

Healthcare use of Older Singaporeans

Presenter:

June May-Ling Lee, MPH

Research Associate

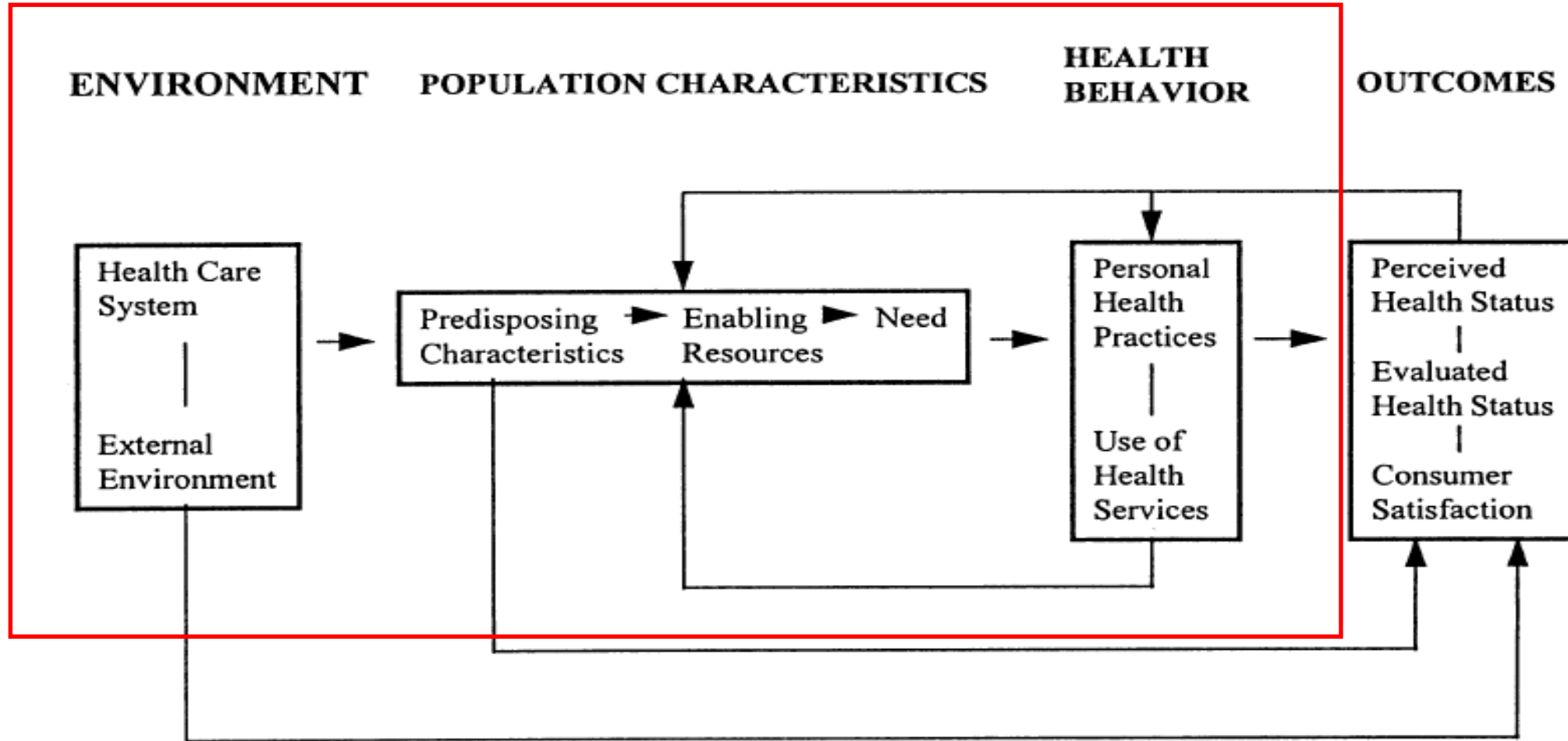
Centre for Ageing Research and Education

Older Singaporeans at a Crossroads

Centre for Ageing Research & Education (CARE) 2019 Symposium

8 May 2019

Conceptual Model for Healthcare use



Source:
Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav.* 1995;36(1):1-10.

What are the merits about using THE SIGNS Study-I data to understand healthcare use?

- The availability of psychosocial data, such as social network, loneliness and personal mastery.
- The availability of data on four types of healthcare use in the same cohort
 - i. Primary care outpatient visit
 - ii. Tertiary care outpatient/Specialist visit
 - iii. Emergency Room visit
 - iv. Hospital admission
- Caveat
 - Cross-sectional, therefore unable to determine causation
 - Self-reported

Aim

To assess the association of a range of demographic, social and health characteristics with utilisation of four types of healthcare services among community-dwelling older Singaporeans.

Outcomes: Types of healthcare use

1



Primary care outpatient visit in
the last 3 months

2



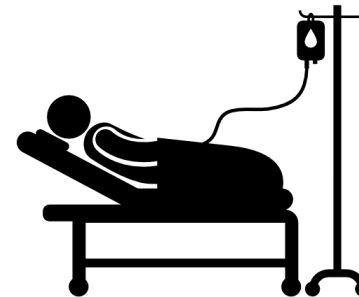
Tertiary care outpatient/specialist
visit in the last 3 months

3



Emergency room visit in the
last 6 months

4



Hospital admission in the last
1 year

Potential Correlates

- Age
- Gender
- Ethnicity
- Education
- Housing types
- Employment status

Predisposing

- Living arrangement
- Social network outside of household
- Personal Mastery
- Private health insurance
- Health benefits from current or previous employer
- Perceived income adequacy
- Loneliness

Enabling

- Clinically relevant depressive symptoms
- ADL limitations
- No. of chronic health conditions
- Cognition

Need

Outcome: Primary care
outpatient visit in the last
3 months



Definition



Primary care outpatient visit in the last 3 months

- i. Did you see or talk to a private practitioner for a health problem in the last 3 months
- ii. Did you see or talk to a doctor in a polyclinic for a health problem in the last 3 months

For each question, those responding “Yes”, were asked to specify the number of visits; the reported number of visits for each question was capped at 12

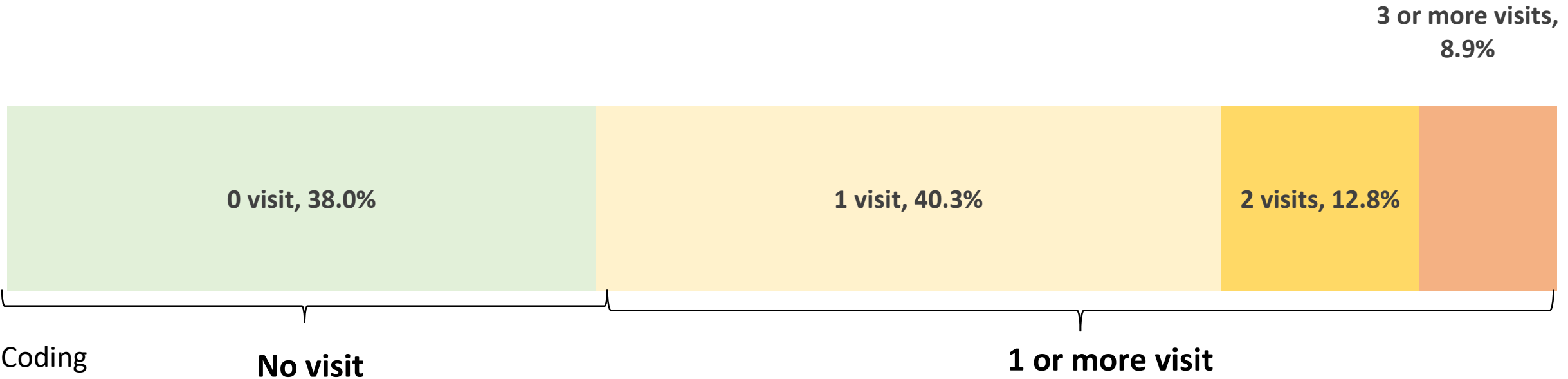


Primary care outpatient visit in the last 3 months

Distribution of Primary Care Outpatient Visit in THE SIGNS Study-I



Overall sample = 4543



Coding for analyses

No visit


1 or more visit


Analytical sample = 1880 (Questionnaire Version B)





Primary care outpatient visit in the last 3 months


Characteristics associated with the chances of having **at least 1 primary care visit**




 Private and others (vs HDB 3 rooms)
Adjusted OR: 0.64

 Highest tertile of personal mastery (vs lowest tertile)
Adjusted OR: 0.58



 Living with child only (vs living with child and spouse)
Adjusted OR: 1.42

 1, 2, 3 or more chronic health conditions (vs 0)
Adjusted OR : 3.21, 4.60, 4.96 for 1 , 2 and 3 or more respectively

Outcome: Tertiary Care
Outpatient/Specialist
visit in the last 3 months





Tertiary care outpatient visit/specialist in the last 3 months

- i. Did you see or talk to a doctor at a specialist outpatient clinic for a health problem in the last 3 months
- ii. Did you see or talk to a private specialist for a health problem in the last 3 months

For each question, those responding “Yes”, were asked to specify the number of visits; the reported number of visits for each question was capped at 12

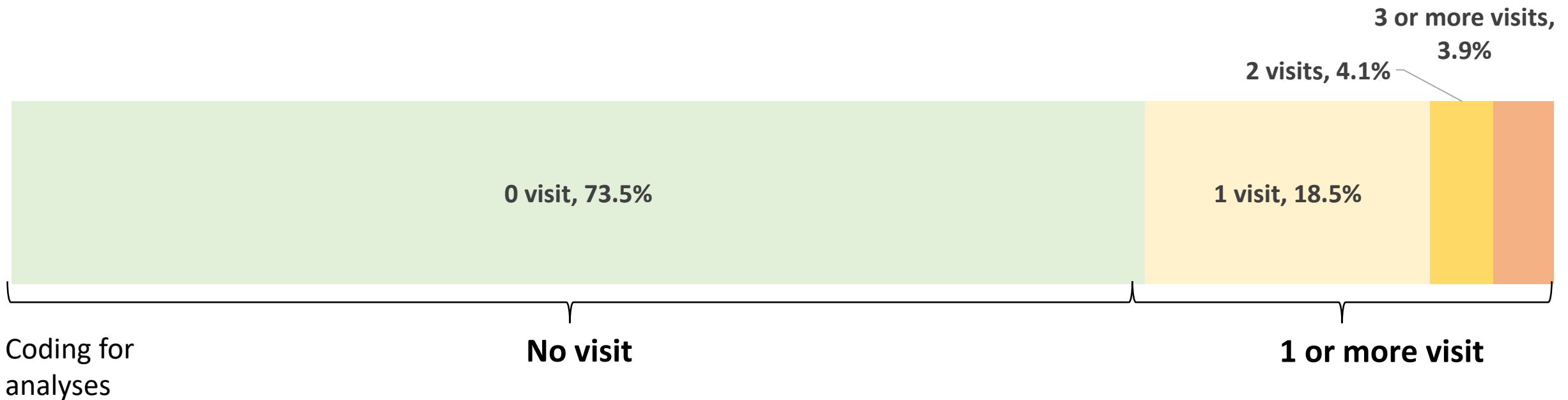


Tertiary care outpatient/
specialist visit in the last
3 months

Distribution of Tertiary Care Outpatient /Specialist Visit in THE SIGNS Study-I



Overall sample = 4074



Analytical sample = 1880 (Questionnaire Version B)



Tertiary care outpatient/specialist visit in the last 3 months

Characteristics associated with the chances of having **at least 1 tertiary care outpatient/specialist visit**



Malay (vs Chinese)
Adjusted Odds Ratio: 0.63



Living with others (vs with child and spouse)
Adjusted Odds Ratio : 0.51



Sometimes and mostly lonely (vs not lonely)
Adjusted Odds Ratio : 0.74 and 0.58 respectively



Highest tertile of personal mastery (vs lowest tertile)
Adjusted Odds Ratio : 0.51



Above secondary education (vs no formal)
Adjusted Odds Ratio: 1.96



Private and others (vs HDB 3 rooms)
Adjusted Odds Ratio: 1.86



Living alone or with FDW (vs with child and spouse)
Adjusted Odds Ratio: 1.66



1 or 3 more chronic health conditions (vs 0)
Adjusted Odds Ratio: 1.56 and 3.30 respectively

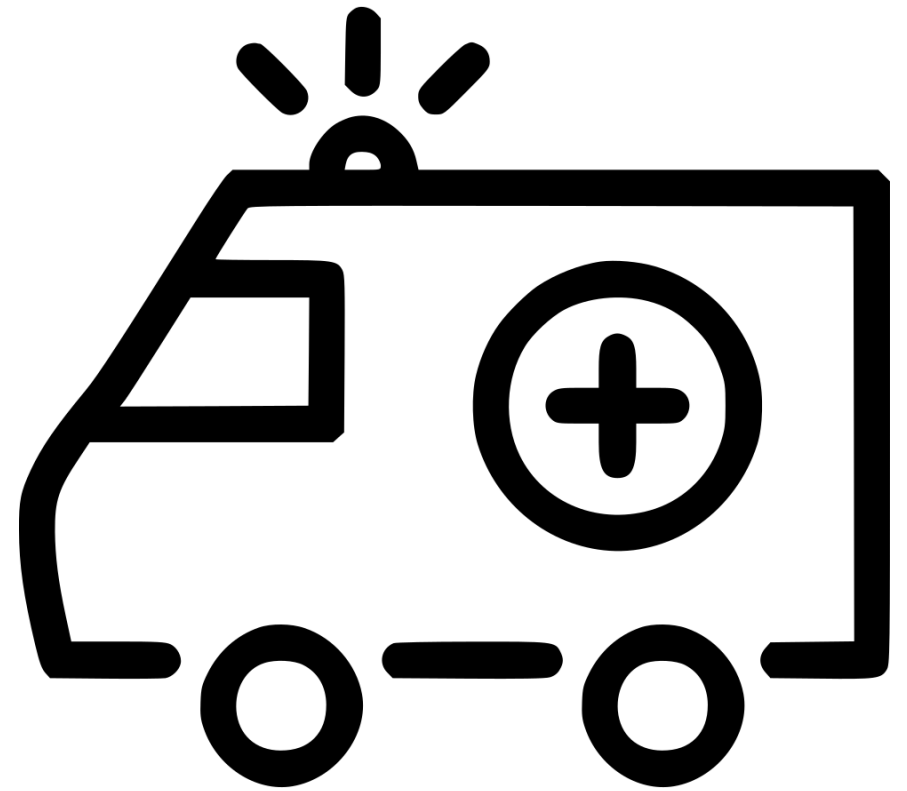


Health benefits from current or previous employer
Adjusted Odds Ratio: 1.41



No. of primary care outpatient visit in the last 3 months
Adjusted Odds Ratio: 1.25

Outcome: Emergency room visit in the last 6 months





Emergency room visit in the last 6 months

- i. During the last 6 months, did you go to a hospital emergency room for help with a health problem you were facing?

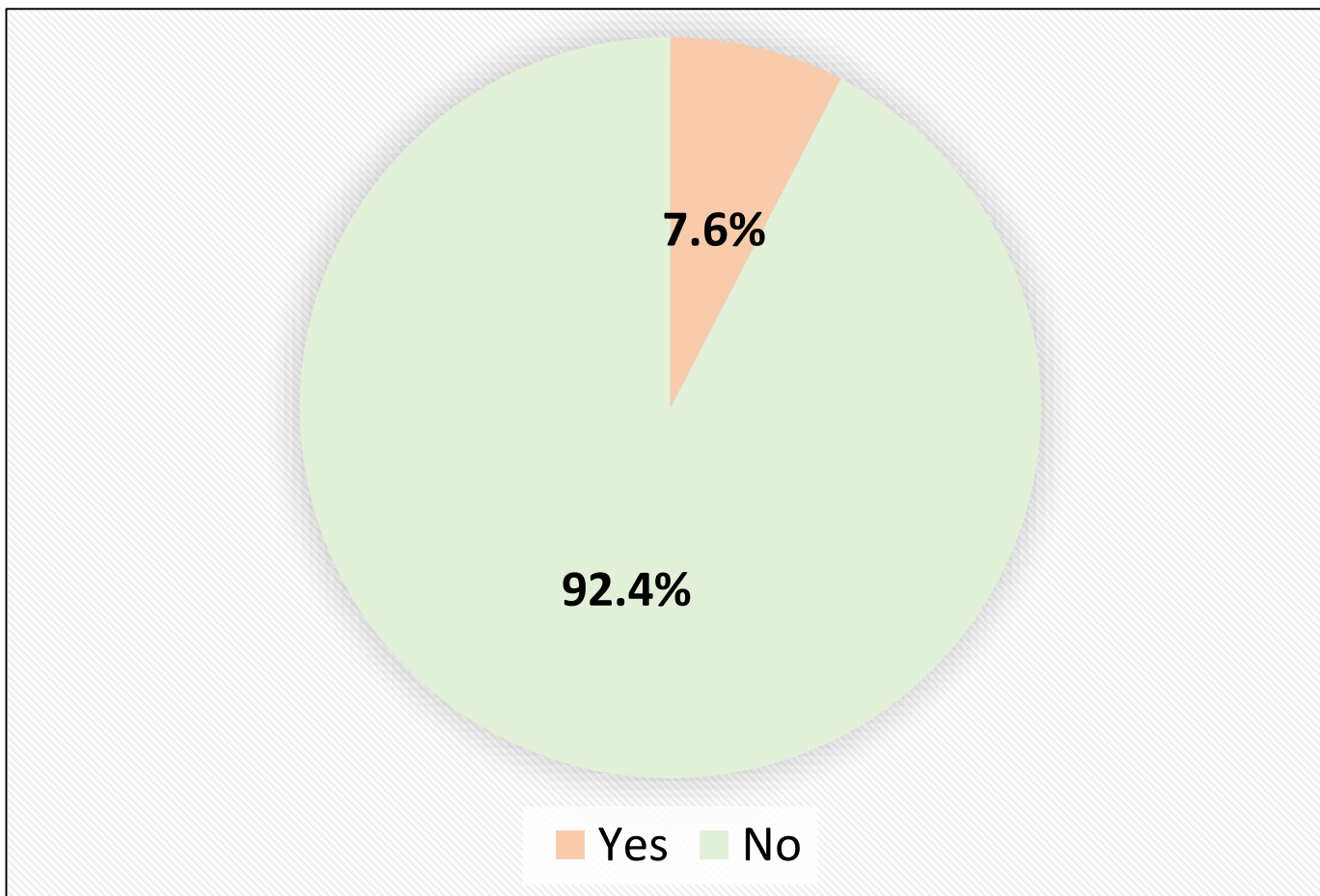
For this question, those responding “Yes”, were asked to specify the number of visits. However, due to the lack of variability in the number, this was considered as a binary(yes/no) variable in the analyses



Emergency room
visit in the last 6
months

Distribution of Emergency Room Visit in THE SIGNS Study-I

Overall sample = 4079



Analytical sample = 1879
(Questionnaire Version B)



Emergency room visit
in the last 6 months

Characteristics associated with the chances of having a **visit to the Emergency Room**



Living with others (vs with child and spouse)
Adjusted Odds Ratio : 0.29



Mostly lonely (vs not lonely)
Adjusted Odds Ratio : 0.48



Middle and highest tertile of personal mastery (vs lowest)
Adjusted Odds Ratio : 0.66 and 0.47 respectively



Malay (vs Chinese)
Adjusted Odds Ratio: 1.64



2, 3 or more ADL limitations (vs 0)
Adjusted Odds Ratio: 3.49 and 3.13 respectively

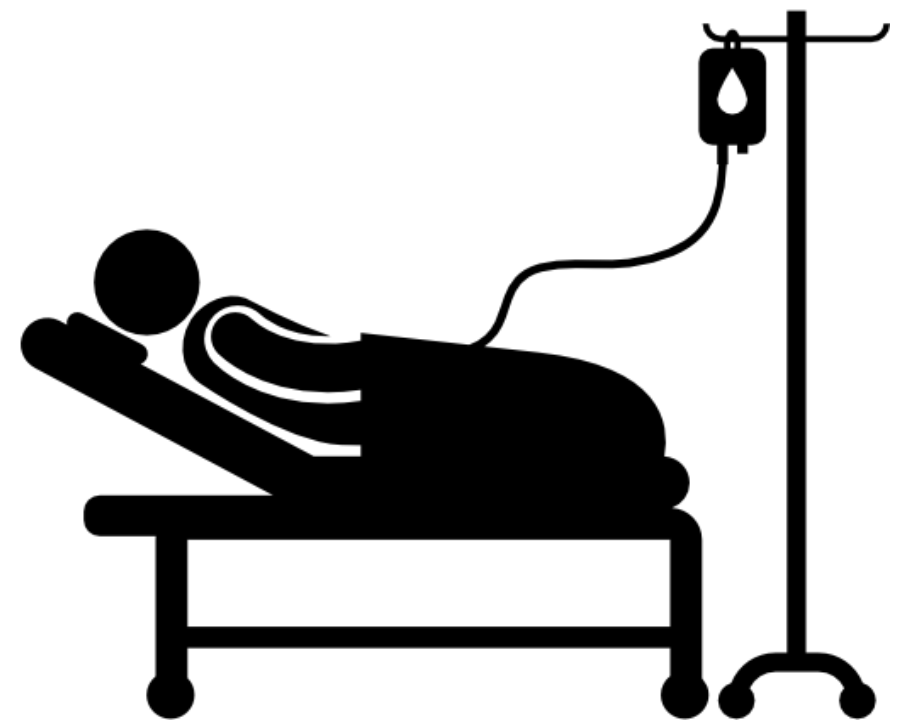


No. of primary care outpatient visit
Adjusted Odds Ratio: 1.17

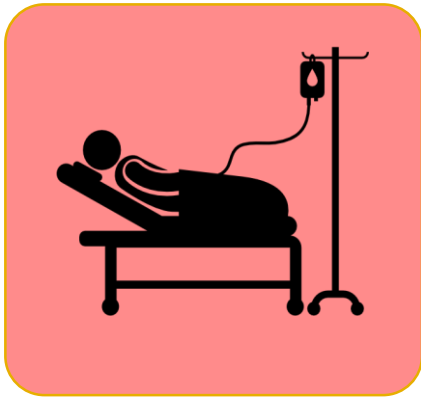


No. of tertiary care outpatient/specialist visit
Adjusted Odds Ratio: 1.38

Outcome: Hospital
admission in the last 1
year



Definition



Hospital admission in the last 1 year

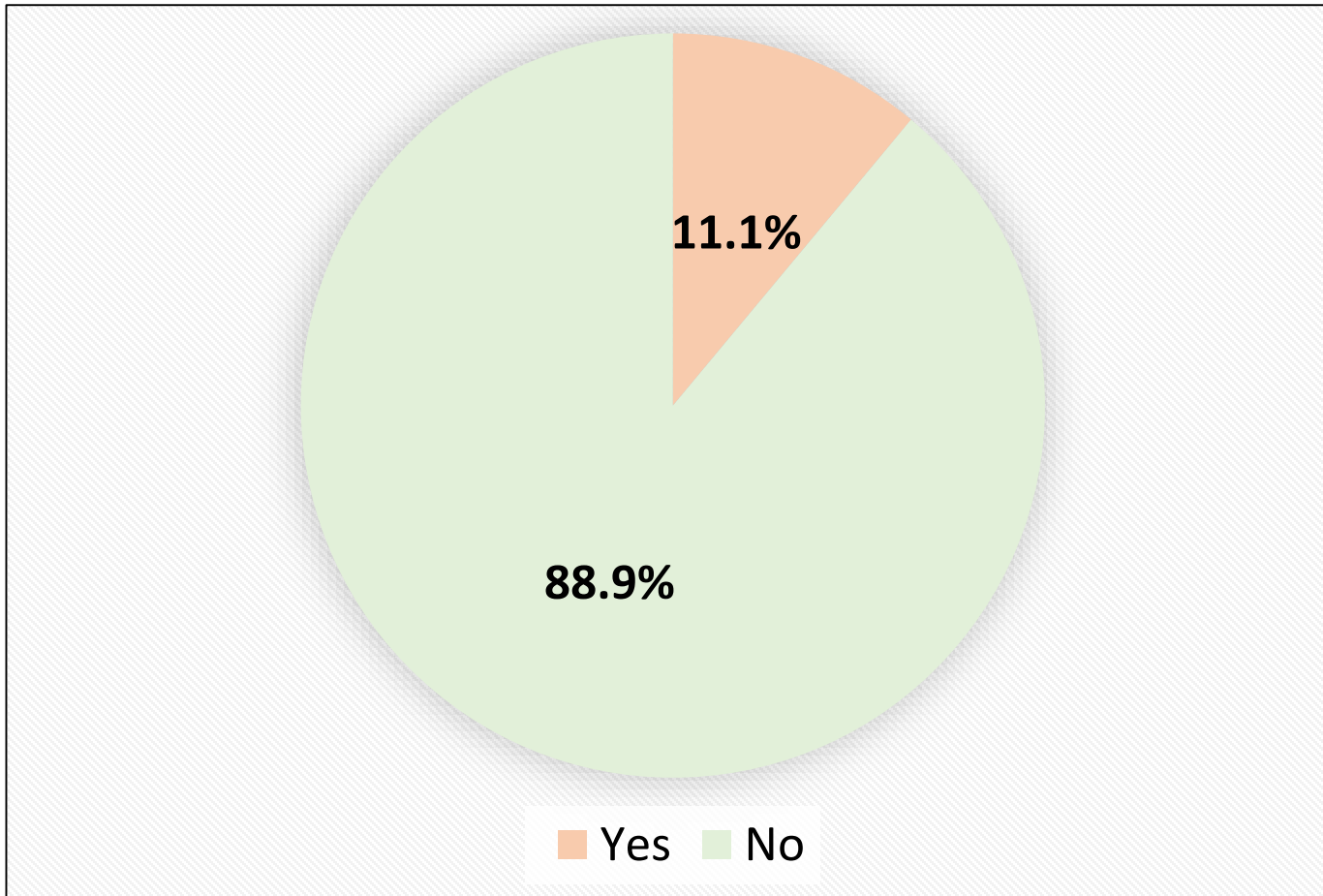
- i. During the last one year, were you admitted to a public or private hospital (by admitted, I mean you were kept in a hospital for at least one night in a hospital bed)?
(yes/no)



Hospital admission in the last 1 year

Distribution of Hospital Admission in THE SIGNS Study-I

Overall sample = 4071



Analytical sample = 1873 (Questionnaire Version B)



Hospital admission in the last 1 year

Characteristics associated with the chances of admission of hospital

Female (vs male)
Adjusted Odds Ratio : 0.49

Highest tertile of personal mastery (vs lowest tertile)
Adjusted Odds Ratio : 0.45

Malay (vs Chinese)
Adjusted Odds Ratio: 2.02

Living alone or with FDW (vs with child and spouse)
Adjusted Odds Ratio: 2.02

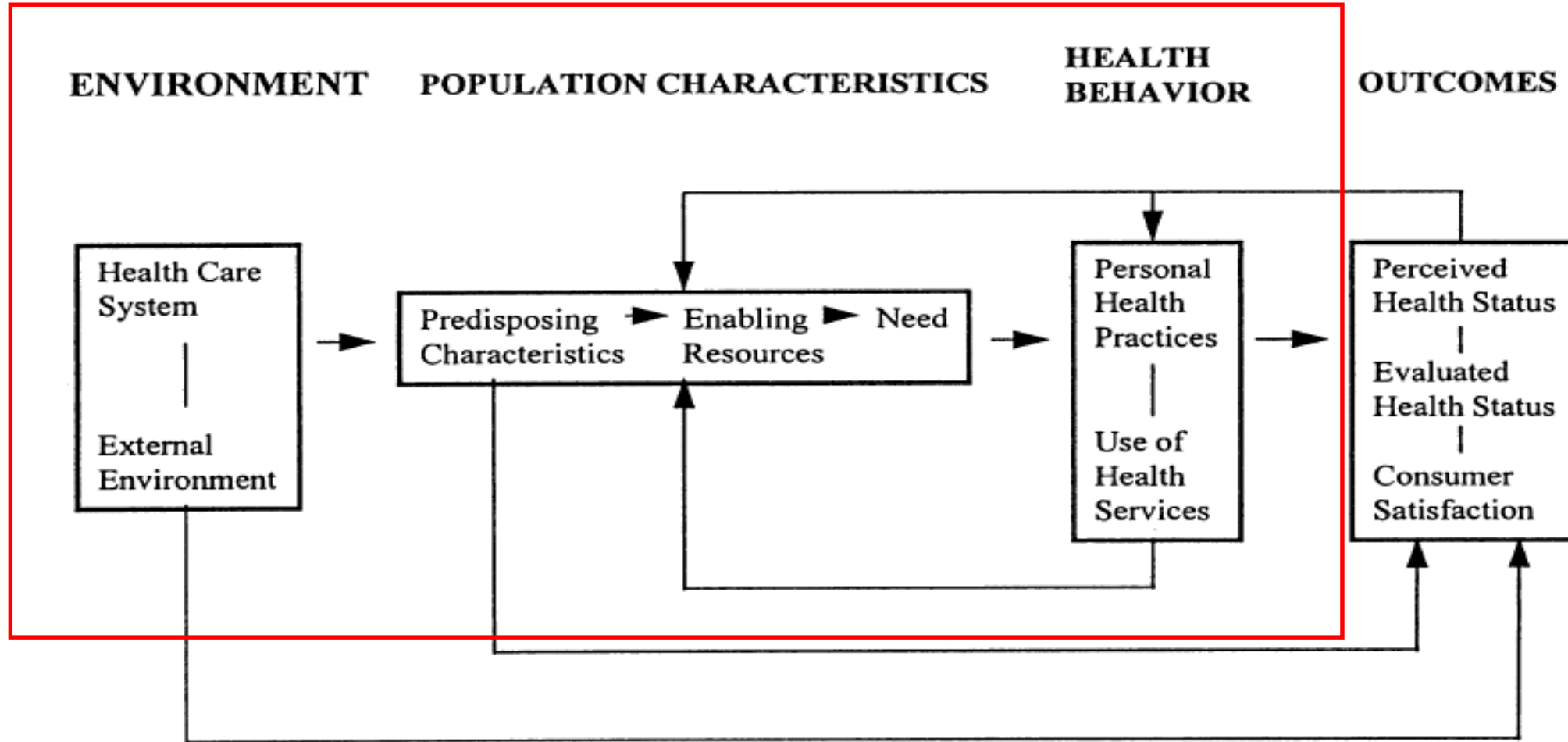
3 or more chronic health conditions (vs 0)
Adjusted Odds Ratio: 2.12

2, 3 or more ADL limitations (vs 0)
Adjusted Odds Ratio: 4.62 & 3.40 respectively

No. of primary care outpatient visit
Adjusted Odds Ratio: 1.10

No. of tertiary care outpatient/specialist visit
Adjusted Odds Ratio: 1.45

Conceptual Model for Healthcare use



Source:
Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav.* 1995;36(1):1-10.

Key Findings

Predisposing characteristics

- Men had higher risk for hospital admission
 - Results collaborated with
 - Low, et al 2018 data using SGH administrative databases.
 - Ministry of Health, Singapore hospital admission rate 2017
- Malay older persons were more likely to use emergency room and hospital inpatient services, albeit they had lower odds of using tertiary care outpatient services
- Older adults living alone or with FDW only were more likely to visit tertiary care outpatient/specialist in the past 3 months and to be admitted to hospital in the last 12 months

Key Findings

Enabling characteristics

- Finances
 - Those living in **private housing** (vs living in HDB 3 room) and those **receiving health benefits from current or previous employer** were more likely to visit tertiary outpatient/ specialist visit in the past 3 months.
- Personal mastery
 - High personal mastery was associated with lower healthcare use.
 - Longitudinal → Higher level of mastery would protect older people from functional decline (Lee et al. 2016), lower odds of doctor visits and hospitalizations (Ezeamama, et al. 2016).
- Loneliness
 - Loneliness was associated with lower likelihood of tertiary care outpatient /specialist visit and emergency room visit.
 - Individuals who became and remained lonely had a lower odds of physician visit (Lim & Chan, 2017)
 - In contrast, several international studies have shown loneliness is associated with higher health care use (Zhang et al., 2018; Gerst-Emerson & Jayawardhana, 2015).
 - However, lonely people did not have better health.
 - Loneliness is associated with **all-cause mortality** (Chan et al. 2015).

Key Findings

Need

- Poor physical health was associated with higher healthcare use.
 - Number of chronic health conditions was associated with primary care visit, tertiary care visit and hospital admission.
 - Number of ADL limitations was associated with emergency room visit and hospital admission.

Key Findings

Health care system

- The 4 types of healthcare use were positively associated with each other.
- Referral and back referral system in the current healthcare model. For example:
 - To receive subsidized services, individuals have to go to polyclinics for referral to tertiary outpatient care.
 - Individuals who have been discharged from hospital maybe referred to tertiary care outpatient/specialist for follow-ups.

Future research, program and policy direction

- Understand the pathways between:
 - Men and hospital admission
 - Malay and tertiary care outpatient/specialist, emergency room and hospital admission
 - Living alone and tertiary care outpatient/specialist, hospital admission
- Integration between social and health interventions
 - Screening of social needs by healthcare provider and connecting individuals to community resources
 - Social care community providers to refer individuals with health needs to healthcare providers
- Research on social care interventions and evaluation
- Empowering older adults, for example:
 - Better communication skills among those working with older people
 - Chronic disease Management
- Affordability of tertiary care outpatient /Awareness of financial schemes

Thank you and any questions?

June_LEE@duke-nus.edu.sg

References

1. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav.* 1995;36(1):1-10.
2. Low LL, Lee KH, Hock Ong ME, et al. Predicting 30-Day Readmissions: Performance of the LACE Index Compared with a Regression Model among General Medicine Patients in Singapore. *Biomed Res Int.* 2015;2015:169870.
3. Lee W, Chen L, Peng, L, Chiou, S, Chou P. Personal mastery attenuates the adverse effect of frailty on declines on physical function of older people: A 6-year population-based cohort. 2016; 95(34).
4. Ezeamama AE, Elkins J, Simpson C, Smith SL, Allegra JC, Miles TP. Indicators of resilience and healthcare outcomes: findings from the 2010 health and retirement survey. *Qual Life Res.* 2016;25(4):1007-1015.
5. Chan A, Raman P, MA S, Malhotra R. Loneliness and all-cause mortality in community-dwelling elderly Singaporeans. *Demographic Research.* 2015; 32 (49): 1361-1382.