

SESSION 5: URBAN MENTAL HEALTH/SUPPORTIVE ENVIRONMENT

**Design
& Health**
International Academy for Design and Health

Milano, Italy 11-14 April 2024

Design & Health

13TH WORLD CONGRESS & EXHIBITION

REVITALIZING HEALTH BY SALUTOGENIC DESIGN

Healthy environment | Healthy people

Supporting Healthy Aging Community: Design and the Health Impact

Tianzhi Sun, Stefano Capolongo

Politecnico di Milano



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DIPARTIMENTO DI ARCHITETTURA,
INGEGNERIA DELLE COSTRUZIONI
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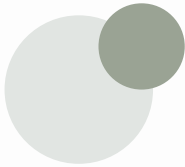
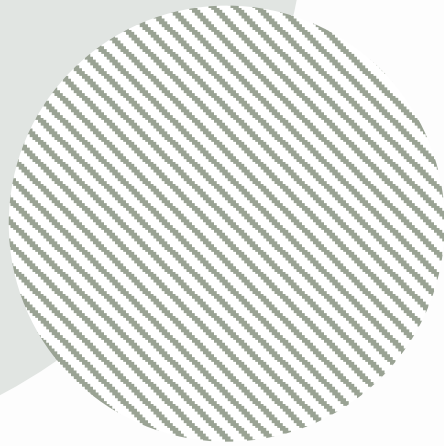
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OPERATIVO

CONTENT



Part 01 Background

Part 02 Method

Part 03 Results



Part 01

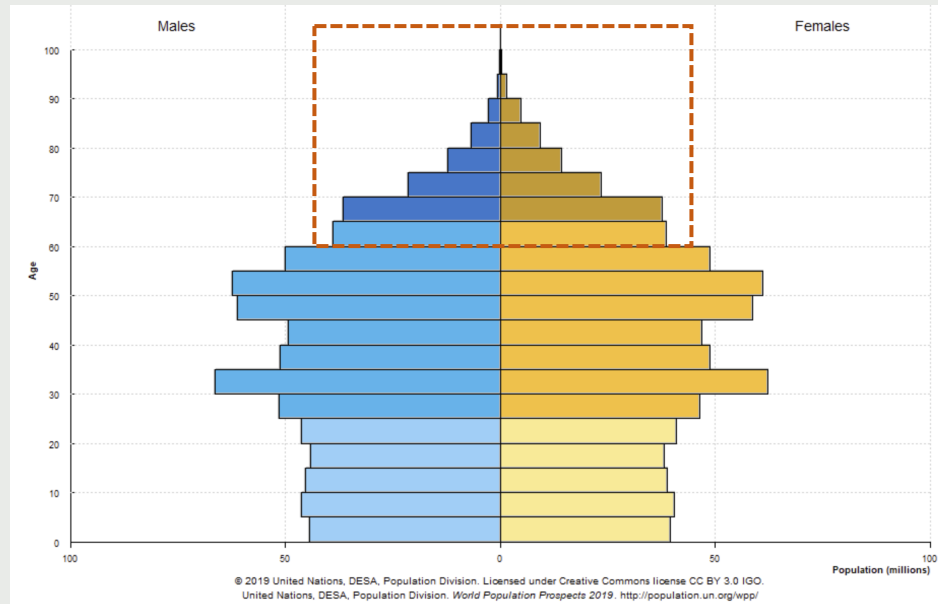
BACKGROUND



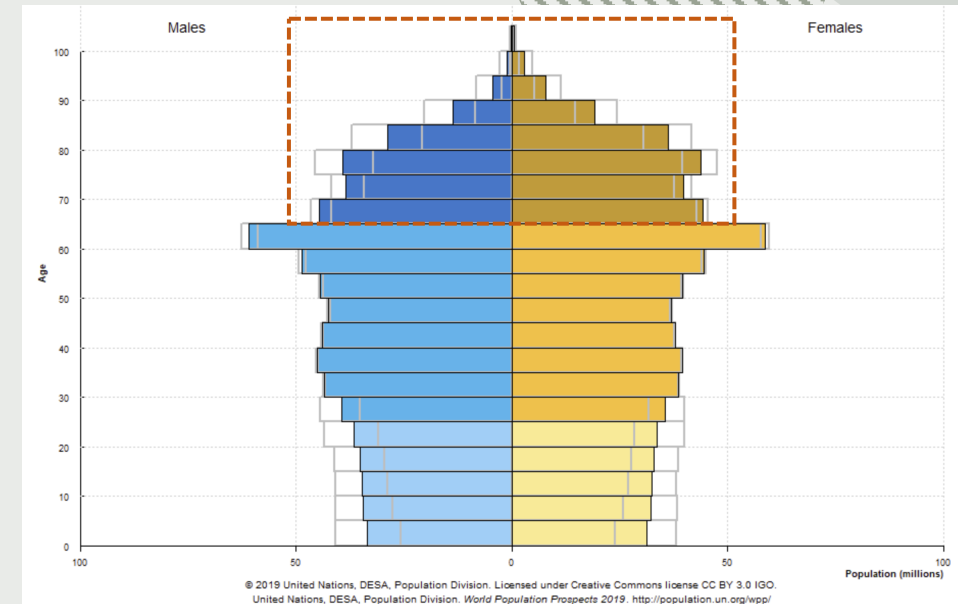
Background-Why elderly?



Increasing aged population



China's population structure in 2020 (United Nations World Population Prospects, 2019)



China's population structure in 2050 (United Nations World Population Prospects, 2019)

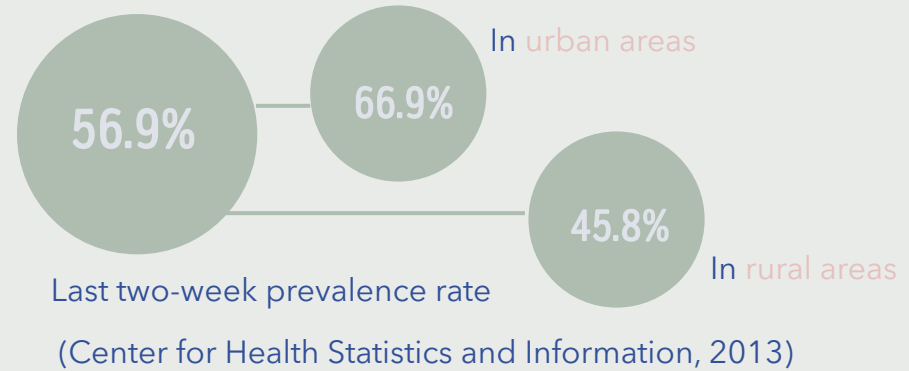
According to United Nations World Population Prospects 2019, the population of 65+ people of China is 172.3 million, and this number will arrive to 365.6 million in 2050 (United Nations World Population Prospects, 2019)

Background-Why healthy aging?

Percentage of chronic diseases



Prevalence rate



Mental and social health



Loneliness 24.78%
(Dong, 2017)



Depression

After COVID-19



Significantly increased since COVID-19
(S.Y. Shan Wong, et al, 2020)

Health needs



According to a nationwide requirement survey in 2019, health care services for senior citizens in China are considered the most important (Xiang et al, 2019)

Background-Why community?

Cultural and social aspects

The prefer aging way of Chinese elderly - Ageing in place



Family values and a deep-rooted sense of filial piety from traditional Confucianism



Living with familiar surroundings to keep a sense of belonging and emotional well-being



Social connections and community bonds



Background-Why community?



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Political aspect

Promoting aging in place

Ensure land for the **construction of community comprehensive service facilities** and give priority to **community elderly care**.



The 14th Five-Year Plan for Urban and Rural Community Service System Construction Plan (2021)

Integrate the concept of **active aging** and **healthy aging** into the entire process of economic and social development...develop **community elderly care services** and improve **community elderly care service facilities**...



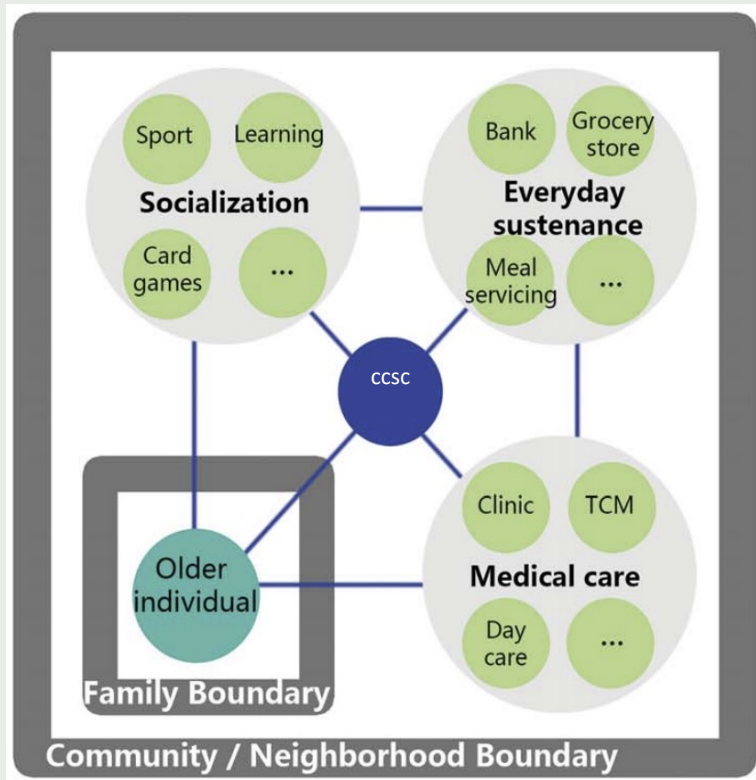
The 14th Five-Year Plan for National Aging Development and Elderly Care Service System Planning (2021)

Background-Why community?

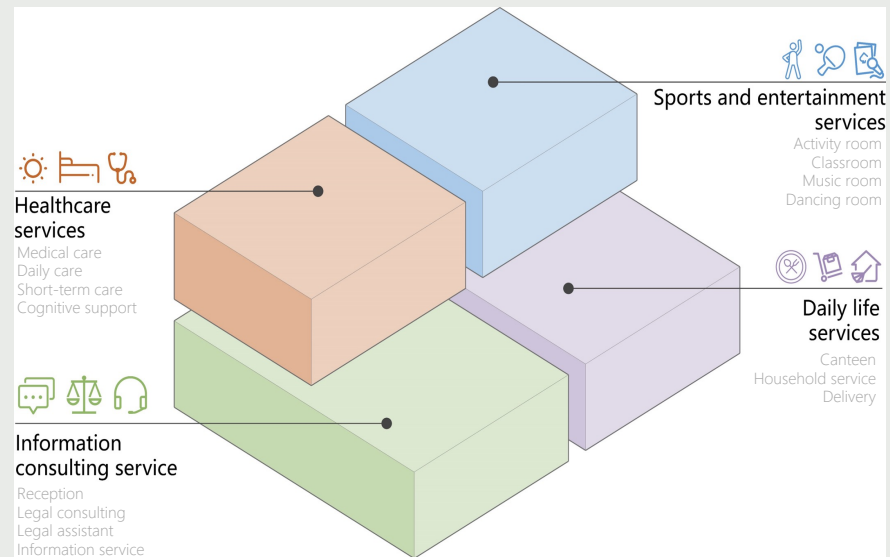
Practical aspect

Community Care and Service Center

The role of CCSC (Ma et al., 2021)



Functional elements



Target group of CCSC



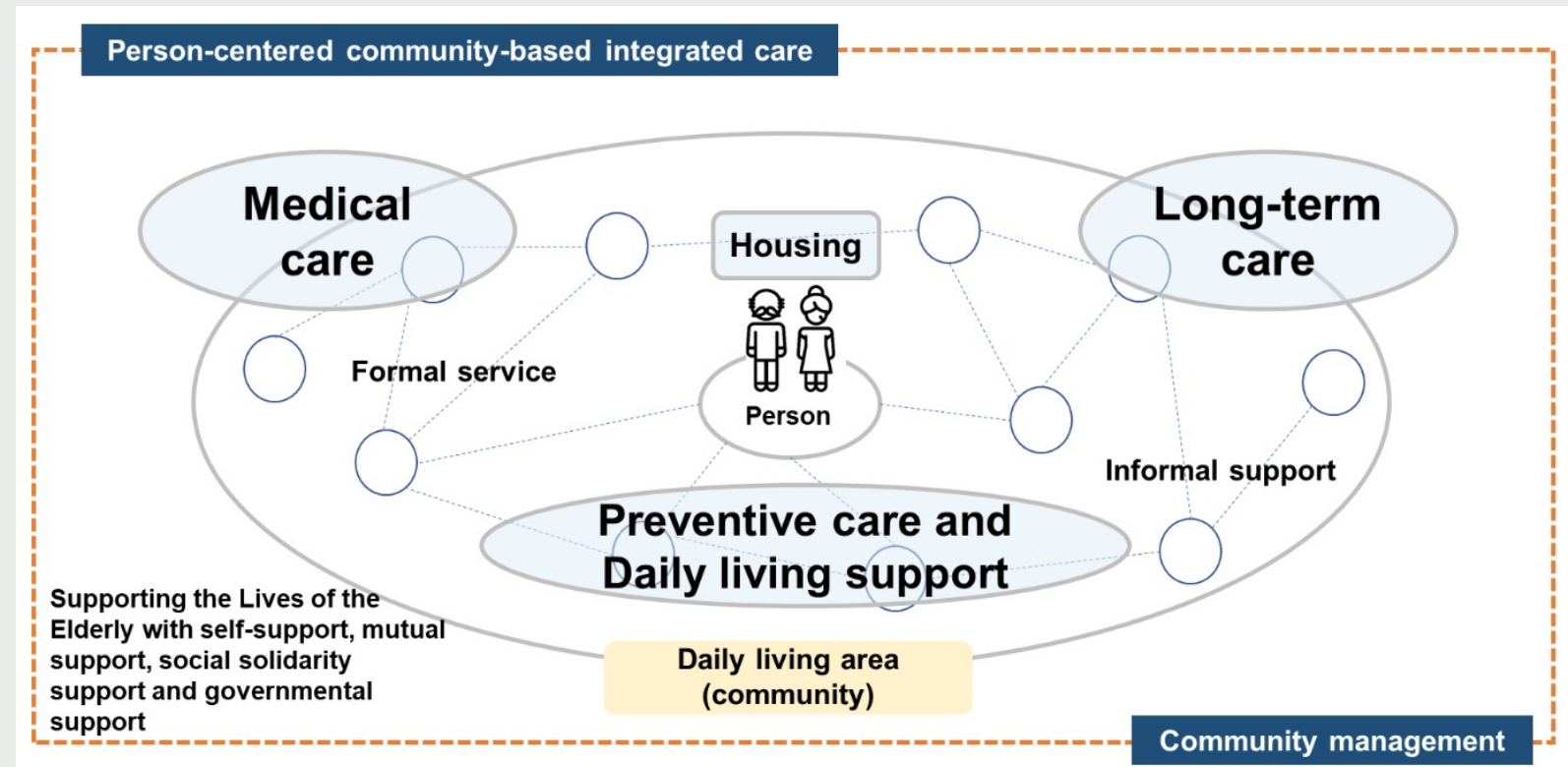
Cases



Background-Community Care

Japan – Community-based Integrated Care System

“A system providing **integrated support and services** in the community to **maintain the dignity of elderly people** and **support their independence**, so that they can **continue to live**, to the **extent possible**, in their own way in the communities to which they are **accustomed** to the end of their lives.”



Japan's Community-based Integrated Care System



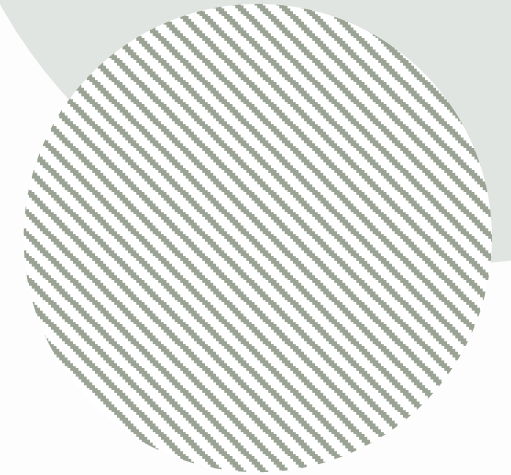
Background-Research question



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How to design **Community Care Facilities** from health aspect to support the people who **aging in community?**





Part 02

METHOD





How? - Methods



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Literature review

①

2 Database (WoS, Scopus)

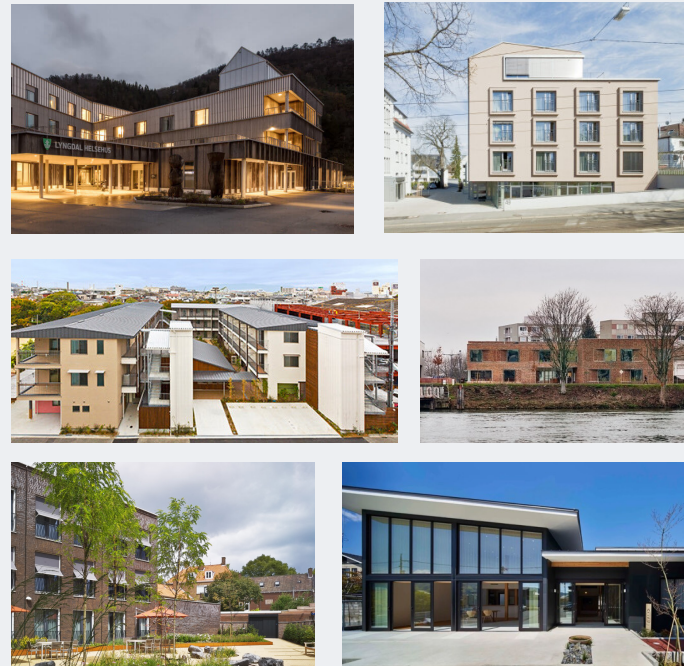
Grey literature



8 Domains of healthy aging

International case studies

②



Chinese cases + interviews

③



Literature review

1

2 Database

Grey literature

Outcomes:



8 Domains of healthy aging

Search strategy

Search Topic	Search Terms
Healthcare facilities	"Healthcare buildings" OR "Care homes" OR "Nursing homes" OR "Long-term care" OR "aged-care facilities"
Built environment	"Environment design" OR "Facility design" OR "Architectural design" OR "Building design" OR "Physical environment"
Health	"Well-being" OR "Quality of life" OR "Depression" OR "Fall" or "Sense of home" OR "Sense of belonging" OR "Activity" OR "Infection" OR "Behavior" OR "Satisfaction" OR "Social interaction"
Community	"Neighborhood" OR "Surroundings"

Inclusion and exclusion criteria

Inclusion: (1) written in the English language; (2) reporting quantitative or qualitative associations between the built environment and older adults in community care buildings ; (3) research focus on the health impact of the older adults.

Exclusion: Articles that exclusively pertained to medical or biological matters

Data extraction

Descriptive data (4)

Research objectives (5)

Author	Title	Year	Source Title	Type of research	Type of building	Design variables	Health-related outcomes	Group
Alvaro, C.; Wilkinson, A.J.; et al.	Evaluating Intention and Effect: The Impact of Healthcare Facility Design on Patient and Staff Well-Being	2016	Health Environments Research and Design Journal	A pretest-posttest quasi experiment	hospital: continuing care and rehabilitation facility	The design intentions of the new hospital were to "enhance the connection to the community, nature and the city, to enhance social interaction, and to inspire activity". The design features includes communal dining spaces on each floor, public spaces at grade with amenities (e.g., cafeteria, auditorium, and urban porch), as well as multiple outdoor terraces, including a rooftop terrace with views to the city skyline, the lake, the community, and green space.	Psychosocial well-being: perceptions of improvement in mental health, self-efficacy in mobility(patients), satisfaction, and interprofessional interactions (staff)	Patient and staff

Methods

International case studies

2



Data collection

Data sources

Web pages

Reports

Literature



Site plan



Layout



Photos



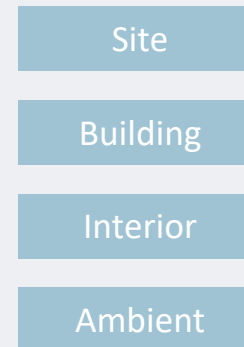
Texts

Analysis

Healthy ageing model



Design elements



Methods

International case studies

2



Data collection

Data sources

Web pages

Reports

Literature



Site plan



Layout



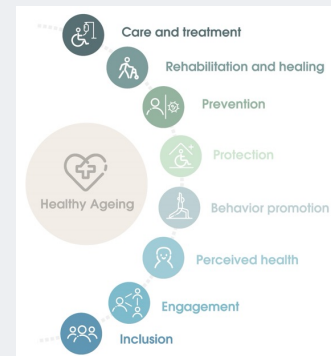
Photos



Texts

Analysis

Healthy ageing model



Design elements



Methods

Chinese cases + interviews

3



Selection



Exclusion criteria

- Not permit for investigation
- Not open to public
- Poor maintenance



Inclusion criteria

- Running well / 6+ month
- Well link to the community
- Well maintained
- Accept visiting / interviews

Data collection

Observation

Interviews

followed by the on-site observation

Documents

Internet, flyers and the staffs



Site plan



Layout



Photos



Texts

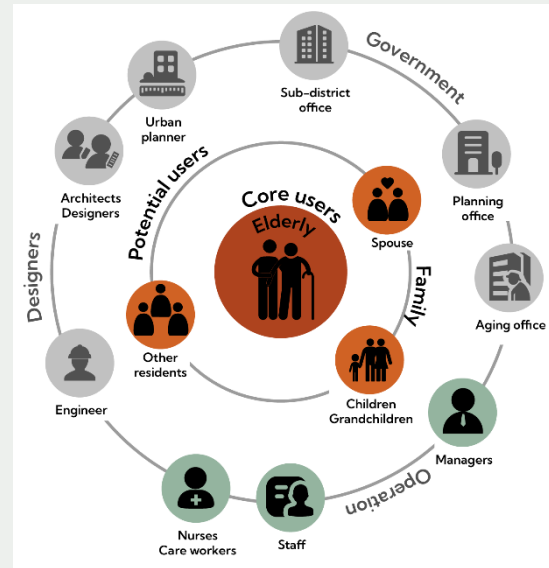
Methods

Chinese cases + interviews

3



Interviews



The role of interviewees

The interview is followed by the on-site observation.

Informally or semi-structured interviews

Topic

Information of the facility

Using experience

Opinions of healthy ageing

The design support healthy ageing



Part 03

RESULTS

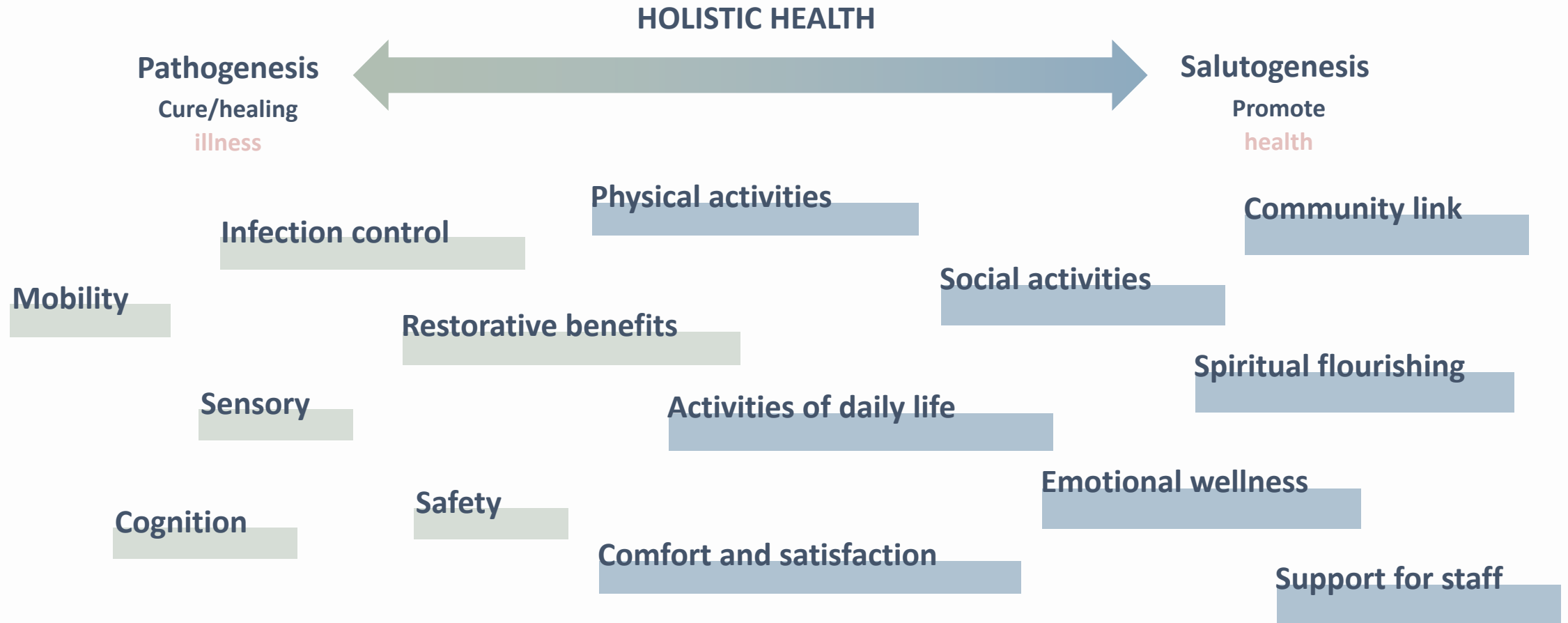




Keyword of Health-related Outcomes



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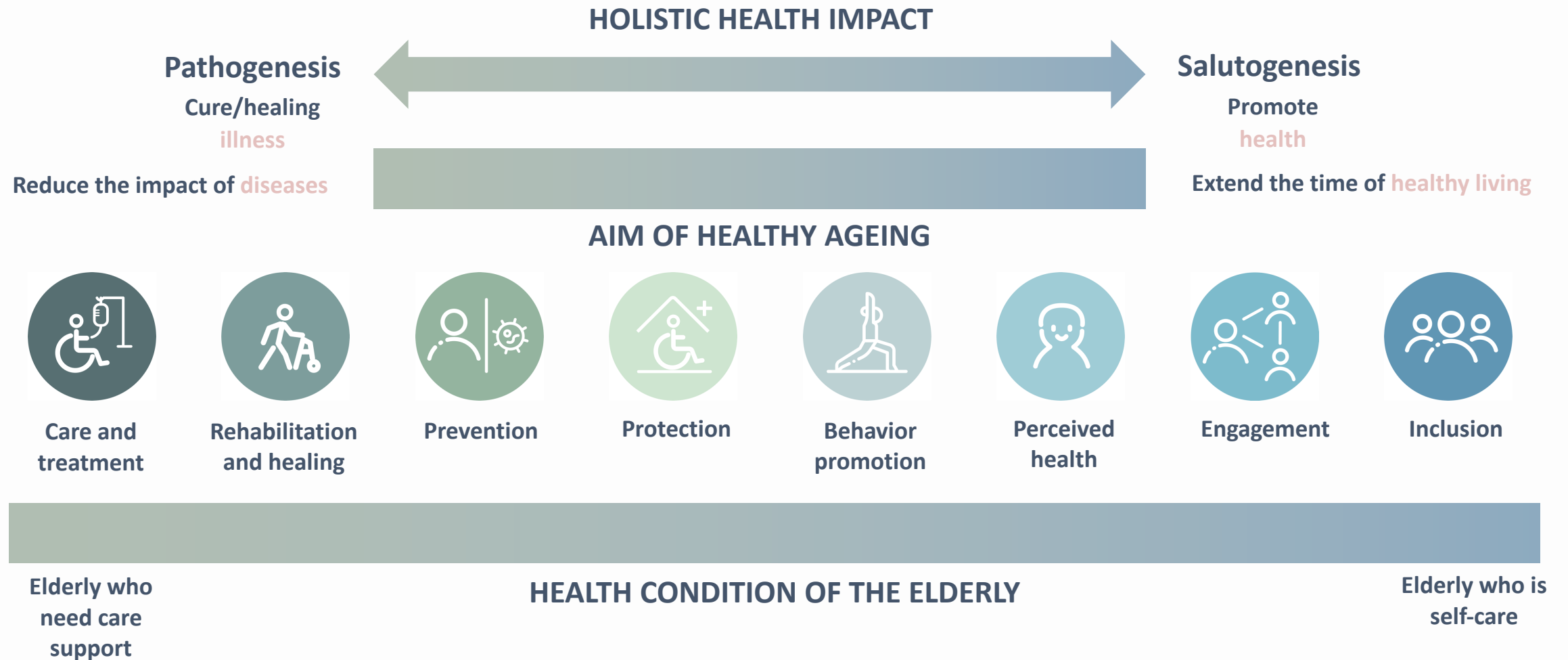




Definition of Healthy Aging

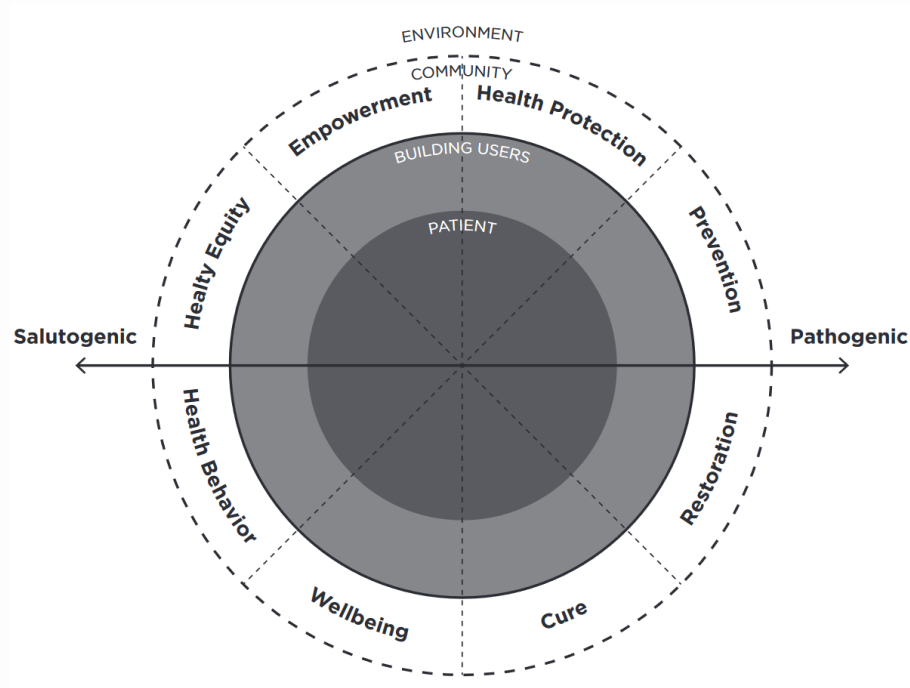


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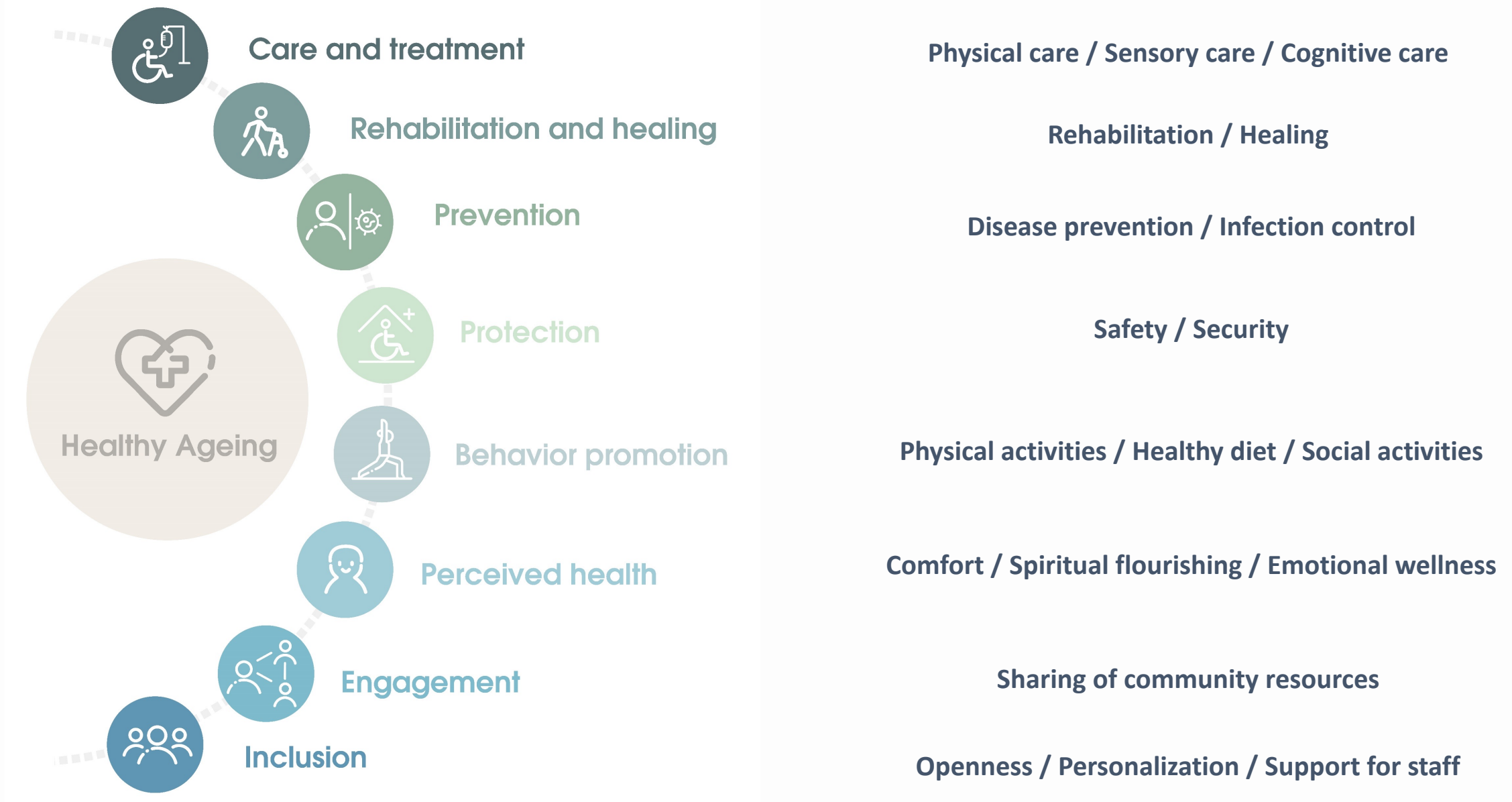
A Healthy Ageing Model in Community



Multiple dimensions of **health promotion**
(Miedema E., 2020)



A Healthy Ageing Model in Community





A Healthy Ageing in Community



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Domains	Aspects	Description
Care and treatment	Physical	Creating a supportive environment through providing opportunity for movement and utilizing assistive technology.
	Sensory	Providing an environment that improving visual perception and support hearing decline.
	Cognitive	Creating an environment that supporting orientation, wayfinding, and memory.
Rehabilitation and healing	Rehabilitation	Providing a range of specialized services and therapies designed to help older adults regain or improve their physical abilities.
	Healing	Providing a healing environment to help older adults promote psychological and emotional well-being.
Prevention	Disease prevention	Limiting pathogenic factors such as smoking and alcohol consumption to prevent or reduce the disease risk in the facility.
Protection	Infection control	Preventing the spread of infectious diseases within the facility.
	Safety	Providing an environment that protects users from harm, danger, risk, or injury.
Health behavior promotion	Security	Creating a security environment that prevents or mitigates security breaches and protects assets and individuals from intentional harm.
	Physical activities	Creating an environment that supports physical activities like walking and exercise regardless indoor or outdoor.
	Healthy diet	Creating an environment that supports and promotes proper nutrition and dietary well-being for elderly residents.

Perceived health	Social activities	Designing and organizing the physical spaces to facilitate and encourage social interaction.
	Comfort	Creating an environment that makes users feel a sense of ease and contentment.
	Spiritual flourishing	Creating an environment that recognizes and supports the spiritual well-being.
Engagement	Emotional wellness	Supporting a person's ability to effectively manage and express their emotions, experience positive feelings, and cope with stress and challenges.
	Sharing of community resources	Providing with the opportunity to convenient access to community resources in the facility.
Inclusion	Co-organization of activities	Providing spaces that support users involved in the process of organize and participating in meaningful activities.
	Openness	Opening the public spaces in the facility, except for private residential spaces, to promote communication between the elderly and the other community residents.
	Personalization	Customizing and tailoring the living spaces, amenities, and care services to meet the unique needs, preferences, and individuality of each resident.
	Support for staff	Creating a work environment that assists and enhances the well-being and effectiveness of the caregiving and administrative staff who work in the facility.

Description of Healthy ageing model

Case Studies

Cases analysis

Healthy ageing model as a review tool



Health-related domains		1	2	3	4	5	6	7
Group of users		+	+	+	+	+	+	+
		+	?	?	?	+	+	+
		+	?	?	?	+	+	+
Care and treatment	Physical	+	+	?	+	+	+	+
	Sensory	+	?	?	?	+	?	+
	Cognitive	+	?	?	?	+	+	+

Presence of feature
 Mild presence of feature
 Lack of information



Health-related domains		1	2	3	4	5	6	7
Group of users		+	+	+	+	+	+	+
		+	?	?	?	+	+	+
		+	?	?	?	+	+	+
Care and treatment	Physical	+	+	?	+	+	+	+
	Sensory	+	?	?	?	+	?	+
	Cognitive	+	?	?	?	+	+	+
Rehabilitation and healing	Rehabilitation	+	?	?	?	?	?	+
	Healing	+	+	+	+	+	+	+
Prevention	Disease prevention	+	?	?	?	?	?	+
	Infection control	?	?	?	?	+	+	+
Protection	Safety	+	+	+	+	+	+	+
	Security	+	+	?	?	?	?	+
Health behavior promotion	Physical activities	+	+	?	+	+	+	+
	Healthy diet	?	+	?	?	+	+	+
	Social interaction	+	+	+	+	+	+	+
Perceived health	Comfort	+	+	+	+	+	+	+
	Spiritual flourishing	?	?	?	?	?	+	+
	Emotional wellness	?	+	?	+	+	?	+
Engagement	Sharing of community resources	+	+	+	?	+	?	+
	Co-construction of projects*	+	+	?	?	?	+	?
	Co-organization of social activities*	?	+	?	?	+	?	+
Inclusion	Openness	+	+	+	+	+	?	+
	Privacy*	+	+	?	?	+	+	+
	Personalization	?	+	?	+	+	+	+
	Intergenerational interaction*	?	+	?	?	+	?	+
	Support for staff	?	?	+	?	?	+	?
Support for family caregiver*	?	?	?	?	?	?	+	

Presence of feature
 Mild presence of feature
 Lack of information

Supplement from Case studies



Physical care / Sensory care / Cognitive care

Rehabilitation / Healing

Disease prevention / Infection control

Safety / Security

Physical activities / Healthy diet / Social activities

Comfort / Spiritual flourishing / Emotional wellness

Sharing of community resources / Co-construction of projects / Co-organization of social activities

Openness / Privacy / Personalization / Intergenerational interaction / Support for staff / Support for family

Healthy Aging in Community



Care and
treatment



Rehabilitation
and healing



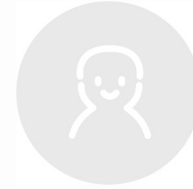
Prevention



Protection



Behavior
promotion



Perceived
health



Engagement



Inclusion

Physical care

Cognitive care

Sensory care



Physical
support



Physical
support



Traditional-Chinese Medical



Healthy Aging in Community



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Care and
treatment



**Rehabilitation
and healing**



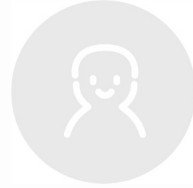
Prevention



Protection



Behavior
promotion



Perceived
health



Engagement



Inclusion

Rehabilitation

Healing





Healthy Aging in Community



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Care and
treatment



Rehabilitation
and healing



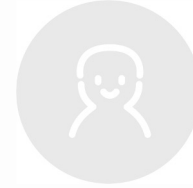
Prevention



Protection



Behavior
promotion



Perceived
health



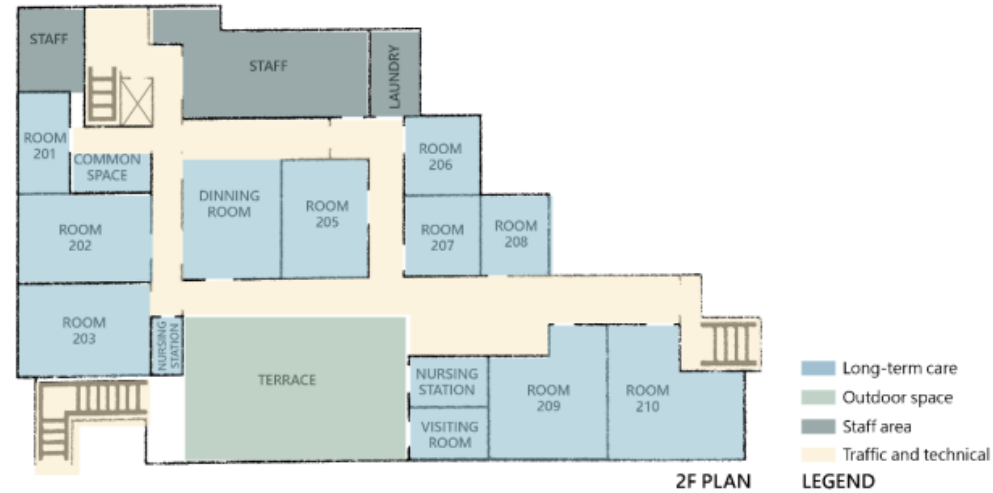
Engagement



Inclusion

Disease prevention

Infection control





Healthy Aging in Community



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Care and
treatment



Rehabilitation
and healing



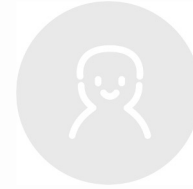
Prevention



Protection



Behavior
promotion



Perceived
health



Engagement



Inclusion

Safety



Anti-slip

Security

Access
control



Emergency calling



Healthy Aging in Community



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Care and
treatment



Rehabilitation
and healing



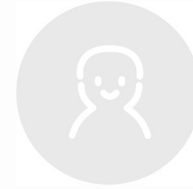
Prevention



Protection



Behavior
promotion



Perceived
health



Engagement

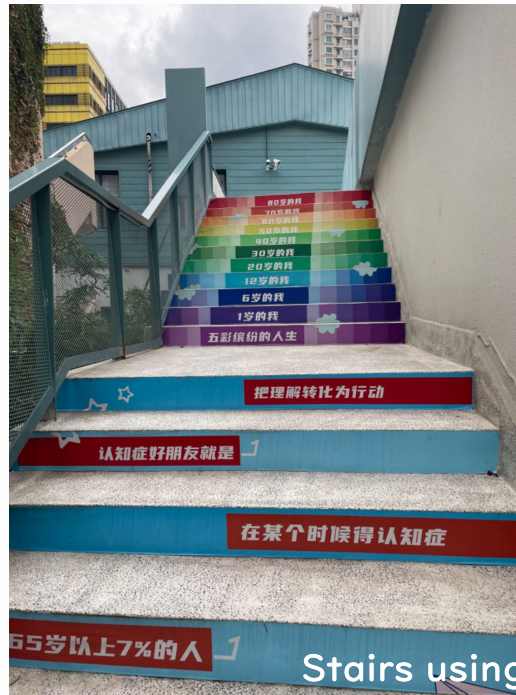


Inclusion

Physical activities

Healthy diet

Social activities





Healthy Aging in Community



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Care and
treatment



Rehabilitation
and healing



Prevention



Protection



Behavior
promotion



**Perceived
health**



Engagement



Inclusion

Comfort

Spiritual flourishing

Emotional wellness



Tea room



Healthy Aging in Community



Care and
treatment



Rehabilitation
and healing



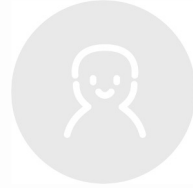
Prevention



Protection



Behavior
promotion



Perceived
health



Engagement



Inclusion

Sharing of community resources

Co-construction of projects

Co-organization of social activities





Healthy Aging in Community



Care and
treatment



Rehabilitation
and healing



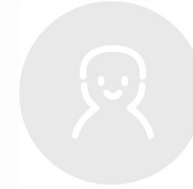
Prevention



Protection



Behavior
promotion



Perceived
health



Engagement



Inclusion

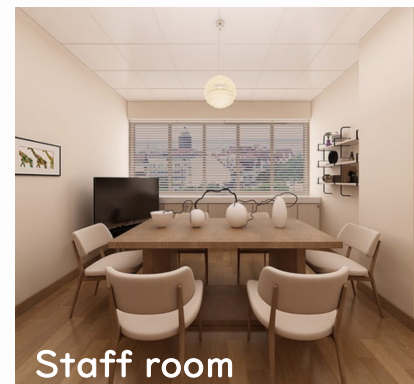
Openness and privacy

Personalization

Intergenerational interaction

Support for staff

Support for family



Staff room



Community library

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Healthy environment | Healthy people

Thank you!

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