CHALLENGES FACED BY PRIVATE PRACTICE GENERAL PRACTITIONERS & FAMILY PHYSICIANS IN LIGHT OF HEALTHIER SG: A MIXED-METHODS SURVEY

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ABSTRACT

Introduction: Singapore's rising non-communicable diseases is expected to show an increase in multimorbid patients. We used mixed methods to gather potential challenges that private GPs/FPs might face. Methods: Five GPs were interviewed to formulate a quantitative survey. The survey was verified for face and content validity before dissemination between 3 January to 12 February 2023, to GPs in Singapore. Results: 47 complete responses were analysed. The top three DI sources were Google [63.8% (n=30)], Pharmaceutical companies [51.1% (n=24)], and MIMS [42.6% (n=20)]. Approximately 23.4 percent (n=11) deemed their current source of DI insufficient. Over 70 percent indicated that it was of "high importance" of raising public health literacy across all age groups. The largest gap identified for NEHR was "incomplete medical and medication history". We polled for willingness-to-pay for six collaborative services. Over 60 percent were willing to subscribe to at least one service, with 27.7 percent willing to subscribe to all services. The majority were willing to pay SGD50-99 per month per service. Over 70 percent saw benefit for interim follow-up with patients whose medication was changed. Conclusion: The challenges identified could present as opportunities for allied health, pharmacy, and nursing in the wake of Healthier SG.

Keywords: Family Medicine; Healthcare Team; Interprofessional Collaboration; Population Health; Primary Care

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INTRODUCTION

In Singapore, there is a rapidly ageing population and rising prevalence of non-communicable diseases (NCDs), which has led to growing numbers of multi-morbid patients. This has resulted in greater emphasis placed on the primary care setting to manage these patients and drive population health.[1] Primary care in Singapore is mainly provided in two settings; by general practitioner (GP) clinics in the private sector and government polyclinics in the public sector.[2] Private GPs range from solo practices to group practices and cover approximately 80 percent of the primary care demand.[3] In order to tackle the healthcare needs of Singapore, Healthier SG (HSG) was launched in 2022 by the Ministry of Health (MOH) to highlight and drive patients towards preventive health.

The Healthier SG white paper has mentioned several key features of the initiative.[4] One such key feature is to encourage Singapore residents to enrol with a GP or Family Physician (FP) of their choice. This might potentially increase patient loads in the primary care sector and there is thus a need to deliver stronger primary care services. Another feature of Healthier SG mentions the advantages of leveraging on the strengths of other Healthcare Professionals (HCPs) to deliver stronger primary care.

In order to develop a strong multidisciplinary care team (MDCT) to serve the multimorbid population in the community, there is an urgent need to understand the challenges faced by current GPs/FPs in their current daily practice. This understanding may be used to build a team of HCP, or MDCT, with relevant strengths to best serve the population. However, a knowledge gap exists due to the lack of literature in Singapore. Therefore, our study aims to address the gap by exploring the challenges faced by private practice GPs/FPs in their daily practice in Singapore and prioritise areas of possible collaboration with HCP from other healthcare disciplines.

METHODOLOGY

Study Design and Subjects

This mixed method study consisted of informal conversations and a cross-sectional survey. The survey questions were crafted based on informal conversations with five GPs/FPs held in September 2022. The informal conversations were centred around the GPs'/FPs' current needs and demands in the primary care setting.

Ultimately, a total of seven questions were finalised and agreed upon by the authors. The questions consisted of mainly multiple choice and multi-response questions (i.e., select more than one applicable answer). Open-ended questions were available for the respondents to answer on a voluntary basis. The survey questions are attached in **Appendix 1**.

Supplementary Appendix 1

Background

The Healthier SG strategy was launched by the government in 2022 to resume the drive towards population health post-pandemic. The main focus of the strategy is to manage population health and shift towards preventive health in the primary care setting. With respect to a specific component under Healthier SG – "One Family Doctor and One Health Plan for Everyone", each citizen will enrol with one General Practitioner (GP) or family physician who will follow up with them regularly to not only manage their chronic illnesses, but also discuss health goals and meet their other healthcare needs. This aims at reducing the healthcare cost burden when preventive health is adopted as the main health management strategy.

With higher uptake of health screening programmes under Healthier SG, we foresee a sharp rise in newly diagnosed hypertensive, hyperlipidaemic, and diabetic subjects requiring treatment in the GP community and primary care network. At the other end of the spectrum, hospitals are barely coping with the current patient load and may wish to right site the patients into primary care setups. This would translate to more post-discharge transitional care patients and more multiple comorbidity patients that GPs will care for.

Hence, the goal of the survey is to determine the challenges that GPs face in their daily practice and prioritise areas where GPs could benefit from complementary collaborative services in which clinically trained pharmacists can provide, towards a common goal of Healthier SG.

Finalised Survey Questions:

Question 1 & 2 are related.

1. **What is your drug dosing/drug interaction source? Choose all that apply**
    a. Pharmaceutical Companies (e.g., reps, inserts)
    b. Google
    c. MIMS
    d. Up to Date/Lexicomp
    e. National Drug Formulary
    f. Others
2. **In relation to Question 1, do you feel that the resources that you are currently using are sufficient for your daily practice?**
    a. Sufficient
        i. Why?
    b. Insufficient
        i. Why not?

Questions 3 & 4 are related.

3. **How important do you think raising health literacy is for the following age groups? (1: very high importance; 2: high importance; 3: moderate importance; 4: low importance; 5: very low importance)**
    a. <40
        i. Scale of 1 to 5
    b. 41-50
        i. Scale of 1 to 5
    c. 51-64
        i. Scale of 1 to 5
    d. ≥65
        i. Scale of 1 to 5
4. **With regards to the age group, what areas of health literacy could be improved on? (grid)**
    a. Knowledge of management of their chronic conditions (goals of therapy, complications, importance of adherence to management strategies/medications)
    b. How to spot health/medicine misinformation
    c. Proper use of medication devices (inhalers, injectables etc)
    d. Self-monitoring of health status (e.g., body weight, fluid, blood pressure, glucose levels, adverse drug reactions)
    e. Lifestyle modifications (e.g., smoking cessation, exercise, nutrition & diet)

Example: Tick those that apply.

Age Group	Knowledge of management of their chronic conditions	How to spot health misinformation	Proper use of medication devices
<40			
41-50			
51-64			
≥65			

5. What are the current gaps of care with regards to National Electronic Health Record/Electronic Medical Record (NEHR/EMR) systems? Select all that apply.

a. Lack of care plans

b. Rationale as to why medications were prescribed

c. Downtime/IT challenges, e.g., incompatibility with GP in-house system/Standard Operating Procedure (SOP)

d. Incomplete medical/medication history by other GPs and private practitioners

e. Others: _____

6. Assuming the following services are made available to you, please indicate how valuable these subscribed services are to you <u>per month</u>. (grid)

a. Call in to ask about drug information (e.g., drug dosing, drug interactions, pregnancy & lactation enquiries, etc)*;

b. Quarterly updated drug and customised references (e.g., Dosing adjustments for organ dysfunction, pregnancy & lactation, paediatric dosing)*;

c. Medication reconciliation (during transitions of care; updated patient medication list);

d. Medication optimisation (optimisation of doses, choice of therapy);

e. Patient education on health prevention (e.g., lifestyle modifications)

f. Patient education on medication use (e.g., counselling, administration, storage)

g. If you choose **"I do not want to subscribe to these services"** for any of the above options, please share why. _____

*Note that an individual UptoDate subscription is SGD76/month.

Example: Tick those that apply. Can only select one per row.

Services	>SGD 200	SGD 150-200	SGD 100-149	SGD 50-99	I do not want to subscribe to this service
a					
b					
c					
d					

7. For a patient who is prescribed a new chronic medication or has an updated dose for their chronic medications, do you think it will be beneficial to have an interim follow-up before your next appointment with them?

a. Yes

i. Why?

b. No

i. Why?

Demographics Questions:

- How many years of experience do you have as a General Practitioner/Family Physician?
  - <5
  - 6 to 10
  - 11 to 15
  - 16 to 20
  - >20
- Where is your place of practice?
  - Solo practice
  - Small chain practice (1 to 5 clinics)
  - Medium chain practice (6 to 10 clinics)
  - Large chain practice (>10 clinics)
- Do you manage profit and loss of your clinic/chain?
  - Yes
  - No
- Are you an accredited Family Physician?
  - Yes
  - No

- Encounter with Interprofessional Education (IPE)/ Interprofessional Collaborative Practice (IPCP) in education/training/practice.
    - Have you worked in a multidisciplinary team or collaborated with other healthcare professionals before? (e.g., pharmacists, allied healthcare professionals)
        - Yes
        - If yes, which one(s)?
        - No
- Regarding your highest level of qualification, were you trained locally or overseas?
    - Local University
    - Foreign University
    - Which country?
- Which demographics of patients do you mainly see? / What is your clinic's patient profile?
    - ____ % chronic
    - _____ % acute
    - _____ % preventive health (e.g., screening, vaccinations)
- Where is your clinic located in Singapore? Please specify the area (e.g., Toa Payoh)
    - _____

The anonymised online quantitative survey was then administered to GPs/FPs in private practice in Singapore from January 2023 to February 2023. The survey was reviewed and approved by the National University of Singapore Departmental Ethics Review Committee (PHA-DERC-38).

Survey Recruitment

The survey was hosted on Qualtrics and disseminated via Singapore Medical Association (SMA), GP groups, solo GPs and social media (LinkedIn, Instagram, and Facebook), and communication platforms (WhatsApp and Telegram) through authors' close contacts. Participation was voluntary. As no personal identifiers were to be recorded, submission of the survey form was taken as consent to participation.

Sample Size

Typically, the target sample size is determined by one question corresponding to five respondents. Since the quantitative survey included seven questions, the minimum sample size was 35 respondents.

Survey

The survey included demographic data such as years of practice, chain size, GP's participation in management of profit and loss of the clinic, Family Physician accreditation, past experience in MDCT, location of university education, and their clinic's patient profile. The survey questions were with regard to the GP's difficulties faced in sources of drug information (DI), interprofessional collaboration (IPC), and their opinions about patient health literacy and financial issues. Hence, these questions will help us to determine the challenges that GPs face in their daily practice and areas where GPs could benefit from complementary services which AHCPs could provide. The survey questions were sent out to three GPs prior to dissemination for face and content validation.

Statistical Analyses

All statistical analyses were performed using SPSS Statistics software version 28; a p-value of less than 0.05 was considered statistically significant.

Pearson's chi-square test, Fisher's exact test, or independent sample t-test were used to assess for associations with the demographic variables. Multivariable analysis with logistic regression was performed using variables with p-values of <0.1.

RESULTS

Survey Demographics

Out of 63 responses received, a total of 47 complete responses were analysed.

Table I. Demographics of GPs/FPs

Demographic Variables (Total n=47)	Count (%)
Years of Practice	
<5	3 (6.4%)
6 to 10	7 (14.9%)
11 to 15	4 (8.5%)
16 to 20	5 (10.6%)
>20	28 (59.6%)
Chain Size	
Solo practice	20 (42.6%)
Small chain practice (1 to 5 clinics)	16 (34.0%)
Medium chain practice (6 to 10 clinics)	4 (8.5%)
Large chain practice (>10 clinics)	7 (14.9%)

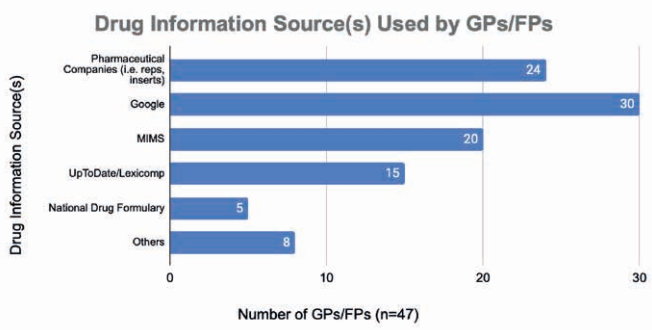
Managing Profit & Loss in Clinic	
Yes	23 (48.9%)
No	24 (51.1%)
Family Physician Accreditation	
Yes	37 (78.7%)
No	10 (21.3%)
Past Experience in MDCT	
Yes	18 (38.3%)
No	29 (61.7%)
Location of University Education	
Local (Singapore)	43 (91.5%)
Foreign	4 (8.5%)
Percentage of Patient Profile Seen in Clinic ***As it is a free text question, some responses did not add up to 100%**	**Mean (S.D)**
Acute	54.7 (18.9)
Chronic	30.4 (16.9)
Preventive	20 (15.3)

Survey Results

Drug Information (DI) Source(s) Used by GPs/FPs in Daily Practice

The top three DI sources used by respondents were Google [30 (63.8 percent)], Pharmaceutical Companies [24 (51.1 percent)], and MIMS [20 (42.6 percent)] (refer to **Figure 1a**). There was no significant difference between the selected DI source(s) and demographic variables. "Other" listed options include Medscape, British National Formulary, and Electronic Medicines Compendium.

Figure 1. DI Source(s) Used by GPs/FPs in their Daily Practice.



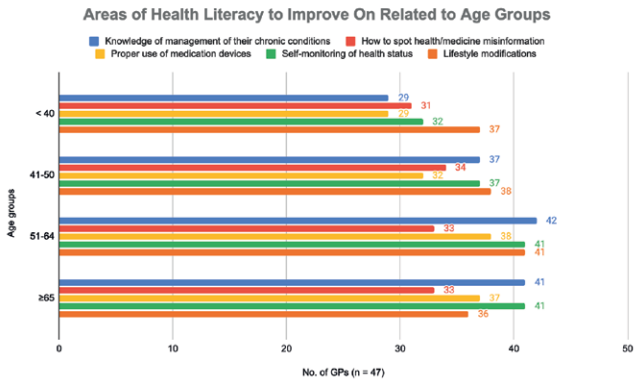
Sufficiency of Selected DI Source(s) for GPs'/FPs' Daily Practice

The majority [36 (76.6 percent)] of respondents thought that the current selection of Drug Information (DI) sources were sufficient for their daily practice. However, 11 (23.4 percent) deemed their current source of DI to be insufficient. Among the respondents who expressed sufficiency for their DI sources, some reasons cited include familiarity with the drug use, accessibility of drug information and continuing education programmes, and uncomplicated patient profiles (e.g., minor ailments, simple chronic diseases). On the other hand, respondents who indicated insufficiency generally felt that there is a barrier in retrieving information from the DI sources and some resources are not applicable to local practice.

Health Literacy – Importance & Areas to Improve On

At least 70 percent of the respondents opine that there is high importance in raising health literacy in patients regardless of their age groups. For patients aged below 40 years, lifestyle modifications (n=37) was ranked as the highest area of health literacy to improve on. For patients aged 41 to 50 years, "lifestyle modifications" (n=38) was ranked the highest, while "knowledge of management of their chronic conditions" and "self-monitoring of health status" (n=37) was closely ranked second. For patients aged 51 to 64 years, "knowledge of management of their chronic conditions" (n=42) was the most important area whereas "lifestyle modifications" and "self monitoring of health status were both closely ranked second" (n=41). For patients aged 65 years and above, "knowledge of management of their chronic conditions" (n=41) and "self-monitoring of health status" (n=41) were both ranked as the most important. Overall, subgroup analyses against the demographics of the GPs/FPs were not statistically significant.

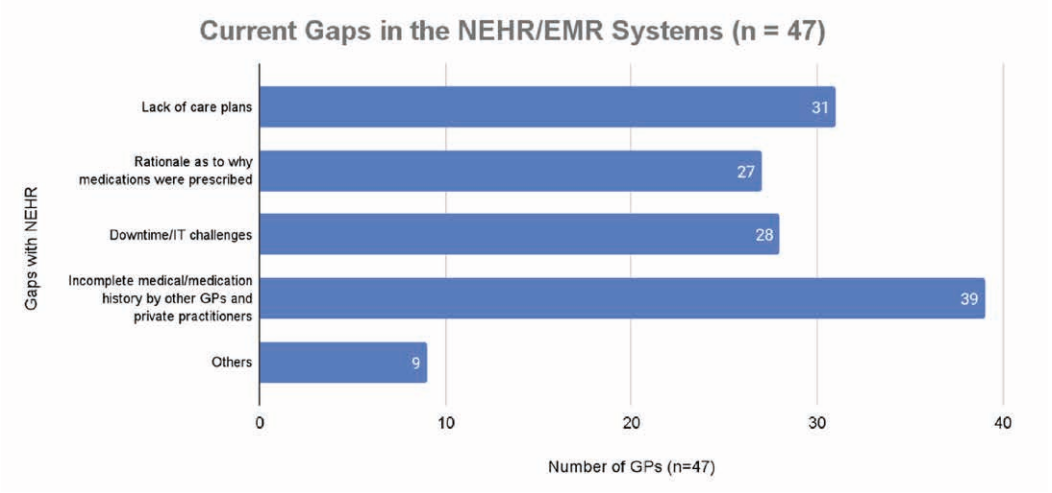
Figure 2: GPs/FPs' opinion on the areas of health literacy to improve on related to age groups



Gaps of Care with Regards to NEHR/EMR Systems

At least 50 percent of respondents agree that all areas listed are current gaps in the National Electronic Health Record (NEHR) and Electronic Medical Record (EMR) systems. A resounding majority of respondents [39 (83.0 percent)] think that "incomplete medical and medication history" is the largest gap.

Figure 3: GPs'/FPs' opinion on the current gaps of care with regard to NEHR and EMR systems



GPs/FPs' Interest in Subscribing to Services

In the survey, six services (refer to **Figure 4b**) were listed and the GP/FPs were asked to select the cost for which they are willing to pay for each service per month. They were also allowed to select that they did not wish to subscribe to the service.

Among the six listed services, 30 (63.8 percent) of the respondents were willing to subscribe to one or more of the services and 13 (27.7 percent) indicated interest in all six services (refer to **Figure 4a**) while 17 (36.2 percent) of them were unwilling to subscribe to any of the services. Overall, there was a similar level of interest among the services (refer to **Figure 4b**). For each service, the majority of the respondents were willing to pay SGD50-99/month per service. Respondents who were not willing to subscribe to any of the services cited reasons such as cost of the services, being able to carry out the services themselves, availability of resources, limitations of the services listed, and not seeing the need for the service.

Figure 4a. Services that GPs/FPs are willing to subscribe to

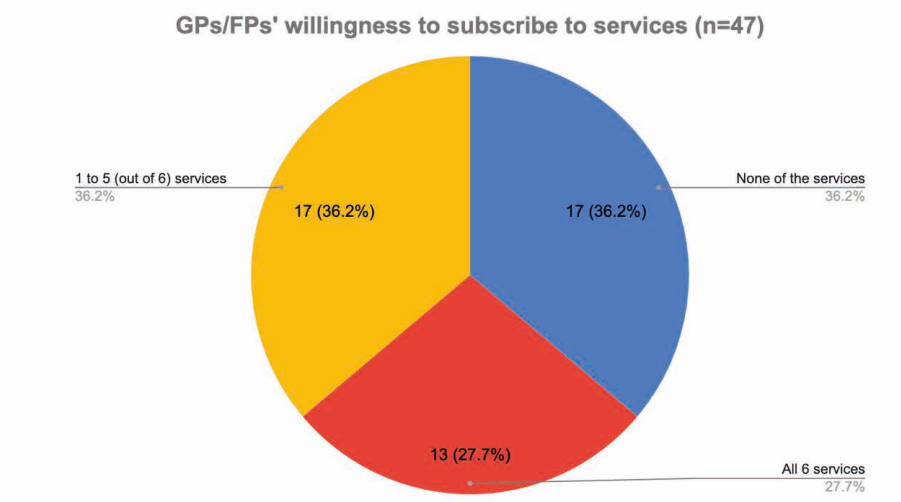
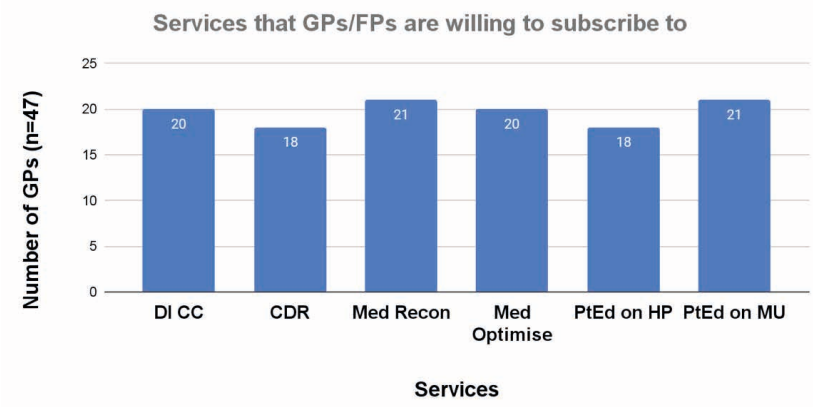


Figure 4b. Services that GPs/FPs are willing to subscribe to



Key

DI CC = Drug Information Call Centre

CDR = Customised Drug Reference

Med Recon = Medication Reconciliation

Med Optimise = Medication Optimisation

PtEd on HP = Patient Education on Health Prevention

PtEd on MU = Patient Education on Medication Use

GPs/FPs' Opinion on Whether There Is Benefit for Interim Follow-Up with Patients

Seventy-two percent (n=33) of the respondents agree that there is a benefit to interim follow-up with their patients after prescribing them a new chronic medication or adjusting their chronic medication doses. Reasons for benefits to interim follow-up include being able to monitor side effects, efficacy compliance, drug safety, and easy dose titration. Some respondents agreed that there are benefits, but still expressed some concerns about the practicality and logistics required. Meanwhile, reasons for no benefit were lack of time, cost issues, GPs/FPs taking measures for follow-up with their patients, patients being unreceptive, and concerns as to who would conduct the follow-up.

DISCUSSION

Our survey is the first quantitative study that has revealed some important insights on the challenges faced by GPs/FPs and their interest in subscribing to collaborative services. The four key challenges found were with regards to drug information (DI), health literacy, NEHR/EMR systems and interim follow-up. These findings can help to kickstart conversations among policymakers on the future transformation of primary care.

First, although most GP/FPs agree that there is a benefit to interim follow-up with their patients, the respondents also shed light on the barriers that hinder this. From the results, there is a need to look deeper to find suitable personnel to step up and perform the interim follow-up. Additionally, enablers and barriers should be identified in order for the suitable personnel to take on this role. A systematic review and thematic synthesis by Damarell et al[5] called out policies that frame care delivery systems, for interfering with patient's consultation with their GP. These policies induce "short clinical interactions and disease-focused care".

However, patients are becoming more multimorbid and need more time for interaction with their GP. If care for multimorbid patients in the community can be delivered through MDCTs, interim follow-up by HCPs of other disciplines can benefit patients through increased interaction with a trusted HCP. For example, the systematic review by Martínez-González et al[6] concluded positive impacts of "physician-nurse task shifting" when nurses followed disease-specific protocols in managing chronic diseases, in primary care. It also found that nurses were better in managing secondary prevention of heart disease and dyspepsia, and at reducing cardiovascular risk in diabetic patients. The systematic review, however, was limited by the studies being small-sized, having varied follow-up episodes and were at risk of biases.

In another systematic review and meta-analysis, the included studies looked at pharmacists integrated into general practice clinics that deliver multi-pronged interventions plus follow-up of patients, instead of studies that narrowed on single-interventions/outcomes by pharmacists.[7] These pharmacists performing generalistic roles not only improved management of chronic diseases such as cardiovascular disease and diabetes, but also enhanced the standard and fitness of prescriptions when there was interprofessional communication with the primary care physician. There was better medication adherence and alleviation of drug-related issues, and the indicators of quality of care reflected improvements.

Second, GPs/FPs believe that health literacy should be improved across all adult age groups. The top three areas of health literacy identified that required improvement were lifestyle modifications for ages <40 to 64 years, knowledge of management of their chronic conditions for ages 51 to >65 years, and self-monitoring of health status for ages 51 to >65 years. As mentioned in other studies,[8,9] one way HCPs in MDCTs can help to raise health literacy is by using personalised patient education. Future studies could be designed to find out what knowledge gaps are required to be filled.

Third, the largest gap identified in the NEHR and EMR systems was incomplete information. Incomplete information includes "lack of care plans", "rationale as to why medications were prescribed", and "incomplete medical/medication history by other GPs and private practitioners". As there is a lack of reconciliation of information related to medications, radiology, and medical history, work needs to be done to reconcile information. National IT systems need to be constantly upgraded, and proper reconciliation of history is required. HCPs can reconcile the patients' history and develop a care plan for patients to ensure safe and seamless transitions between care settings. A systematic review and meta-analysis revealed that pharmacy-led medication reconciliation programmes during transitions of care have led to a reduction in medication discrepancies, which in turn lead to safe patient transition.[10] Meanwhile, a randomised trial by Gabbard et al[11] showed that nurse-led integrated healthcare professional-facing electronic health record (EHR) resulted in increased advanced care planning (ACP) documentation. The increased ACP documentation was beneficial in primary care settings such that patients were provided with their desired end-of-life care and undesired care was minimised.

Lastly, about a fifth of GP/FPs expressed insufficiency of their drug information source(s). However, insufficient reason was provided, thus the type of information from the selected DI source(s) that was deemed insufficient was unable to be ascertained. Therefore, further studies are required to find out about the specific areas of insufficiency and the types of support that the GP/FPs need.

Apart from the challenges faced by GP/FPs, another key finding from the survey was that at least two-thirds of respondents were willing to subscribe to services. Similarly in systematic reviews, attitudes of medical practitioners towards interprofessional collaboration with nurses[12,13] and pharmacists[5] were mostly positive and have shown efficacy[14] in managing patients in primary care. For

example, GPs were keen to work with pharmacists for medication reviews,[5] and GP-pharmacist collaboration was effective.[7,15] Moreover, MDCTs in the primary care setting to manage complex chronic conditions have been shown to be effective and facilitate patients' self-management of their own health.[16-18] MOH's Healthier SG White Paper detailed out the different roles of members of the team-based care approach in delivering a "Stronger Primary Care". Members include a Doctor, a Nurse, a Care Coordinator, as well as a Pharmacist and Allied Health Professionals.

LIMITATIONS & FUTURE RESEARCH

In future studies, this study can be scaled up to garner more responses from GP/FPs in this period of Healthier SG implementation. The study team acknowledges that 47 responses could appear to be non-generalisable. However, this is comparable with another study that obtained 31 responses from GPs.[19] The small sample size could be due to concurrent surveys being disseminated to the GP/FPs at the time of data collection. In an attempt to increase the reach of our survey, the survey was disseminated via various social media platforms, the Singapore Medical Association (SMA), and the authors' close professional contacts. Hence, we are satisfied with the sample size.

Some potential mechanisms to expand outreach in the future include using paid surveyors to visit the GP clinics to administer the survey and collaborating with Primary Care Networks (PCN) or the College of Family Physicians (CFPS). Additionally, incentives can be given to complete surveys. The larger outreach can be aimed at validating our findings. Nevertheless, our results still offer meaningful insights and can serve as a basis for further analysis.

CONCLUSION

This study identified challenges faced by GP/FPs in their daily practice. This could present opportunities for Allied Health, Pharmacy, and Nursing to strengthen primary care in light of Healthier SG. Our findings are a start in suggesting what further insights are required to fulfil the unmet needs for the different healthcare disciplines. Future market research is needed prior to the introduction of services between GP/FPs and HCPs of different disciplines.

DISCLOSURE

There are no affiliations or financial involvement with any commercial organisation with a direct financial interest in the subject or materials discussed in the manuscript. The authors declare that they have no conflict of interest in relation to this article.

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