

Chronic disease self-management competency and care satisfaction between users of public and private primary care in Singapore

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ABSTRACT

Introduction: Primary healthcare providers play a crucial role in educating their patients on chronic disease self-management (CDSM). This study aims to evaluate CDSM competency and satisfaction in patients receiving their healthcare from public or private healthcare providers.

Methods: A cross-sectional household study was conducted in a public housing estate using a standardised questionnaire to interview Singaporeans and permanent residents aged 40 years and above, who were diagnosed with at least 1 of these chronic diseases: hyperlipidaemia, hypertension or diabetes mellitus. CDSM competency was evaluated with the Partners In Health (PIH) scale and a knowledge-based questionnaire. Satisfaction was evaluated using a satisfaction scale.

Results: In general, the 420 respondents demonstrated good CDSM competency, with 314 followed up at polyclinics and 106 by general practitioners (GPs). There was no significant difference between patients of polyclinics and GPs in CDSM competency scores (mean PIH score 72.9 vs 75.1, $P=0.563$), hypertension knowledge scores (90.9 vs 85.4, $P=0.16$) and diabetes knowledge scores (84.3 vs 79.5, $P=0.417$), except for hyperlipidaemia knowledge scores (78.6 vs 84.7, $P=0.043$). However, respondents followed up by GPs had higher satisfaction rates than did those followed up at polyclinics (odds ratio 3.6, confidence interval 2.28–5.78). Favourable personality of the doctors and ideal consultation duration led to higher satisfaction in the GP setting. A longer waiting time led to lower satisfaction in the polyclinic group.

Conclusion: Polyclinics and GPs provide quality primary care as evidenced by high and comparable levels of CDSM competency. Redistribution of patients from public to private clinics may result in improvements in healthcare service quality.

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INTRODUCTION

Primary care in Singapore is set to face challenges in managing a rapidly ageing population. The expected population of older adults aged 65 years and above will be close to 1.5 million by 2030,¹ corresponding to 2.7 working adults per older adult in 2030.² Between 2019 and 2050, Singapore is foreseen to have the second largest percentage point increase in the share of older persons in the world (20.9%).¹ With greater numbers of older adults, the prevalence of chronic disease and their complications is set to rise. The Transitions in Health, Employment, Social Engagement and Intergenerational Transfers in Singapore Study in 2009 found that the number of respondents with 3 or more

chronic diseases have almost doubled from 19.8% to 37%.³ A 2017 report released by the Ministry of Health revealed that the prevalence of hyperlipidaemia, hypertension and diabetes mellitus among adults in Singapore aged 18 to 69 years were 33.6%, 21.5% and 8.6%, respectively.⁴ On top of the growing burden of chronic diseases, the dependency ratio is projected to worsen to 1.1 working adults per older adult by 2080.⁵ Therefore, there is a pressing need to inculcate chronic disease self-management (CDSM) to prevent disease complications and their related impact on the healthcare system at large. We understand “self-management” as patients engaging in activities that protect and promote health; monitor and manage symptoms and signs of

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CLINICAL IMPACT

What is New

- Overall satisfaction scores are higher for patients followed up by GPs for chronic disease self-management (CDSM).
- There is no significant difference in CDSM competency between patients followed up at polyclinics and at GP clinics.

Clinical Implications

- CDSM competency and care satisfaction can serve as quality indicators to benchmark performance of public and primary healthcare providers.
- Policies to increase accessibility to GPs for the management of chronic diseases may improve service quality in primary care.

illness; manage the impacts of illness on functioning, emotions and interpersonal relationships; and adhering to treatment regimens.⁶ When patients are more enabled to optimise their health, health outcomes improve consequently and the strain placed on our finite healthcare resource is relieved.

It is peculiar that CDSM is not a widely explored concept despite Singapore having a high burden of chronic diseases. Countries like Australia, Hong Kong and the Netherlands have developed validated tools such as the Partners In Health (PIH) questionnaire to assess knowledge, attitudes and practices, and guided strategic interventions to improve the health of their communities. Additionally, CDSM in itself is recognised as an important determinant for good health outcomes.⁷ Primary care plays a central role in entrenching CDSM. Primary care physicians form the frontline of contact with patients having early chronic diseases. Their role cannot be overstated in improving knowledge, attitudes and practices for effective CDSM.

There are many factors that contribute to successful CDSM. One factor of particular interest is access to primary care. This varies between countries and healthcare systems, but it can be generalised as access through government-funded public institutions or privately owned practices. In Singapore, these are government-funded polyclinics or general practitioner (GP) clinics, respectively. Each mode of access has its advantages and disadvantages. Polyclinics have greater capabilities to handle a large volume of integrated and

government-subsidised medical care, but they are often overloaded with patients, resulting in shorter consultation duration and longer waiting times.⁸ GP clinics are convenient to attend, with greater accessibility, longer consultation duration and shorter waiting times, but are less affordable than polyclinics. These factors may contribute to differences in CDSM by patients who visit polyclinics and GP clinics.

We aimed to compare differences in CDSM among users of public and private primary healthcare by studying a sample population in Queenstown public housing estate in Singapore. By appraising the differences in knowledge, perspectives and practices relating to self-management of 3 common chronic diseases, namely hyperlipidaemia, hypertension and diabetes mellitus, it would benefit primary healthcare systems and provide future recommendations to improve the health of our communities.

METHODS

The study used data collected from a cross-sectional, standardised, questionnaire-based survey administered by trained interviewers from 1 February to 3 February 2019. Inclusion criteria for the study were: (1) residents residing in randomly selected blocks of Housing and Development Board (HDB) flats in Queenstown housing estate; (2) Singaporean or Singapore permanent residents; (3) aged 40 years or above; (4) a medical diagnosis of at least 1 chronic disease (i.e., hyperlipidaemia, hypertension or diabetes mellitus); and (5) being mentally competent and able to give informed consent.

Responses were collected on the secure online National University of Singapore (NUS) MySurvey platform. Ethics approval was sought from the NUS Institutional Review Board (IRB no. S-18-385E) and informed consent was obtained from all participants. They were also given information on how to withdraw their consent.

Queenstown was chosen as the study site due to its older demographic profile, with 56.1% of the Queenstown community being 40 years and above.⁹ Thirty blocks of flats in the Queenstown estate were randomly selected and every household in each block was visited for responses. Households that did not open their doors to surveyors on the first day were revisited once the next day to reduce non-response bias.

The 12-item PIH scale developed by Flinders Behavioural Health uses a 0–8 Likert scale in the domains of knowledge, symptom management, adherence and coping.⁶ The questions in the scale refers to any chronic conditions and is useful in evaluating practices in CDSM. A higher score implies better CDSM. The scale has been

validated in Mandarin and English in a Chinese majority population in Hong Kong,¹⁰ with demographics similar to Singapore. The Cronbach alphas of the study subscales ranged from 0.773–0.845. The PIH scale was also found to be reliable in Dutch and Australian studies.^{11,12}

The patient-doctor relationship forms an important foundation for the empowerment of CDSM. To assess the respondents' satisfaction, defined as the fulfilment of patient expectations on medical care for their chronic disease, each respondent rated their satisfaction on a scale of 1–5 across 6 separate items. In analysis, scores of 4 and 5 implied satisfaction while 1–3 implied dissatisfaction. The total satisfaction score ranged from 6–30. Scores were placed into 4 different categories: 6–19, 20–24, 25–29, and 30 according to the frequency distribution.

To assess knowledge, respondents with hyperlipidaemia, hypertension or diabetes mellitus or any combination of these medical conditions were asked 3 factual questions. Scores were categorised into either 100% correct or not. Having 100% meant they answered all 3 questions correctly for the relevant chronic disease(s).

Data were analysed with SPSS Statistics software version 25 (IBM Corp, Armonk, US). Continuous variables were expressed as mean and standard deviation (SD) for symmetric data, and as median and interquartile range for skewed data. Categorical variables were represented as number and percentage. Prevalence of sociodemographic and confounders were tabulated, and differences in location of follow-up care (polyclinic versus GP clinic) were analysed using independent t-test (symmetric data), Mann-Whitney U test (skewed data) and chi-square test (categorical variables).

Multivariate regression analyses were performed on the satisfaction score to examine the association of confounders. A binary logistic regression was used for the satisfaction score. The regression models included only respondents who were followed up at polyclinics or GP clinics (n=420). In each regression model, sets of variables were added in a forward stepwise order, adjusting for location of care, sociodemographics, lifestyle factors and disease factors. Respondents from Family Medicine Clinics and hospital specialist outpatient clinics were not included. Family Medicine Clinics, although primary physician led, are team-based and patient-centred, incorporating services from relevant allied health professionals.¹³

RESULTS

A total of 502 respondents were recruited for the study. The response rate from door-to-door recruitment was 62% (502 of 810 households). Of the respondents, 314

(62.5%) were followed up at polyclinics; 106 (21.1%) at GPs; 18 (3.6%) at Family Medicine Clinics; 54 (10.8%) at hospital specialist outpatient clinics; and 10 (2.0%) were not followed up.

Sociodemographic profile of respondents

Table 1 shows the sociodemographic profile of respondents. Patients followed up at polyclinics were older when compared to those followed up by GPs (70.3 versus 66.3 years). Polyclinic patients when compared to GP patients had lower socioeconomic statuses, with lower educational qualifications (for primary school: 59.2% vs 36.8%) and smaller housing types (HDB 3-room or smaller: 71.3% vs 63.2%). More polyclinic patients had blue Community Health Assist Scheme (CHAS) cards (51.0% vs 34.9%). They also had higher rates of diabetes mellitus (42.4% vs 30.2%) and rarely chose food with “Healthier Choice” labels (48.7% vs 34.0%).

PIH, knowledge and satisfaction scores

The mean PIH CDSM score was not statistically different between those followed up by GPs (75.1, SD 13.2) and those followed up at polyclinics (72.9, SD 13.6) (Table 2).

Mean knowledge scores for chronic diseases diabetes and hypertension were not statistically different between those followed up by GPs (90.9 and 85.4, respectively) and those followed up at polyclinics (84.3 and 79.5, respectively). Patients followed up by GPs had slightly better knowledge of hyperlipidaemia than did polyclinic patients (84.7 vs 78.6, $P=0.043$) (Table 2).

Our study showed higher mean satisfaction scores for those followed up by GPs than those followed up at polyclinics (26.8 vs 24.1, $P<0.001$) (Table 2).

Multivariate regression analysis of variables on satisfaction with care

Respondents followed up at polyclinics were 0.28 time less likely than those followed up by GPs to be satisfied with care (95% confidence interval [CI] 0.17–0.44, $P<0.001$) (Table 3). Those living in HDB 4-room flats were 0.318 time less likely than those living in HDB 5-room flats to be satisfied with care (95% CI 0.15–0.65, $P=0.002$) (Table 3).

Reasons for satisfaction and dissatisfaction with care

Respondents were further divided into 2 groups to further analyse the reasons for their satisfaction and dissatisfaction in both the polyclinic and GP settings (Table 4).

Of 314 respondents followed up at polyclinics, 228 (73.0%) were satisfied with their care while 86 (27.0%) were dissatisfied. For GP clinics, 92 (87.0%) of 106 respondents were satisfied while 14 (13.0%) were dissatisfied with their care.

Compared with polyclinic patients, GP patients attributed their satisfaction to the good personality of their doctors (55.4% vs 36.0%, $P=0.001$) and the ideal consultation duration (19.6% vs 11.4%, $P=0.044$). Other reasons associated with satisfaction included low costs,

Table 1. Sociodemographic profile of respondents followed up at general practitioner clinic and polyclinic

	GP clinic (n=106)	Polyclinic (n=314)	P value
Demographics			
Age, mean (SD), years	66.3 (13.1)	70.3 (10.7)	0.003
Sex, n (%)			
Male	43 (40.6)	142 (45.2)	0.404
Female	63 (59.4)	172 (54.8)	
Race, n (%)			
Chinese	83 (78.3)	267 (85.0)	0.041
Malay	5 (4.7)	23 (7.3)	
Indian	16 (15.1)	22 (7.0)	
Other	2 (1.9)	2 (0.6)	
Medical condition			
Diabetes mellitus, n (%)	32 (30.2)	133 (42.4)	0.027
Mean duration since diagnosis (years)	11.2	13.2	
Hypertension, n (%)	77 (72.6)	252 (80.3)	0.100
Mean duration since diagnosis (years)	12	12.9	
Hyperlipidaemia, n (%)	61 (57.5)	176 (56.1)	0.788
Mean duration since diagnosis (years)	9.08	12.3	
Follow-up pattern			
Regular, n (%)	95 (89.6)	288 (91.7)	0.510
Mean duration between follow-up (months)	3.75	4.2	
Irregular, n (%)	11 (10.4)	26 (8.3)	
Socioeconomic status			
Employment status, n (%)			
Employed/self-employed	36 (34.0)	83 (26.4)	0.025
Unemployed	18 (17.0)	32 (10.2)	
Retired	52 (49.1)	199 (63.4)	
Highest educational qualification, n (%)			
Primary	39 (36.8)	186 (59.2)	0.001
Secondary	35 (33.0)	77 (24.5)	
Tertiary	32 (30.2)	51 (16.2)	
Housing type, n (%)			
1-room	0	43 (13.7)	<0.001
2-room	8 (7.5)	39 (12.4)	
3-room	59 (55.7)	142 (45.2)	
4-room	32 (30.2)	56 (17.8)	
5-room/3Gen/Executive	7 (6.6)	34 (10.8)	
Marital status, n (%)			
Never married	15 (14.2)	39 (12.4)	0.793
Married	75 (70.8)	220 (70.1)	
Divorced/separated/widowed	16 (15.1)	55 (17.5)	
Cardholders for subsidy, n (%)			
CHAS card	41 (38.7)	185 (59.0)	0.001
Blue	37 (34.9)	160 (51.0)	
Orange	4 (3.8)	25 (8.0)	
Public Assistance card	5 (4.7)	61 (19.4)	<0.001

CHAS: Community Health Assist Scheme; 3Gen: 3-generation flat; GP: general practitioner

Table 1. Sociodemographic profile of respondents followed up at general practitioner clinic and polyclinic (Cont'd)

	GP clinic (n=106)	Polyclinic (n=314)	P value
Lifestyle factors			
Frequency of choosing food with the “Healthier Choice” label, n (%)			
Never/rarely	36 (34.0)	153 (48.7)	0.001
Sometimes/most of the time	43 (40.6)	123 (39.2)	
Always	27 (25.5)	38 (12.1)	
Seen a health professional (e.g. dietician, doctor, nurse) to manage diet, n (%)	46 (43.4)	118 (37.6)	0.289
Frequency of eating 2 portions of vegetables and fruits daily, n (%)			
Never/rarely	9 (8.5)	31 (9.8)	0.098
Sometimes/most of the time	36 (33.9)	140 (44.6)	
Always	61 (57.5)	143 (45.5)	
Smoking, n (%)			
Current smoker	7 (6.6)	31 (9.9)	0.403
Ex-smoker	9 (8.5)	35 (11.1)	
Non-smoker	90 (84.9)	248 (79.0)	

CHAS: Community Health Assist Scheme; GP: general practitioner

Table 2. Comparison of general practitioner clinic and polyclinic in terms of Partners In Health (PIH), knowledge and satisfaction scores

	GP clinic	Polyclinic	P value
PIH score, mean (SD)	75.1 (13.2)	72.9 (13.6)	0.563
Knowledge score, mean (SD)			
Diabetes mellitus	85.4 (18.8)	79.5 (26.5)	0.407
Hypertension	90.9 (16.8)	84.3 (23.5)	0.160
Hyperlipidaemia	84.7 (23.2)	78.6 (27.4)	0.043
Satisfaction score, mean (SD)	26.8 (4.13)	24.1 (5.11)	0.096

GP: general practitioner; SD: standard deviation

Table 3. Multivariate regression analysis of variables on satisfaction rate

	Odds ratio (95% CI)	P value
Follow-up at polyclinic	0.275 (0.173–0.438)	<0.001
Follow-up at GP or workplace GP clinic	1 [Reference]	
Age, years	1.012 (0.99–1.035)	0.292
Man	0.735 (0.478–1.13)	0.160
Woman	1 [Reference]	
Malay race	1.702 (0.785–3.695)	0.178
Indian race	1.870 (0.907–3.857)	0.090
Other races	1.029 (0.159–6.666)	0.976
Chinese race	1 [Reference]	
Employed/self-employed	1.122 (0.667–1.885)	0.666
Unemployed	1.005 (0.548–1.846)	0.986
Retired	1 [Reference]	
1-room HDB flat	0.933 (0.344–2.535)	0.893

Table 3. Multivariate regression analysis of variables on satisfaction rate (Cont'd)

	Odds ratio (95% CI)	P value
2-room HDB flat	1.057 (0.453–2.467)	0.898
3-room HDB flat	0.638 (0.325–1.254)	0.192
4-room HDB flat	0.318 (0.154–0.654)	0.002
5-room HDB flat	1 [Reference]	
Primary education	0.798 (0.444–1.435)	0.451
Secondary education	0.823 (0.463–1.462)	0.506
Tertiary education	1 [Reference]	
Never married	0.806 (0.46–1.412)	0.450
Divorced/separated/widowed	0.908 (0.543–1.519)	0.714
Married	1 [Reference]	
Blue CHAS cardholder	0.762 (0.501–1.16)	0.205
Orange CHAS cardholder	1.636 (0.765–3.501)	0.205
No CHAS card	1 [Reference]	
Public Assistance cardholder	1.754 (0.943–3.261)	0.076
No Public Assistance card	1 [Reference]	
Irregular follow-up with doctor	0.593 (0.309–1.142)	0.119
Regular follow-up with doctor	1 [Reference]	
Never or rarely chooses healthier choice option	0.780 (0.441–1.381)	0.394
Sometimes or most of the time chooses healthier choice option	0.849 (0.476–1.511)	0.577
Always chooses healthier choice option	1 [Reference]	
Not seen a health professional to manage diet	1.131 (0.763–1.677)	0.541
Seen a health professional to manage diet	1 [Reference]	
Never or rarely eats 2 portions of vegetables and fruits daily	0.587 (0.298–1.156)	0.124
Sometimes or most of the time eats 2 portions of vegetables and fruits daily	0.770 (0.514–1.156)	0.208
Always eats 2 portions of vegetables and fruits daily	1 [Reference]	
Weekly minutes of moderate physical activity	1.001 (1–1.001)	0.111
Weekly minutes of vigorous physical activity	1.000 (0.997–1.002)	0.762
Current smoker	0.718 (0.358–1.442)	0.352
Ex-smoker	0.801 (0.416–1.54)	0.505
Non-smoker	1 [Reference]	
No diabetes mellitus	1.049 (0.704–1.564)	0.813
Diabetes mellitus	1 [Reference]	
No hypertension	1.068 (0.675–1.69)	0.777
Hypertension	1 [Reference]	
No hyperlipidaemia	0.817 (0.554–1.204)	0.308
Hyperlipidaemia	1 [Reference]	

CHAS: Community Health Assist Scheme; CI: confidence interval; GP: general practitioner; HDB: Housing and Development Board

Table 4. Comparison of reasons for satisfaction and dissatisfaction between general practitioner clinic and polyclinic

	GP clinic	Polyclinic	P value
Satisfaction, n (%)	92 (87.0)	228 (73.0)	
Reasons for satisfaction, n (%)			
Good personality of doctor	51 (55.4)	82 (36.0)	0.001
Perceived effective care	74 (80.4)	167 (73.2)	0.113
Ideal duration of consultation	18 (19.6)	26 (11.4)	0.044
Low cost	12 (13.0)	36 (15.8)	0.332
Short waiting time	14 (15.2)	25 (11.0)	0.192
Dissatisfaction, n (%)	14 (13.0)	86 (27.0)	
Reasons for dissatisfaction, n (%)			
Poor personality of doctor	2 (14.3)	14 (16.3)	0.605
Perceived ineffective care	3 (21.4)	26 (30.2)	0.373
Non-ideal duration of consultation	4 (28.6)	13 (15.1)	0.190
High cost	2 (14.3)	9 (10.5)	0.477
Long waiting time	0 (0.0)	30 (34.9)	0.004

GP: general practitioner

short waiting time and perception of effective care; however, these factors were not statistically significant.

There were 34.9% of respondents in the polyclinic group that associated long waiting time with dissatisfaction, compared with 0% in the GP group ($P=0.004$). Other reasons included high costs, poor personality of the doctor, non-ideal consultation duration and perceived ineffective care; however, these factors were not statistically significant.

DISCUSSION

Our study showed no significant differences in self-management competency and knowledge of chronic diseases between a sample followed up by primary healthcare providers in the polyclinics and in GP clinics. This result suggests that both public and private care settings may be equally adept at empowering patients with chronic diseases to take charge of their health.

Poor satisfaction with care hinders the development of a beneficial relationship between patient and doctor. Patients who feel a disconnect with their healthcare provider are less likely to understand or observe the advice laid out by their physician. Poor satisfaction renders the consultation ineffective as an educational tool to empower CDSM. Hence, poor care satisfaction indirectly leads to poorer health outcomes for patients. Our data showed that the overall satisfaction scores of patients followed up by a GP were 28% higher than patients followed up at a polyclinic. The reasons for greater satisfaction with GPs included the perceived good personality of the doctor as a proxy for rapport.

Patients followed up at GP clinics have a choice of their doctor, while patients followed up at polyclinics may be assigned a different doctor at each visit depending on the schedule of the polyclinic. The ability to choose one's doctor and the opportunity for consistent follow-up by the same doctor allows GPs to build a good rapport with each patient.¹⁴ Studies have shown that patients are more satisfied with care when they have an established relationship with their doctor.^{15,16}

An ideal duration of consultation was a significant reason for greater satisfaction in GP patients. With a lower patient load, GPs have the flexibility to tailor the duration of a consultation to meet their patients' needs. Consultation time accorded by GPs for patients with chronic conditions was found to be significantly longer than the time spent by a polyclinic doctor.⁸ Incidentally, an ideal duration allocated for consultation may allow a physician to establish a better rapport and understanding of each patient's unique background for delivering personalised care.

A long waiting time before consultation is the main reason for dissatisfaction in polyclinic patients. On average, a physician working in the polyclinic has a higher patient load than a GP.⁸ We postulated that this may be the reason for the longer waiting times in the polyclinic. Nonetheless, the introduction of online appointment systems has reduced the waiting time for patients in polyclinics in recent years.¹⁷

An ageing population brings about a greater proportion of the population with chronic diseases. It brings into question how healthcare resources can be best optimised

to meet the needs of the population. In accordance with the Singapore Healthcare 2020 Masterplan goals of achieving better quality care for patients, the Singapore government has focused on expanding polyclinic capacity to deal with the increasing health burden of the community in recent years. However, based on statistics from the latest Primary Care Survey conducted in 2014, polyclinic doctors have still been attending to more patients a day compared with their GP counterparts in primary care.⁸ Improvement in patient satisfaction in the polyclinic setting, in view of the limited consultation time, may require systemic strategies such as follow-up by a regular doctor based on the teamlet care model, or expanding on outpatient doctor–patient interaction with, for instance, teleconsultations. Yet, we acknowledge that such strategies have its inherent limitations.

We postulate that a win–win scenario may be achieved by encouraging more patients to be followed up by GPs for their chronic conditions. By encouraging patients to make the switch to GPs, the patient load on the public primary healthcare setting served primarily by the polyclinics can be decreased, thereby reducing waiting times to improve satisfaction levels among the remaining patients followed up at the polyclinic. Patients who make the switch from polyclinics to GPs will benefit from a greater rapport with the same primary care physician at each consultation.

Although the majority of primary healthcare is managed in the GP setting in Singapore,⁸ a large proportion of chronic disease primary care is currently managed by the polyclinics. This may be driven largely by significant subsidies given to patients who patronise the public healthcare sector.

In recent years, several schemes have been introduced to support chronic disease follow-up in the private GP sector. These programmes include direct subsidies given to patients in the form of the CHAS scheme, as well as non-financial support for GPs to improve infrastructure and accessibility of services required for chronic disease care, in the form of Primary Care Networks (PCN),¹⁸ access to electronic medical records, and collaborations with healthcare clusters. Since our study was concluded, an enhanced CHAS scheme was also introduced in November 2019 with subsidies for chronic disease follow-up by GPs being extended to all Singaporeans. During a parliamentary debate in March 2020, it was announced that Singapore will have at least half of CHAS GP clinics participating in PCN by the end of 2020, with more than 500 PCN GP clinic partners

caring for more than 100,000 patients with chronic diseases.¹⁹ The effects of these government policies will be of interest in the coming years.

Apart from the effective organisation of healthcare services, the concept of self-management support as introduced by Wagner in the Chronic Care Model²⁰ highlights the importance of educational interventions, skills empowerment, and psychosocial support that is crucial to improving CDSM. Primary care providers should pay more attention to inculcating in their patients a sense of ownership over their own health. Many patients are familiar with the various patient education activities conducted by primary care facilities nationwide to inform and correct misconceptions on chronic diseases, thereby influencing practices. Empowerment can also come in the form of encouraging health-conscious practices such as regular blood pressure and glucose self-monitoring. By cultivating self-management knowledge, attitudes and practices, patients and physicians can then work synergistically to optimise care. To this end, self-management can be greatly improved with structured self-management support programmes that have come into existence, such as the Flinders Chronic Condition Management Program,²¹ which combines assessment tools to identify lapses in CDSM and therefore develop an individualised intervention plan to improve CDSM and hence health outcomes.

Strengths and limitations of the study

While we used metabolic syndromes as the subject for analysis of CSDM competency, we understand that the breadth of chronic diseases stretches beyond, including diseases like depressive disorders, the incidence of which has been rising steadily over the years. Admittedly, we did not include primary care providers participating in teamlet models of care in polyclinics or Family Medicine Clinics in the analysis of associations, although these models of care are slowly gaining popularity. Certain limitations exist with the use of our scoring systems. While an association may be drawn with increasing knowledge scores and better health literacy, the 3-point tool may not be adequately sensitive or discerning. Being a cross-sectional study, our results demonstrate correlation between variables and not causality. Pinpointing the exact reason behind better PIH or knowledge scores would require further assessments via cohort studies to track trends and associations over longer periods. Previous research has found that chronic diseases led to negative quality of life in patients suffering

from diabetes²² and respiratory disorders²³ in Asia. It may be worth exploring further the relationship between CDSM competency and quality of life in individuals with chronic illnesses.

CONCLUSION

Our study is the first of its kind in Singapore to evaluate CDSM in primary care. Assessment of CDSM is a crucial aspect to consider in the quality evaluation of chronic disease management, which can be used subsequently to benchmark quality of care. Our findings, based on respondents from a public housing estate with an older demographic profile, provide insights that may inform the allocation of primary care resources for improving existing models of community care.

While we found no significant difference in the knowledge and practices of CDSM from respondents who were followed up at polyclinics or GP clinics, respondents who were followed up by GPs were more satisfied with their care than respondents who were followed up at polyclinics. As the perception of care appears in favour of a GP setting, redistribution of patients from public to private clinics may result in improvements in healthcare service quality.

The Singapore Healthcare 2020 Masterplan describes the goals of improving accessibility, affordability and quality of healthcare. Instead of viewing these goals separately, perhaps it is through improving accessibility that we may ultimately improve the quality of care. If so, it would be pertinent for us to tap the strengths of each primary care provider to achieve these goals.

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