



Relationships of Perceived Neighbourhood Built Environment and Walking for Different Purposes in Hong Kong Older Adults

Cerin E, Sit C and Macfarlane DJ – Institute of Human Performance
Ho SY and Johnston JM – School of Public Health
Chow KL – Sau Po Centre on Aging
Chan MW, Cheung MC and Ho KS – Elderly Health Service,
Department of Health



Background



- Number of 65+ year olds: 27% of population in 2033
- Health and walking
- Environment and walking
- Most research conducted in low-density urbanized areas of Western countries (Australia; Canada; USA)
- Asian urban areas:
 - Higher density
 - Greater reliance on public transport
 - Socio-cultural differences
 - Differences in the built environment
- Need to study associations of built environment with walking in Chinese elders





Aim

- To examine associations of perceived neighbourhood environment with walking for different purposes in Chinese-speaking older adults of Hong Kong



Methods: Instruments

- A questionnaire of perceived environmental factors developed from the **Neighborhood Environment Walkability Scale – Abbreviated** (NEWS-A; Cerin et al., 2006) and adapted to Hong Kong settings and older adults

Residential density

Land use diversity (distance to destinations)

Access to services

Physical barriers to walking

Indoor places for walking

Fence separating footpath and traffic

Bridge/overpass connecting to services

Easy access of residential entrance

Traffic speed

Social disorder / littering

Crime

Street connectivity

Infrastructure for walking

Aesthetics

Presence of people

Crowdedness

Traffic road hazards

Sitting facilities

Methods: Instruments


- A questionnaire on walking behaviour based on the **Neighbourhood Physical Activity Questionnaire** (NPAQ – Giles-Corti et al., 2006) and adapted to Hong Kong elders
 - Walking for transport within the neighbourhood
 - Walking for recreation within the neighbourhood



Methods:

Participants and procedure:

- Interviewer-administered questionnaires
- N = 484 (aged 65+) – multi-stage stratified sampling strategy
 - Four areas varying in socio-economic status and walkability
 - High SES and high walkability (Wan Chai)
 - High SES and low walkability (Tseung Kwan O)
 - Low SES and high walkability (Nam Shan)
 - Low SES and low walkability (Yeun Long)
 - 8 residential blocks per area; 15 participants per residential block
 - Members of the Elderly Health Centres



Walkability (GIS) = dwelling density + street connectivity
Area SES = Median household income for a TPU

Methods: Analyses

- Generalized linear models with appropriate variance and link functions
 - Variance function: Gamma
 - Link function: Logarithmic
 - Robust standard errors to account for clustering effects
 - Controlled for age, gender and educational attainment



Results

Outcome	Low walkable areas		High walkable areas	
Walking for transport (min/wk)	235	(187)	303	(258)*
	160	(225)	230	(235)
Walking for recreation (min/wk)	270	(167)	252	(202)
	195	(140)	180	(190)

Pink: Mean (SD); white: Median (IQR)



Results

^a $p < .05$; ^b $p < .01$; ^c $p < .001$

Associations of perceived neighbourhood attributes with self-reported weekly minutes of walking within the neighbourhood (expressed as r values)

Attribute	Walking for Transport	Walking for recreation
Residential density	0.07	-0.06
Land use mix – diversity	0.15 ^c	0.01
Access to services	0.11 ^a	0.10 ^a
Physical barriers to walking	0.06	-0.09 ^a
Street connectivity	0.06	0.09 ^a
Human and motorized traffic	0.12 ^b	-0.09 ^a
Infrastructure for walking	0.06	0.01
Indoor places for walking	0.07	0.12 ^b
Aesthetics	0.01	0.10 ^a
Social disorder / litter	0.06	0.01
Traffic speed	-0.05	-0.10 ^a
Presence of people	0.03	-0.06
Crime	0.11 ^a	0.01
Fence separating traffic from sidewalks	0.01	0.03
Bridge/overpass connecting to services	-0.03	0.09 ^a
Easy access of residential entrance	0.11 ^a	0.08
Sitting facilities	0.20 ^c	0.03

Conclusions

- The creation of local environments supportive of walking may help Hong Kong older adults maintain an active and, hence, healthier lifestyle.
- The presence of conveniently-located services, sitting facilities, easy access of residential entrances, traffic safety, indoor places for walking and green areas appear to be potentially important factors contributing to the creation of age- and health-friendly cities.
- Larger scale studies using perceived as well as objective measures of the neighbourhood environment and a combination of objective and self-report measures of walking are needed to confirm and explore further environment-walking associations in Hong Kong elders.



Thank You!

Questions?

