



Evaluation of TeleHEalth Services for Seniors (THESS)

A video consult service extending to vulnerable older persons in the community

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Introduction and Motivation

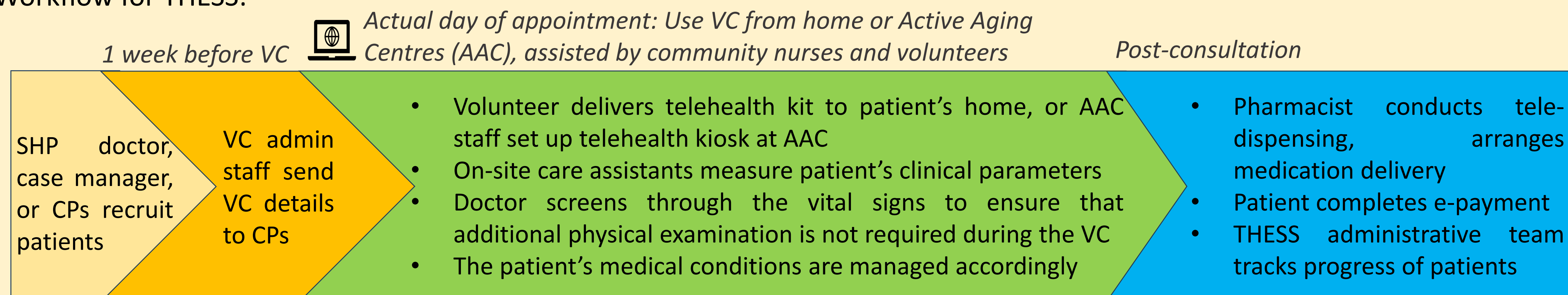
- Singapore has a rapidly ageing population
- Existing community-based systems to support older persons to age well include long-term care (LTC) services
 - Home-based LTCs: Home Medical, Medical Escort and Transport
 - Centre-based LTCs: Daycare centres, Senior Activity Centres
- Limitations of home-based LTC: Time-intensive, resource-intensive, high cost, and insufficient capacity^[1]
- Transportation barriers are one of the most common reasons for missed or delayed medical appointments^[2]
- Telemedicine can augment home-based services to improve affordability and accessibility to primary care services for vulnerable older persons in the community

Aim

- To explore feedback on usability and quality when older persons undertake video consult (VC)
- To evaluate health outcomes in older persons with chronic conditions who received primary healthcare via VC in the community

Methods

- THESS is a collaboration between SingHealth Polyclinics (SHP), community nurses, and community partners (CPs)
- Patients use VC to continue their medical review by SHP care teams at Marine Parade Polyclinic from July 2020 till December 2023
- Target: Older people with chronic medical illnesses which reduce their mobility to access polyclinic services
- Workflow for THESS:



- Outcomes evaluated: Metabolic parameters, service utility rate, conversion to in-person consultations, feedback on usability and quality of VC
- Linear mixed-effects model was employed to investigate the effect of telehealth service on the biochemical outcomes in patients. The model included both fixed and random effect to account for individual variability and longitudinal changes. Data utilized was between January 2017 and December 2023

Telehealth Kit

Tablet



Blood pressure monitoring set



Infrared thermometer



Weighing scale



Pulse oximeter



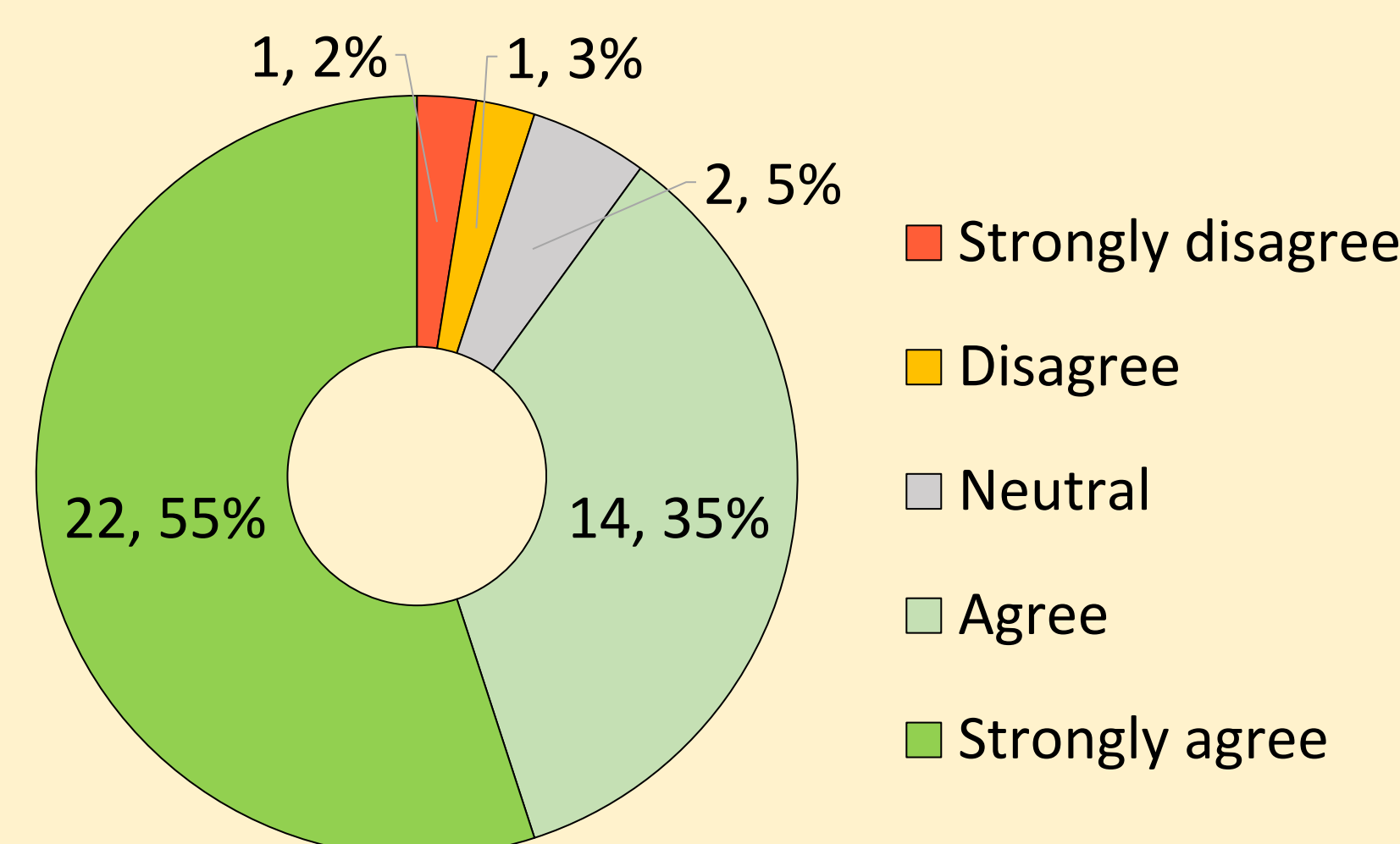
Results

- 276 VC sessions were conducted
- Patient demographics:

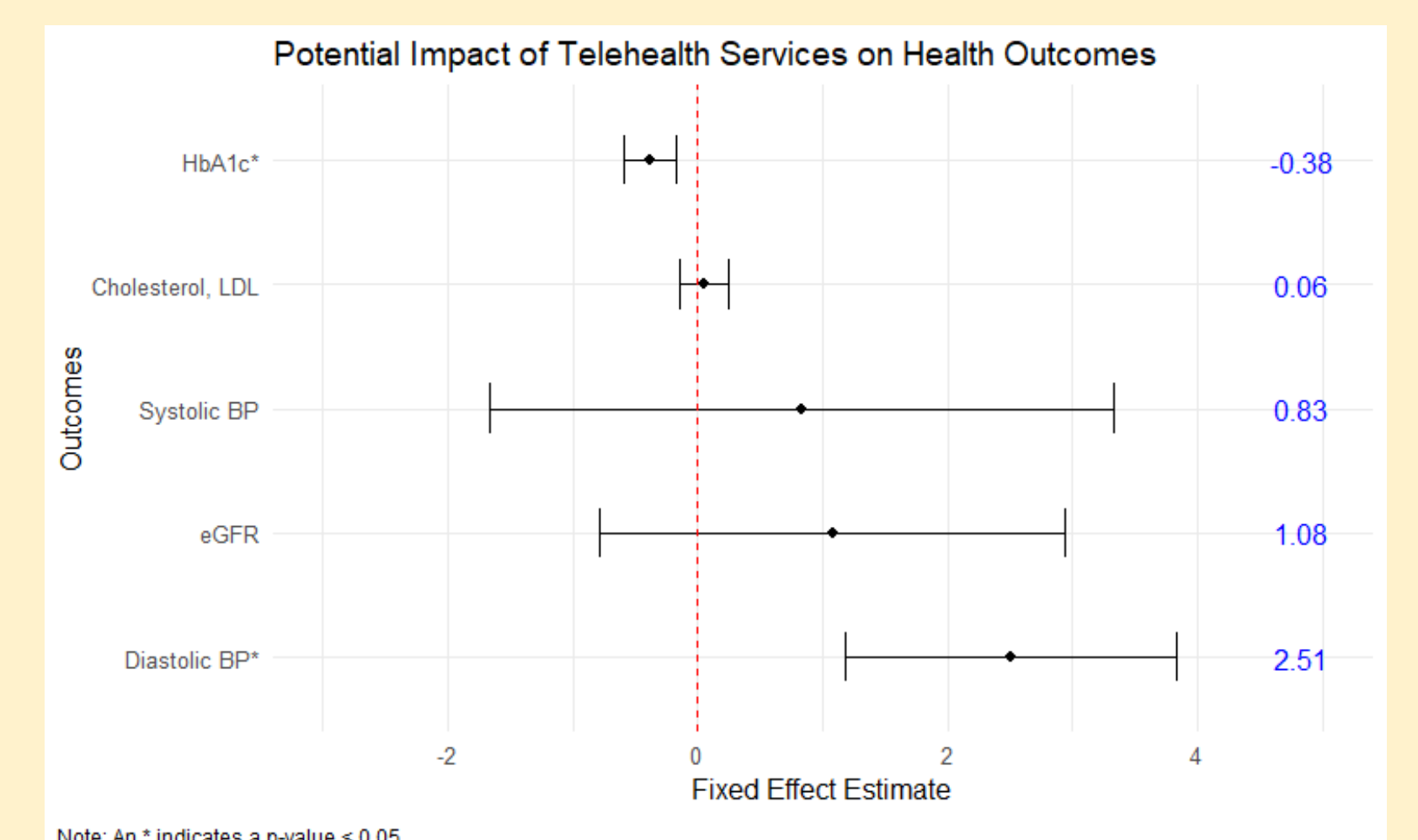
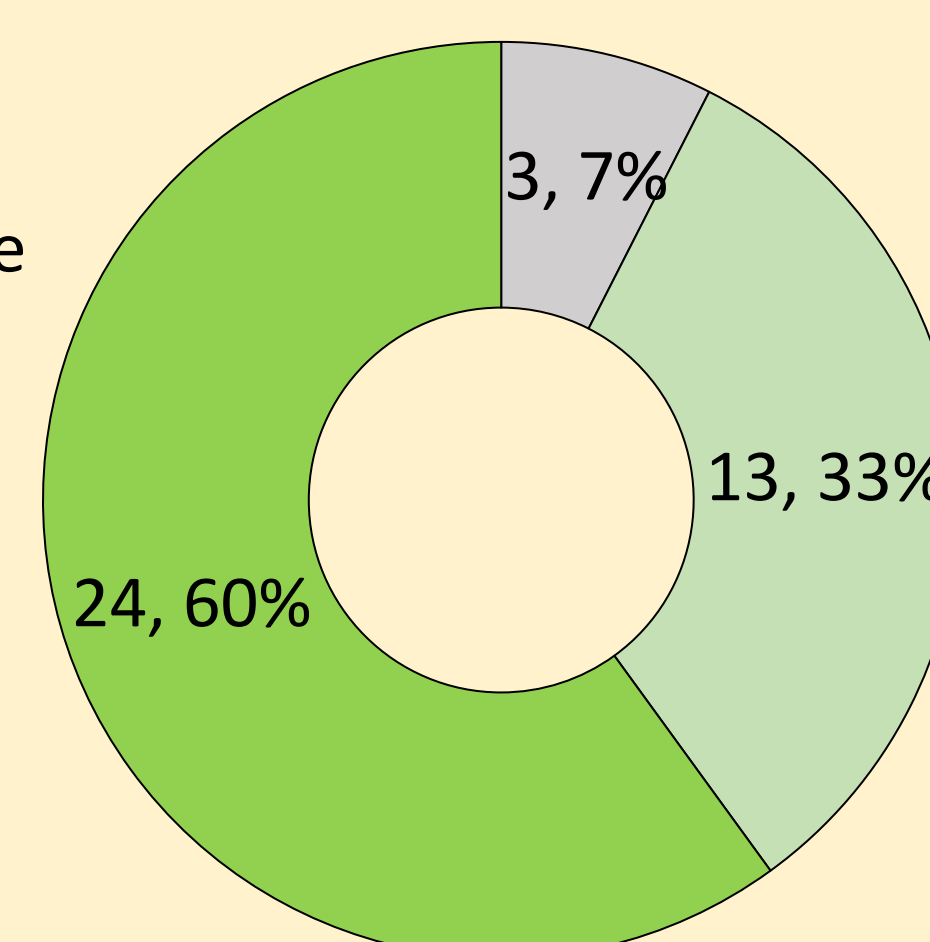
	Overall
N	113
Age (mean (SD))	74.73 (8.93)
Gender (%)	
Male	58 (51.3)
Female	55 (48.7)
Ethnicity (%)	
Chinese	53 (46.9)
Malay	41 (36.3)
Indian	9 (8.0)
Others	10 (8.8)
Chronic kidney disease (CKD) = Yes (%)	15 (13.3)
Type 2 diabetes mellitus (DM) = Yes (%)	63 (55.8)
Hyperlipidemia = Yes (%)	100 (88.5)
Hypertension = Yes (%)	109 (96.5)

- 40 patients completed an online patient satisfaction survey
- **Patients provided highly positive reviews regarding their satisfaction with THESS**
- 82.5% of patients will continue to use VC

I received the same standard of care from VC, as I would have from a face-to-face consultation.



The VC I attended met my health needs



- A total of 1770, 936, 712 and 2972 observations across 118 patients were analyzed for glycaemic control (HbA1c), renal function (eGFR), cholesterol (LDL) and blood pressure (BP) respectively
- **Patients had 0.38% decrease in their HbA1c (measure of glycaemic control) after their index telehealth consult (95% confidence interval = -0.59 to -0.17)**

- 46.6% of patients had a single VC appointment
- Median count of VC appointment: 2 [interquartile range = 1 to 3]
- 96.01% of scheduled appointments were actualized
- Only 2.89% of VC sessions were converted to same-day in-person consultations, whilst 0.36% were referred to emergency department

I prefer VC because

I prefer VC because	Number of votes
It saves me a trip to providers	29
It saves my time waiting to see my providers	27
I can consult my providers at the comfort of my own place	19
I can make use of available tablet at my Senior Activity Centre for my VC session	10
My family members can join in the VC session from various locations	5
Others: Reduce infection risk / avoid crowds / no need for caregiver to bring patient to provider	3

Conclusion

- THESS provides an alternative healthcare service which is accessible, acceptable, and safe to patients who may be under-served for their chronic disease management
- Patients who used THESS had improvement in diabetic control
- Most patients feedback that THESS is convenient and time-saving

References

- [1] Ho E, Huang S. Care where you are: enabling Singaporeans to age well in the community 2018.
 [2] Lefler V, Lim N. Mobility in healthcare - an engine for equity and savings. Feonix - Mobility Rising White Paper 2023