicators used to measure housing criteria for older people. Second, international housing-specific indicators were exam-

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ined, and sex-, age-, and disability-disaggregated data reviewed.

From this two-stage review and examples of best practice, a proposal is put forward for the inclusion of housing in GAWI based on what indicators are currently accessible. Hence, integrating a housing dimension to GAWI is driven mainly by availability of international data sets, which most support adequate housing elements of Habitability, Access to services, Affordability, Security of tenure, and Location.

AVAILABLE INDICATORS

Age-based policy frameworks

A number of international frameworks such as the Madrid International Plan of Action on Ageing (MIPAA) (2002)⁸, WHO Age-Friendly Cities (2007)¹⁵ and the SDGs (2015)¹⁰ recognise the right to adequate housing, with specific attention to older individuals, and call for the measurement of accessibility and quality of housing.

MIPAA is the most recent age-based international action plan, which addresses the housing needs of older people while eliciting commitment from governments around the world. It is a broad plan of action focusing on three priority areas: (i) Older persons and development, (ii) Health and well-being, and (iii) Enabling and supportive environments. Housing is referenced under each priority theme, but particularly as part of 'ensuring enabling and supportive environments'. It calls attention to the notion of 'ageing in place' and the role of age- and ability-friendly housing design in promoting independent living^{8p46,47}.

Guidelines for review and appraisal of MIPAA¹⁶ suggest a number of outcome indicators to measure housing and the living environment. MIPAA housing indicators (*Table 1*) capture three of the seven UN-CESCR criteria: habitability, accessibility, and availability of services, materials, facilities, and infrastructure.

The WHO Age-Friendly Cities framework builds on themes from the WHO Active Ageing¹⁷ policy framework and offers an explicit and detailed guide on housing for older people. The framework aims to provide a universal standard for an 'age-friendly city' and a lens through which to see cities, and housing specifically, through the eyes of older people. The content was generated from consultations with older people in 35 cities around the world to more accurately represent the needs and experiences this population. 'In practical terms, an age-friendly city adapts its structures and services to be accessible to and inclusive of older people'^{15p1}. However, the guide is specifically positioned to be a tool for self-assessment, rather than comparison between cities nationally or internationally.

The Age-Friendly Cities framework provides an 'age-friendly housing checklist'^{15p36,37}, which covers topics that overlap with UN-CESCR's 'adequate housing' elements, including Affordability, Availability of services, living environment (Habitability), housing options (Affordability), design (Accessibility), as well as important additions for older people specifically, such as potential for modifications, maintenance and ageing in [the right^{3p36}] place.

As it is a framework, cities choose if and how to measure housing based on data availability and cultural relevance. Nevertheless, WHO proposed core and supplementary indicators to measure age-friendly housing that cover affordability and accessibility (*Table 2*)^{18p21,31}.

A pilot guide for indicators^{18p42} was also published, mainly outcome- and impact-based to support universal application in measuring age-friendly housing, of which affordability is the only one which relates to the physical structure itself. Additional indicators of physical environment include accessibility of public transport, which is already included in GAWI's 'enabling environment' domain. Limitations of the indicator

or guide are noted to be: level of generality (results in simplification of complex reality), the focus on urban context, the fact that the indicators are derived mainly from high-income countries, and the fact that definitions are not strictly standardized^{18p34}.

The recently-agreed SDGs offer a broad agenda addressing many aspects of contemporary life. The

Table 1: MIPAA housing indicators of priority direction III¹⁶

Objective	Indicators, %
Promotion of 'ageing in place' in the community with due regard to individual preferences and affordable housing options for older persons	- of older people reporting on their housing and living conditions as age adequate - of households with older persons having a toilet, bathing facilities, sewage disposal, solid waste disposal, electric lighting, improved sanitation and safe water
Improvement in housing and environmental design to promote independent living by taking into account the needs of older persons, in particular those with disabilities	- of older persons living on their own with needs requiring and receiving support - of older persons with needs requiring but not receiving support - of older persons receiving mobile/extramural services

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Table 2. WHO Age-Friendly Cities housing indicators⁸

Housing criterion	Indicator, proportion
Affordability	- of older people who live in a household that spends less than 30% of their equalized disposable income on housing
Accessibility	- of new and existing houses that have wheelchair-accessible entrances

Goals aim to be inclusive of all and to 'leave no one behind'¹⁰. Housing is addressed in Goal 6 and Goal 11, which respectively address access to water and sanitation, and access to safe and affordable housing (Table 3).

Target 17.18 calls for '...high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts'¹⁹. Yet unlike indicator 11.2.1 Proportion of the population that has convenient access to public transport, disaggregated by age group, sex and persons with disabilities, the three housing indicators (Table 3) do not mention disaggregation by sex, age and disability. Therefore, the SDGs might not capture progress on healthy and suitable housing across different age groups.

On the other hand, WHO Age-Friendly Cities and MIPAA indicators mention older people. However, currently there are no global data sets that collate data on these indicators. The two frameworks merely provide a recommendation on potential data sources – national household surveys and censuses. There is a clear need for analysis and publication of this data.

Frameworks such as the ones outlined above operate as internationally agreed guidelines, to be implemented at the State level in the manner most fitting the context, and are instrumental in encouraging action to support the rights and well-being of older people. However, their

impact may be limited by their broad scope and non-binding nature, leaving objectives up to State interpretation and issue prioritization, which often means the housing rights of older people specifically are left unsubstantiated²⁰. This draws attention to the possible benefits deriving from including housing in GAWI: the visibility of national governments' progress and international comparison can create an incentive for States to take action. Further, gathering a more nuanced understanding of housing realities for older people around the world may illuminate ways to harmonize action among frameworks, which overlap on many priority issues and themes.

Housing indicators

The following section provides an overview of internationally proposed indicators of healthy and suitable housing. The overview is not exhaustive. It aims to highlight a few indicators that capture minimum criteria for adequate housing based on the UN-CESCR framework. The outcomes indicators are proposed by UN-OHCHR²¹. Furthermore, where possible, examples are given of internationally comparable age-disaggregated data to measure these indicators.

Habitability

Adequate housing should be habitable: 'guarantee physical safety or provide adequate space, as well as protection against the cold, damp, heat, rain, wind other threats to health and structural hazards'¹⁹. There are a number of proposed indicators such as Proportion of population with sufficient living space, Households living in permanent structure in compliance with building codes and by-laws, and Population living in or near hazardous conditions²¹.

The United Nations Statistical Division (UNSD) publishes data on Population by type of living quarters, age and sex²². The data set measures the number of people living in housing units, collective living quarters, roofless, or unknown residence. The data is disaggregated by sex, age (five-year age cohorts 60-64, ..., 80-84, 85+) and covers most countries in the world. Data is collated from national censuses and the year of observations varies by country.

Affordability

The second criterion of adequate housing is affordability. The cost should not threaten or compromise individuals' other human rights¹⁹. The indicators

Table 3. Housing targets and indicators of the Sustainable Development Goals¹⁰

Target		Indicator	
#	Description	#	Description
6.1	Achieve universal and equitable access to safe and affordable drinking water for all	6.1.1	% of population using safely managed drinking water services
6.2	Achieve access to adequate and equitable sanitation and hygiene for all	6.2.1	% of population using safely managed sanitation services, including a hand-washing facility with soap and water
11.1	Ensure access for all to adequate, safe, and affordable housing and basic services and upgrade slums	11.1.1	Proportion of urban population living in slums, informal settlements or inadequate housing

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proposed by UN-OHCHR are Proportion of households spending more than x percentage of their monthly income or expenditure on housing and Annual average number of homeless persons per 100,000 population²¹. At the time of the publication of this article there was no internationally comparable data for these indicators. An alternative indicator could be Percentage of people who said that in the past 12 months they did not have enough money to provide adequate shelter or housing for them and their family. This data is published annually by Gallup and is disaggregated either by sex or age (12-29, 30-49, 50+)²³.

Access to Services

Adequate housing requires access to safe drinking water, adequate sanitation, energy for cooking, heating, lighting, food storage or refuse disposal^{1p4}. UN-OHCHR indicators that measure this domain are Proportion of population using improved drinking water source, sanitation facility, electricity and garbage disposal. An additional indicator is Proportion of household budget of target population groups spent on water supply, sanitation, electricity and garbage disposal. The former indicators closely correspond to indicators 7.8 and 7.9 of the Millennium Development Goal (MDG) 7, Proportion of population using an improved water source and Proportion of population using an improved sanitation facility²⁴. The data for these indicators is readily available from the World Health Organization and the World Bank^{25,26}. The data is disaggregated by rural and urban residence but is not disaggregated by age. The use of these indicators in GAWI would be based on the assumption that various age cohorts have the same level of access to services, infrastructure, etc. This might not be the case.

Security of tenure

Adequate housing should have secure tenure that guarantees legal protection against forced eviction, harassment and other threats^{1p4}. Indicators that capture this are Reported cases of 'forced evictions', Proportion of households with legally enforceable, contractual, statutory or other protection providing security of tenure, and Proportion of women with titles to land or property²¹. UNSD reports data on Households in housing units by type of housing unit, tenure of household and urban/rural resident²⁷. The data is not disaggregated by age and sex of the head of household, even though it is based on census and such disaggregation is generally possible. Additionally, the year of the observations varies by country.

Accessibility

Housing cannot be considered adequate if disadvantaged and marginalized groups have diffi-

culty in accessing it^{1p4}. OHCHR does not have a list of proposed indicators to measure this criterion. The AARP Livability Index is an example of how it can be measured by Percentage of housing units with extra-wide doors or hallways, Percentage of housing units with floors with no steps between rooms, and Percentage of housing units with an entry-level bedroom and bathroom²⁸. The Livability Index uses data collected through the American Housing Survey. Further data scoping is required to identify other national housing surveys that collect similar information. At the international level, this data is currently not available.

Location

Adequate housing should not be cut off from employment opportunities, healthcare services, schools, childcare centres and other social facilities, or located in polluted or dangerous areas^{1p4}. One currently available indicator for this dimension is Percentage of people who feel safe walking alone at night in the city or area where they live²³. This data is published annually by Gallup and disaggregated either by sex or age (12-29, 30-49, 50+).

Cultural Adequacy

Another criterion of adequate housing is that it should respect and take into account the expression of cultural identity^{1p4}. This article is not able to look at this dimension due to the need for more research on this area.

BEST PRACTICE ON MEASUREMENT

Eurostat

Eurostat is an example of a data set fit for purpose²⁹. It covers 5 of 7 UN-CESCR adequate housing criteria: Habitability, Affordability, Access to services, Tenure, and Location. It offers a rich variety of 18 indicators that are disaggregated by sex, age and often by poverty status. The data set is annually updated and covers 28 EU and 6 non-EU countries. One of the limitations is lack of disaggregation by disability. Overall, Eurostat represents a good model of data collection, analysis and dissemination. *Table 4* presents Eurostat indicators by adequate housing criteria and levels of data disaggregation.

AARP Livability Index

The AARP Livability Index is a tool to measure 'community livability', made up of seven categories including housing. It is meant to be a comparative index between cities or neighbourhoods in the USA which encourages action by citizens and policy-makers¹². It is an example of best practice along several dimensions. First, it captures several criteria of 'adequate housing' including Habitability, Accessibility, Affordability

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Table 4. Eurostat indicators by adequate housing criteria and level of data disaggregation³²

Indicator title	Indicator code, ilc_...	Disaggregation					Type of tenure
		Sex	Age	Poverty status	Level of financial burden		
HABITABILITY							
Share of total population considering their dwelling as too dark	mdho04	Yes	Yes	Yes	-	-	
Share of total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor	mdho01	Yes	Yes	Yes	-	-	
Average number of rooms per person by type of household and income group	lvho04	No	Yes	Yes	-	-	
Overcrowding rate, by age, sex and poverty status	lvho05a	Yes	Yes	Yes	-	-	
Severe housing deprivation rate by age, sex and poverty status	mdho06a	Yes	Yes	Yes	-	-	
AFFORDABILITY							
Share of household costs in disposable household income, by type of household and income group	mded01	No	Yes	Yes	No	-	
Share of rent related to occupied dwelling in disposable household income, by type of household and income group	mded02	No	Yes	Yes	No	-	
Total housing costs	mded03	No	Yes	Yes	No	-	
Financial burden of the total housing costs	mded04	No	Yes	Yes	Yes	-	
Financial burden of the repayment of debts from hire purchases or loans	mded05	No	Yes	Yes	Yes	-	
Housing cost overburden rate by age, sex and poverty status	lvho07a	Yes	Yes	Yes	No	-	
Inability to keep home adequately warm	mdes01	No	Yes	Yes	No	-	
Arrears (mortgage or rent, utility bills or hire purchase)	mdes05	No	Yes	Yes	No	-	
AVAILABILITY OF SERVICES, MATERIALS, FACILITIES AND INFRASTRUCTURE							
Share of total population having neither bath, nor a shower, nor indoor flushing toilet in their household	mdho05	Yes	Yes	Yes	-	-	
SECURITY OF TENURE							
Distribution of population by tenure status, type of household and income group	lvho02	No	Yes	Yes	-	Yes	
LOCATION							
Noise from neighbours or from the street	mddw01	No	Yes	Yes	-	-	
Pollution, grime or other environmental problems	mddw02	No	Yes	Yes	-	-	
Crime, violence, or vandalism in the area	mddw03	No	Yes	Yes	-	-	

and Access to services such as water and internet. Methodologically it is strong - data derives from the national census and thus can be disaggregated by age, sex and location down to postal code. Due to mounting evidence that one's postal code is a strong determinant of health³⁰, this level of disaggregation can offer a nuanced understanding of individual realities, the ways different aspects of life are interconnected and how housing can be an indication of inequalities.

The AARP Livability Index also takes a progressive, holistic approach to understanding community dynamics in terms of time and intergenerational inclusivity. Chosen metrics capture 'current' livability, while concurrent evaluation of policy measures 'future' livability; more of

a longitudinal view. The combination rewards both immediate and long-term planning strategies, incentivizing policy-makers to be forward-thinking. While AARP is an organization primarily dedicated to older people, the Index scores communities higher that have 'diverse features that help people of all ages, incomes, and abilities - not just older Americans'. This intergenerational approach is in line with the notion that the 'younger people of today are the older people of tomorrow', and this life-course approach supports longer-term community livability¹².

INCLUDING HOUSING IN GAWI

The top-line review of indicators and international data sets shows that age-friendly healthy and suitable housing can be captured by five of

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seven UN-CESCR criteria: Habitability, Access to services, Affordability, Security of tenure, and Location. These domains can be measured by seven indicators:

- (i) Population by type of living quarters,
- (ii) Percentage of people who did not have enough money to provide adequate shelter or housing for them and their family,
- (iii) Population with access to improved water source,
- (iv) Population with access to improved sanitation facilities,
- (v) Population with access to electricity,
- (vi) Households in housing units by type of tenure, and
- (vii) Percentage of people who feel safe in the area where they live.

Three of seven data sets are disaggregated by age: Population by type of living quarters, Percentage of people who did not have enough money to provide adequate shelter or housing for them and their family, and Percentage of people who feel safe in the area where they live. Only one data set is disaggregated by sex and age: Population by type of living quarters. None of the data sets are disaggregated by disability.

The data is available for the majority of countries in the world. This means that currently it is possible to include a minimum set of indicators for healthy and suitable housing in GAWI. The next iteration of the Index should build on the strength of the AARP Livability Index by capturing time and intergenerational inclusivity, and diverse groups (sex and disability).

CONCLUSION AND FUTURE DATA

Currently there are a number of age-based international frameworks (MIPAA, WHO Age-Friendly Cities, SDGs) that recognize the importance of adequate housing for older people. However multilateral organizations do not collect and report age-, sex-, and disability-disaggregated data for all indicators of the respective frameworks.

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UN-OHCHR proposes a number of indicators to measure adequate housing for everyone. The brief data scoping exercise has shown that at present international data sets publish data on seven indicators covering five of seven UN-CESCR adequate housing criteria. Only three of seven data sets are disaggregated by age. Due to time and resource limitations the authors focused on readily available data published by the UN system and Eurostat. However, other mechanisms such as national censuses and surveys, and the Demographic and Health Surveys to a various degree collect data on dwelling type and available facilities. A next step should be an in-depth review of existing data on healthy and suitable housing.

This means that a minimum set of healthy and suitable housing indicators can be included in GAWI. However, there is a need for national governments and multilateral institutions to improve reporting of existing data on older people by disaggregating by sex and disability for all countries to ensure progress on human development is measured more accurately and vulnerable groups are not left behind. Data that distinguishes rural and urban dwellers would also be useful to better understand the impact of urbanization. Additionally, evidence gaps should be filled through collection of data on housing accessibility and research into measurement of cultural adequacy. Eurostat data set and the AARP Livability Index are examples of best practice on how data on adequate housing can be collected, presented and used to measure age-friendly housing.

More broadly, citizens, architects, planners and policy-makers should move towards inclusive, universal housing design that is 'capable of harnessing innovations in housing' to accommodate needs throughout the life-cycle, as well as being energy efficient^{3p169}. These relatively small and cost-effective actions^{3p166} can positively impact the lives of older people, supporting them to be active participants in society.

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