

District-based Survey on Medication Management and Community Pharmacy Services Utilization of Hong Kong Citizens

CHOW, Dilys Yan-wing

Sha Tin District Health Centre Express, Unit 1520, Level 15, Tower II, Grand Central Plaza, 138 Sha Tin Rural Committee Road, Shatin, New Territories

ABSTRACT

To plan for pharmacy services that cater for community needs, the Sha Tin District Health Centre Express (STDHCE) has conducted a survey in early 2024 to investigate the medication management and utilization of community pharmacy services by local residents in Sha Tin. A total of 733 replies were received, including members (94.1%) and nonmembers of STDHCE. The results revealed potential problems in medication management by citizens such as inappropriate side effects management, medication nonadherence, and lack of reliable and useful online information platforms to address their health or drug-related questions. Respondents also showed a low awareness of existing community pharmacy services available, while publicly perceived pharmacy service needs such as general drug consultation, medication management services, and minor ailment management and consultation were identified. As the current study focused on the Sha Tin population, more population-based studies would allow policy makers and service providers to develop services that address public needs.

Keywords: *Primary healthcare, Community pharmacy, Community pharmacist, Medication management, Public engagement*

INTRODUCTION

Needs assessment is the first step to devise services that address community needs. There has been an escalating development of community pharmacy services (CPS) in Hong Kong in recent years, such as serving as Community Collection Points for patients under the Hospital Authority (HA) opting for the Medication Delivery Service since 2023, and the Jockey Club PHARM+ Community Medication Service Network Project commenced in 2024.⁽¹⁻³⁾

The Chief Executive's Policy Address announced in October 2024 has explicitly stated that there was a plan to "complete the establishment of a community drug formulary in

Q4 2025 and launch a Community Pharmacy Programme (CPP) by phases starting from Q4 2026" as the ways forward to drive the development of CPS to support primary healthcare in Hong Kong.⁽⁴⁾ This was reiterated in the Policy Address announced in September 2025, and the Community Drug Formulary mechanism and Guidelines of Practice for Community Pharmacy were announced in October 2025, highlighting the importance of setting standards and frameworks of pharmacy service to the HKSAR Government.^(5,6) Hong Kong is about to embark on a great leap in the progress of pharmacist-led primary healthcare initiatives (e.g. CPP) with government support, new service models put forward in the Jockey Club PHARM+ Community Medication Service Network Project, the establishment of increasing number of non-governmental organization (NGO)-led community pharmacies and District Health Centres/Expresses with in-house pharmacists, and new service initiatives in other community pharmacies.

Nevertheless, local data on the general needs and opinions of citizens on CPS are scarce, outdated, or focused on specific needs (e.g. self-medication behaviors and the elderly).⁽⁷⁻⁹⁾ The Sha Tin District Health Centre Express (STDHCE) has conducted a survey in early 2024 with the aim to understand the medication management practice and utilization of CPS by Sha Tin residents, and explore potential pharmacy service development.

METHODS

The anonymous survey was disseminated to members of STDHCE by electronic means and non-members through district newsletter and district partners from 1 March to 31 May 2024.

The quantitative survey in Chinese was designed to be self-administered online by respondents and included five sections: (1) basic demographics; (2) use of western medications and complementary medicines in the past one year; (3) treatment beliefs; (4) health information literacy; and (5) awareness and utilization of CPS. Section (3) on treatment beliefs adopted questions from the Beliefs about Medicines

Questionnaire - Specific (BMQ-Specific, including "Necessity" and "Concerns"), which includes questions that assess the beliefs about medicines for personal use, in turn affecting patient adherence.⁽¹⁰⁾ A shortened version was employed so that two ("My life would be impossible without my medicines" and "My medicines protect me from becoming worse") and one item ("My medicines are a mystery to me") were removed from Specific-Necessity and Specific-Concerns, respectively. The two subscales demonstrated satisfactory internal consistency in the present study, with Cronbach's alpha values of .86 for the Specific-Necessity subscale and .84 for the Specific-Concerns subscale, respectively. Mean scores were generated for each sub-scale by averaging the item scores that range between 1 and 5.

One-way ANOVA and Chi-squared tests of independence were used to examine associations between sociodemographic characteristics (gender, age group, and education attainment) and treatment beliefs, health information literacy, awareness and perceived needs of CPS, and willingness-to-pay for CPS. Since a total of 99 comparisons were conducted in the above analysis, Bonferroni correction was applied to increase acceptable significance level to .0005 to reduce the likelihood of making Type I errors.

Univariate and multivariate logistic regression models were used to identify predictors of medication nonadherence among a sub-group of respondents who took chronic medications in the past year. Medication nonadherence was assessed with a single item asking patients taking chronic medications "When you feel your symptoms are under control, do you sometimes stop taking your medication?" (Yes/No). Predictors included gender, age (below 60 years old vs. 61 years or above), education attainment (primary or lower, secondary, tertiary or above), treatment beliefs (Specific-Necessity, Specific-Concerns), polypharmacy (taking 4 or fewer chronic medicines vs. 5 or more), use of supplements (Yes/No), Hospital Authority or Department of Health being the source(s) of the chronic medication (Yes/No), and experience of side effects (Yes/No). Except sociodemographic characteristics (age, gender, education), each covariate was entered to the univariate logistic regression model with medication nonadherence as the dependent variable. Only covariates demonstrated a statistically significant association ($p < .05$) were included in the final model along with the sociodemographic characteristics.

For the bivariate analyses, the sample size for the chi-squared test of independence was determined using an a priori power analysis. Based on detecting a conventional medium effect size ($w = 0.30$) with a standard alpha level of $\alpha = 0.05$ and 80% power, a minimum of 107 participants is required for a 3x2 contingency table ($df = 2$).⁽¹¹⁾ Using the common rule of a minimum of 10 events per independent variable in the multivariate logistic regression model,⁽¹²⁾ and assuming a 30%

event rate (medication nonadherence),⁽¹³⁾ at least 333 chronic-medicine-taking respondents will be needed for a model that includes 10 predictors while preventing model overfitting. Given that approximately half of STDHCE clients were suffering from various chronic conditions, it was expected that at least 670 respondents would be needed for the study in order to secure a sufficiently large sub-group for the logistic regression analysis.

All statistical analyses were conducted using R (version 4.3.2).

RESULTS

Demographics

A total of 733 replies were received, of which 690 (94.1%) were members of STDHCE. Respondents aged 18 – 50, 51 – 60, 61 – 70, and 71 and above years made up 8.5%, 20.2%, 53.3%, and 18.0%, respectively. The female-to-male ratio was 2.5 (521:210, two were not disclosed). 13.9%, 50.8% and 35.3% of respondents have attained primary or below, secondary, and tertiary or above education level, respectively.

Use of Western and Complementary Medicines in the Past Year

About half of the respondents have taken three (31.8%) to four (13.8%) types of drug products listed below in the past year, signifying potential drug interactions. All descriptive findings in this section are shown in **Table 1**.

(I) Chronic medications

381 (52.0%) respondents have used chronic medications in the past year. The most commonly used drugs were for blood pressure-lowering (50.9%), lipid-lowering (47.8%), and blood glucose-lowering (17.1%). The majority of chronic medications users were taking one to two drugs only (58.5%), followed by 27.3% taking three to four drugs.

Most respondents could manage the drugs by themselves without assistance from family, domestic helper, or community health support (97.6%). Few respondents were forgetful in drug administration (3.4% for once a week; 0.3% for once a day). However, 61 (16.0%) chronic medications users have stopped taking the drugs when they felt the symptoms were under control.

Over half (57.2%) of the respondents have experienced suspected adverse reactions to drugs. Most would seek doctor's advice at the next appointment (60.9%), 11.8% and 10.5% would discontinue the drug or reduce the dose by themselves, respectively.

(II) Medications for minor ailments

658 (89.8%) respondents have used medications for minor ailments in the past year, constituting the most prevalent type of drug product among the four categories in the survey. Cold and cough medicines (79.3%), analgesics (61.9%), and proprietary Chinese medicines (43.8%) were the most frequently used products.

Respondents usually obtained these medications from the public healthcare sector (including HA and Department of Health) (48.3%), non-pharmacy physical stores (47.6%), and private doctors (46.8%). Less than a quarter obtained the drugs from community pharmacies (and that did not necessitate pharmacist consultation was received) (23.3%).

(III) Supplements

493 (67.3%) respondents have used supplements (excluding proprietary Chinese products) in the past year. Vitamins and minerals products were the most popular (70.2%), followed by products for musculoskeletal pain (36.9%) and immunity-boosting (34.5%). The most common reason to take supplements was to improve health (83.4%), followed by

38.1% who believed supplements were effective. Moreover, 22.5% and 17.6% respondents considered supplements as more natural and less toxic when compared to medicines, respectively.

Supplements were most frequently obtained from non-pharmacy physical stores (58.0%), relatives and friends (26.8%), and online stores (25.4%). Less than one-fifth were from community pharmacies (with or without advice from pharmacists) (18.1%), and even less from doctors (9.3% from public sector, 6.1% from private sector).

(IV) Chinese medicines

235 (32.1%) respondents have used traditional Chinese medicines and proprietary Chinese medicines in the past year. Most took these medicines for regulating the body homeostasis and disease prevention (75.7%). The majority of Chinese medicines used were obtained from Chinese medicine practitioners (CMP) in different practice sites, while others were obtained from pharmacies or non-pharmacy stores without CMP (23.4%), relatives and friends (14.0%), or online stores (6.0%).

Table 1. Use of medications in the past year (n=733)

	Frequency (%)
Use of chronic medications	381
Types of drugs used (multiple choices)	
Blood pressure-lowering drugs	194 (50.9%)
Lipid-lowering drugs	182 (47.8%)
Blood glucose-lowering drugs	65 (17.1%)
Medicines for gastric conditions	59 (15.5%)
Psychiatric medication and/or sleeping pills	53 (13.9%)
Blood thinners	51 (13.4%)
Number of chronic medications currently taking	
1 – 2 types	223 (58.5%)
3 – 4 types	104 (27.3%)
5 – 6 types	38 (10.0%)
7 – 9 types	14 (3.7%)
10 types and above	2 (0.5%)
How do you usually manage and take your medications	
Manage on my own, without help from others	372 (97.6%)
Assisted by family members	8 (2.1%)
Assisted by domestic helper/community nurse	0 (0%)
How often do you forget to take your medications	
Never	121 (31.8%)
Very rarely (about once in a few months)	182 (47.8%)
Sometimes (about once a month)	64 (16.8%)
Often (about once a week)	13 (3.4%)
Every day	1 (0.3%)

	Frequency (%)
Would you sometimes stop taking your medications when you feel the condition is under control	61 (16.0%)
Have you experienced any suspected side effects from drugs	218 (57.2%)
Handling of suspected side effects from drugs (multiple choices)	
Wait until next follow-up medical appointment with doctor	232 (60.9%)
Immediately seek advice from healthcare professionals (such as doctors, pharmacists, nurses, etc.)	139 (36.5%)
Continue taking the medication	88 (23.1%)
Stop taking the medication on your own	45 (11.8%)
Reduce the dosage on your own	40 (10.5%)
Use of Medications for Minor Ailments	658
Types of medications for minor ailments used (multiple choices)	
Cold and cough medicines	522 (79.3%)
Analgesics	407 (61.9%)
Proprietary Chinese medicines	288 (43.8%)
Medicines for gastrointestinal discomfort	233 (35.4%)
Anti-allergy medications	213 (32.4%)
Creams/ointments for skin problems	199 (30.2%)
Antibiotics	136 (20.7%)
Medicated patches	134 (20.4%)
Steroids	62 (9.4%)
Anti-dizziness medications	61 (9.3%)
Nasal sprays	50 (7.6%)
Sources of medications for minor ailments (multiple choices)	
Hospital Authority or Department of Health	318 (48.3%)
Other physical retail stores	313 (47.6%)
Private doctors	308 (46.8%)
Community pharmacies	153 (23.3%)
Relatives or friends	21 (3.2%)
Online shopping or other online platforms	11 (1.7%)
Use of Supplements	493
Types of supplements used (multiple choices)	
Vitamins and/or minerals	364 (70.2%)
Bone and joint pain relief products	182 (36.9%)
Immune-boosting/wellness products	170 (34.5%)
Eye care	138 (28.0%)
Cardiovascular protection	86 (17.4%)
Mood/sleep improvement	67 (13.6%)
Brain function/memory improvement	54 (11.0%)
Liver protection	43 (8.7%)
Skin improvement	29 (5.9%)
Detox/weight loss	23 (4.7%)
Prostate/urinary health	16 (3.2%)
Uric acid control	12 (2.4%)
Kidney protection	11 (2.2%)
Blood sugar control	8 (1.6%)
Reasons for taking supplements (multiple choices)	
To improve health	411 (83.4%)
Believe they are effective	188 (38.1%)
Recommended by relatives or friends	152 (30.8%)
Consider ingredients more natural (compared to medicines)	111 (22.5%)
Believe there are fewer side effects (compared to medicines)	87 (17.6%)
Recommended by healthcare professionals	65 (13.2%)

	Frequency (%)
Reasonable price	60 (12.2%)
Advertising	47 (9.5%)
Salesperson recommendation	15 (3.0%)
Sources of supplements (multiple choices)	
Other physical retail stores	286 (58.0%)
Relatives or friends	132 (26.8%)
Online shopping or other online platforms	125 (25.4%)
Community pharmacies	89 (18.1%)
Hospital Authority or Department of Health	46 (9.3%)
Private doctors	30 (6.1%)
Use of Chinese Medicines	235
Reasons for taking Chinese medicines (multiple choices)	
To regulate the body and prevent illness	178 (75.7%)
To treat occasional illnesses	85 (36.2%)
Believe there are fewer side effects (compared to Western medicines)	73 (31.1%)
Believe ingredients are more natural (compared to Western medicines)	68 (28.9%)
Believe they address the root cause (compared to Western medicines)	54 (23.0%)
Recommended by relatives or friends	51 (21.7%)
To treat chronic illnesses	33 (14.0%)
Reduce side effects of Western medicine	23 (9.8%)
Advertising	18 (7.7%)
Recommended by healthcare professionals	14 (6.0%)
Sources of Chinese Medicines (multiple choices)	
Independent CMP	80 (34.0%)
Chinese Medicine Clinics cum Training and Research Centres	64 (27.2%)
Pharmacies or non-pharmacy stores with drug supply (without CMP)	55 (23.4%)
NGO CMP	51 (21.7%)
CMP practicing in pharmacies/non-pharmacy stores with drug supply	49 (20.9%)
Relatives or friends	33 (14.0%)
Online shopping or other online platforms	14 (6.0%)
Number of types of medication taken in the past year (including chronic medicines, minor ailments, supplements, and Chinese medicines)	733
Not taking any medication	19 (2.6%)
One type	96 (13.1%)
Two types	284 (38.7%)
Three types	233 (31.8%)
Four types	101 (13.8%)
Abbreviations: CMP = Chinese medicine practitioners; NGO = non-governmental organizations	

Treatment Beliefs

The mean scores of the Specific-Necessity and Specific-Concerns sub-scales for the full sample were 3.18 (.754) and 3.12 (.700) respectively, showing a largely neutral attitude of the respondents towards pharmacological treatment.

Health Information Literacy

The most commonly encountered questions about drugs or supplements were uncertain effectiveness (52.4%), adverse

drug reactions (36.4%), and drug interactions (28.6%). Respondents usually consulted the doctors (56.5%), looked for information from the media themselves (47.7%), and asked relatives and friends (31.1%) to answer their questions. Only a quarter consulted the pharmacists (25.6%). In spite of the high prevalence of searching for health information in online platforms (90.5%), only around a quarter of the respondents rated online information platforms as useful or very useful in addressing their questions (23.7%), and reliable or very reliable (26.5%), respectively. Table 2 summarized the findings on health information literacy.

Table 2 Health information literacy (n=733)	
	Frequency (%)
Problems encountered with medications or supplements (multiple choices)	
Uncertain effectiveness	384 (52.4)
Adverse drug reactions	267 (36.4)
Drug interactions	210 (28.6)
Not following doctor's/pharmacist's instructions in using medicines	48 (6.5)
Handling of problems related to medications or supplements (multiple choices)	
Consult a doctor	414 (56.5)
Look up information through the media/online	350 (47.7)
Seek for advice from relatives/friends	228 (31.1)
Consult a pharmacist	188 (25.6)
Consult other healthcare professionals	133 (18.1)
Decide on your own	130 (17.7)
Consult a salesperson	71 (9.7)
Have searched/browsed for health information on online platform(s)[#]	663 (90.5)
How well health information from online platforms address your concerns? (n=663)	
Not at all able to address	17 (2.6)
Not quite able to address	72 (10.9)
Neutral / Fair	417 (62.9)
Largely able to address	146 (22.0)
Completely able to address	11 (1.7)
How reliable do you think these online health platforms are? (n=663)	
Not reliable at all	2 (0.3)
Not quite reliable	12 (1.8)
Neutral / Fair	473 (71.3)
Quite reliable	167 (25.2)
Very reliable	9 (1.4)
[#] Online platforms refer to online search engines (e.g. Google, Baidu), social media platforms (e.g. Facebook, Youtube, Instagram), health product vendor/private healthcare service websites, NGO websites, and relevant public sector websites (e.g. Hospital Authority or Department of Health websites).	

Awareness, Perceived Needs, and Utilization of Community Pharmacy Services

Almost 40% of respondents were not aware of any existing CPS available. The most noticeable service was drug and health education talks (38.3%). When asked what kinds of pharmacy service respondents thought the community needed, general drug consultation was the most popular (63.3%), followed by education talks (51.8%), medication management services (MMS) (49.9%), and minor ailment management and consultation (43.9%). (Table 3)

The differences between the proportions of respondents who were aware of certain services and those who perceived a community need for them (i.e. perceived need % – awareness %) indicated substantial gaps. Positive differences suggested more respondents recognized a need for a particular service than were aware of their availability. Conversely, negative differences suggested while more respondents were aware of the service, fewer of them felt the service was needed. Table 3 illustrated large gaps between perceived need and awareness (perceived need % – awareness %) on general drug consultation (42.2%), MMS (35.3%), minor ailment management and consultation (33.3%), and drug disposal (31.1%).

Table 3. Community pharmacy services being aware of or considered a service need in the community by respondents (ranked in descending order of % differences) (n=733)

Community pharmacy services	Perceived Need	Awareness	Awareness Gap# (% differences)
General drug consultation (face-to-face and telepharmacy)	464 (63.3%)	155 (21.1%)	42.2
Medication management services	366 (49.9%)	107 (14.6%)	35.3
Minor ailment management and consultation	322 (43.9%)	78 (10.6%)	33.3
Drug disposal (including expired, excess drugs)	295 (40.2%)	67 (9.1%)	31.1
Online health information verified by pharmacist	297 (40.5%)	86 (11.7%)	28.8
Affordable drugs and health appliances supply	308 (42.0%)	104 (14.2%)	27.8
Drug and health education talk	380 (51.8%)	281 (38.3%)	13.5
Drug delivery (with pharmacist's consultation)	188 (25.6%)	128 (17.5%)	8.1
Vaccination consultation and administration	207 (28.2%)	195 (26.6%)	1.6
Smoking cessation	82 (11.2%)	142 (19.4%)	- 8.2
I don't know	68 (9.3%)	292 (39.8%)	N/A

* The awareness gap is the percentage point difference calculated as (% perceived need – % awareness). A positive value indicates need exceeds awareness; a negative value indicates awareness exceeds need.

Table 4 showed the desired institutions to provide CPS and Table 5 showed the willingness-to-pay for MMS. Findings suggested that District Health Centres / Expresses were the most popular options for providing CPS reaching 87.9%. While over 60% of respondents expressed willingness to pay for MMS, almost 50% thought the service should be charged between HK\$1 – 100 per hour.

Table 4. Desired institutions to provide community pharmacy services (n=733)

Institutions (multiple choices)	Frequency (%)
District Health Centres / Expresses	644 (87.9)
District Elderly Community Centres and Neighbourhood Elderly Centres	423 (57.7)
Not-for-profit community pharmacies	323 (44.1)
Large-scale retail community pharmacies	316 (43.1)
Other community pharmacies	151 (20.6)
Residential Care Homes	150 (20.5)
Non-pharmacy stores with drug supply	147 (20.1)
Integrated Community Centre for Mental Wellness	126 (17.2)

Table 5. Willingness-to-pay for medication management services (n=733)

Charge HKD/hour	Frequency (%)
Free	282 (38.5)
\$1 - \$50	194 (26.5)
\$51 - \$100	170 (23.2)
\$101 - \$200	69 (9.4)
\$201 - \$300	10 (1.4)
Above \$300	8 (1.1)

Demographic Correlates of Treatment Beliefs, Health Information Literacy, and Community Pharmacy Needs

Statistically significant associations ($p < .0005$) were found

between demographic characteristics and health information literacy and community pharmacy needs. Gender differences were generally minimal, except females were more likely to express needs for drug disposal services than males.

The youngest group (≤ 60 years old) was most likely to look up information from the media/online sources to address drugs/supplements-related questions, compared to the older counterparts (vs. 61-70 and >71 years old). This group also consistently demonstrated greater awareness of specific community pharmacy service (i.e. smoking cessation), expressed significantly higher needs for certain CPS (minor ailment management and consultation, smoking cessation, and drug delivery).

A consistent trend was also observed across education levels. Respondents with tertiary education or higher were most likely to have encountered problems related to adverse drug reactions, looked up information through the media/online sources to handle drugs/supplements-related questions, had greater knowledge of a variety of CPS (drug and health education talk, vaccine consultation and administration, and drug delivery), expressed higher needs for a range of CPS (general drug consultation, minor ailment management and consultation, online health information verified by pharmacist, affordable drugs and health appliances supply, drug disposal, and drug delivery). Respondents from the primary or lower education group had a significantly higher proportion of "don't know" responses (24.5%) when asked about the perceived needs for CPS, compared to those with secondary education (7.3%) and tertiary or above (6.2%).

There was no significant ($p > .0005$) correlation between any sociodemographic characteristics and treatment beliefs (Specific-Necessity and Specific-Concerns), and willingness-to-pay.

Predictors of Medication Nonadherence Among the Chronically Ill

Among patients taking chronic medications, the event rate of medication nonadherence (stop taking medicines when felt symptoms were under control) was 16.0%. Univariate analysis identified that experience with drug side effects, use of supplements (apart from chronic drugs), and concern towards medications for personal use (measured by BMQ Specific-Concerns) were statistically different between the adherence group and the nonadherence group ($p < .05$). These three predictors, along with the three sociodemographic variables (gender, age, and education) were included in the final multivariate logistic regression model as covariates.

The final multivariate model showed that the odds of medication nonadherence were significantly higher for respondents with greater concern about their treatment (BMQ Specific-Concerns: adjusted OR = 1.16 per point, $p = 0.020$), those using supplements (adjusted OR = 2.70, $p = 0.006$), and those experienced side effects (adjusted OR = 1.99, $p = 0.046$). Conversely, female respondents reduced the odds of medication nonadherence by 47% (adjusted OR = 0.53, $p = 0.041$).

DISCUSSION

Findings of the survey on medication management and CPS utilization of Sha Tin residents showed that considerable respondents reported challenges in medication management, from inadequately answered questions about their drugs to inappropriate side effects management and nonadherence. Nonetheless, consistent and reliable support from healthcare professionals, particularly pharmacists, was either insufficient or being overlooked, as illustrated by the significant gap between pharmacy services that were being aware of and those needed in the community.

Respondents taking chronic medications demonstrated good drug adherence in general. 97.6% could manage the drugs by themselves and 79.5% never or very rarely forgot to take drugs. This could possibly be attributed to the relatively simple drug regimen of respondents as 85.8% of them were taking four or less chronic medications a day. The prevalence of medication nonadherence among chronically-ill respondents in this study was lower than previously reported local rates (16.0% in current study vs. 37% among elderly patients with chronic diseases vs. 45% among hypertensive patients vs. 61.6% among hidden elderly), but higher than 9.2% reported among community-dwelling elderly in another local study.⁽¹³⁻¹⁶⁾ Possible reasons for these differences could be attributable to variations in sociodemographic factors, level of social support (e.g. lower in hidden elderly while higher among STDHCE members who remain actively engaged in the community), and potential social desirability bias. In the present survey, respondents with greater treatment concerns and those have experienced suspected side effects from drugs were more likely to be nonadherent. Almost 60% of chronic patients have experienced suspected side effects, but they were not always properly handled, as some would reduce the dose or stop taking the drugs themselves. Managing patient expectations at drug initiation by stressing on continuous drug administration for chronic disease control and complications prevention, informing potential side effects and their incidence, suggesting appropriate side effects management including seeking doctors or pharmacists to establish causality before regimen adjustment, are the key to enhancing drug adherence.

Respondents showed poor knowledge on existing CPS, particularly those who were older and/or had lower educational attainment. Moreover, a mismatch in understanding on the roles of community pharmacists was reflected from the survey. For instance, while pharmacists emphasize on their accessibility for general consultation and minor ailment management in the community,⁽¹⁾ only 21.1% and 10.6% of respondents were aware of these services. On the other hand, 26.6% of respondents were aware of vaccination consultation and administration as a community pharmacy service, the second highest of all; yet, the extent of structured vaccination training for practicing pharmacists in HK is currently limited and the service is underdeveloped.⁽¹⁷⁾ Effective promotion strategies are essential

to raise public awareness on the range of CPS. While the survey showed that online media generally appeal to the young and middle-aged adults, traditional media such as newspapers and television broadcast could better reach the elderly, who are generally more comorbid and have higher incidence of polypharmacy, thus requiring more community support. CPS providers should leverage community organizations including elderly centres, day care centres, patient groups, District Health Centres/Expresses, and District Services and Community Care Teams, to expand their impact to the needy. In addition to marketing tactics, providing impactful and quality services to imprint a positive image of “community pharmacies” and “community pharmacists” in citizens is even more important.

In the era of information explosion, pharmacists must keep abreast of clinical knowledge to provide evidence-based advice to citizens and other healthcare professionals. With the increasing prevalence of artificial intelligence tools among both the public and professionals, analytical skills and clinical thinking skills of pharmacists become exceptionally significant to provide valid and tailored advice to individuals. A local study targeted at adults attending primary care clinics showed that among roughly 70% of respondents who have searched drug information by internet, 52.9% and 36.0% strongly agreed/agreed that the information was useful and reliable, respectively. The rates were much higher than the present study (23.7% and 26.5% respectively).⁽¹⁸⁾ Nurturing analytical and critical thinking skills in laymen when facing medical information is increasingly important nowadays as the media is flooded with both accurate and misleading information.^(19,20) Relevant skills include identifying reliable sources of information (such as officially published documents), differentiating facts, objective and unbiased data from opinions and subjective preference of “Key Opinion Leaders” who do not necessarily have any relevant professional qualifications in the fields they are commenting on.

The hourly wage of community pharmacists in Hong Kong is roughly HK\$300.⁽²¹⁾ The monthly salary approximates to Point 25 (around HK\$56,000) of the Master Pay Scale of the HKSAR Government and the entry point of Pharmacist-grade staff in the Hospital Authority (around HK\$61,000, HA General Pay Scales Point 25).^(22,23) MMS sessions last for around one hour at initial meeting, in addition to time spent on case preparation and documentation. Pharmacists could not perform drug dispensing while providing MMS, thus forgoing income generated from product sales, although they do not earn dispensing fee either, at present. The common practice of providing MMS free-of-charge is undoubtedly unsustainable without funding support. Recent Public Healthcare Fees and Charges Reform put forward by the Health Bureau and Health Authority in March 2025 has sparked public debates as the charges of services provided by the Hospital Authority would be increased, some by one-fold or more, from January 2026 onwards, but still lower than private medical charges.⁽²⁴⁾ This paves the way for introducing service charges to pharmacy services in primary care setting when public acceptance to pay for healthcare service at reasonable price increases. In the present survey, only 2.5% of respondents were willing to pay HK\$201 or above per hour of MMS. To promote CPS development and accessibility, providing financial incentives

to CPS providers is crucial. For instance, providing dispensing fees for dispensing of chronic medications with pharmacist counselling and reimbursement for MMS at community pharmacies could offload HA for clinical services and complex cases management in hospitals; subsidized vaccination by pharmacists could help to increase accessibility, prevent disease outbreak, and reduce public health burden.

Government policies are implemented with multiple considerations including public needs priority, relative impact on public health, effective use of resources, and balance of interests of different stakeholders. As a result, the policies may not be exactly congruent with citizens' will as individual citizens mostly focus on personal and family needs without big data analyses on overall societal impact. However, with funders support, community parties could initiate pilot projects in smaller scales for specific target groups. With proven public health and societal impact such as effectiveness in disease or complications prevention and cost-effective use of healthcare and social resources, the projects could be proposed to the government and scale-up implementation at population level. This “bottom-up” approach is observed in current MMS and residential care home (RCH) drug management services implemented by CPS providers which have provided invaluable experience for the upcoming Community Pharmacy Programme (Co-Care and RCH models) to be launched by the government next year.^(25,26) Furthermore, the arrangement to reduce dispensing quantity to patients in the Hospital Authority starting from March 2025 is supported by previous and ongoing initiatives by community pharmacies to collect unused drugs from the general public for proper disposal to reduce drug wastage and environmental harm.⁽²⁷⁻³⁰⁾ Service providers should be sensitive to public needs and innovative in service planning to gain government buy-in and serve a greater community.

LIMITATION

First, most respondents in the survey were members of STDHCE. STDHCE focuses on preventive care, thus members are generally mobile with few comorbidities or medical complications. Citizens who join STDHCE also have higher health awareness than the average population and of middle-old age. These would limit the generalizability of the survey findings to residents in Sha Tin district and the Hong Kong territory. In addition, the questionnaire was self-administered online, thus indirectly excluded those with lower technology literacy. Nonetheless, the survey could be a readily adopted means to engage the public in CPS development, and publication of survey findings provides a basis for pharmacy service providers in service planning, as well as an example for providers in other settings to enhance public participation.

CONCLUSION

Healthcare professionals as service providers formulate service development based on their observed community needs and institutional considerations. On the other hand, citizens

as service users give honest feedback on how well existing services can address their needs, if they are given the channel to express their opinions. In the future, the public should be invited to be engaged in more population and district-based studies and open discussions on medication management and community pharmacy services to enable policy makers and service providers to direct service development and resources to meet local needs.

ACKNOWLEDGEMENT

Sha Tin District Health Centre Express is fully subsidized by the HKSAR Government, and operated by The Hong Kong Society for Rehabilitation in doing health promotion, health assessment, disease screening and management work in the primary healthcare setting.

Sincere gratitude to Ms Chan Kwan Ning, Consultant in Research & Advocacy, and Mr Po Ho Ming, Officer in Research & Advocacy, of The Hong Kong Society for Rehabilitation for their technical assistance in questionnaire design and results analyses.

Author's background

CHOW, Dilys Yan-wing is the Pharmacist at Sha Tin District Health Centre Express, The Hong Kong Society for Rehabilitation. Her email is dilys.chow@rehab society.org.hk

References

- So SP, Yung JC, Li AY, Lee MT, Wong JK, Cheng FW, et al. Primary Care Pharmacy – A Review of Current Situation and Future in Hong Kong. *Hong Kong Pharm J*. 2024;31(1):20-27.
- Hospital Authority. Press Release: HA medication delivery service added over 100 community collection points [Internet]. 2024 Sep 9 [cited 2025 Oct 6]. Available from: <https://www.ha.org.hk/haho/ho/pad/276598c.pdf>
- Lee TK, Cheung GD, Law KK, Lee MT, Wong CK. Introduction to Jockey Club PHARM+ Community Medication Service Network Project. *Hong Kong Pharm J*. 2024;31(3):68-70.
- HKSAR Government. The Chief Executive's 2024 Policy Address [Internet]. 2024 Oct 16 [cited 2025 Oct 6]. Available from: https://www.policyaddress.gov.hk/2024/public/pdf/policy/policy-full_en.pdf
- HKSAR Government. The Chief Executive's 2025 Policy Address Supplement [Internet]. 2025 Sep 17 [cited 2025 Oct 6]. Available from: https://www.policyaddress.gov.hk/2025/public/pdf/supplement/supplement-full_en.pdf
- HKSAR Government. Press release: Primary Healthcare Commission announces Community Drug Formulary mechanism and Guidelines of Practice for Community Pharmacy to pave way for launch of Community Pharmacy Programme next year (with photo) [Internet]. 2025 Oct 30 [cited 2025 Nov 20]. Available from: <https://www.info.gov.hk/gia/general/202510/30/P2025103000223.htm>
- Chung VC, Lau CH, Chan FW, You JH, Wong EL, Yeoh EK, et al. Use of Chinese and Western Over-the-counter Medications in Hong Kong. *Chin Med*. 2010;5:41.
- You JH, Wong FY, Chan FW, Wong EL, Yeoh EK. Public Perception on the Role of Community Pharmacists in Self-medication and Self-care in Hong Kong. *BMC Clin Pharmacol*. 2011;11:19.
- Working Group on Age-friendly Community, Education and Welfare Committee, Sha Tin District Council. Draft Study Report on the Promotion and Implementation of Medication Therapy Management in the Sha Tin District [Internet]. 2019 Feb [cited 2025 Oct 6]. Available from: https://www.districtcouncils.gov.hk/st/doc/stdoc/2016_2019/en/committee_meetings_doc/EWC/15571/st_ewc_2019_006_tc.pdf
- Horne R, Weinman J, Hankins M. The Beliefs about Medicines Questionnaire: The Development and Evaluation of a New Method for Assessing the Cognitive Representation of Medication. *Psychol Health*. 1999;14(1):1-24.
- Abdul Rahman H, Noraidi AA, Hj Khalid AN, Mohamad-Adam AZ, Zahari NH, Tuming NE. Practical Guide to Calculate Sample Size for Chi-square Test in Biomedical Research. *BMC Med Res Methodol*. 2025;25(1):144.
- Pavlou M, Ambler G, Seaman SR, Guttman O, Elliott P, King M, et al. How to Develop a More Accurate Risk Prediction Model when There are Few Events. *BMJ*. 2015;351:h3868-h3868.
- Lam PW, Lum CM, Leung MF. Drug Nonadherence and Associated Risk Factors among Chinese Geriatric Patients in Hong Kong. *Hong Kong Med J*. 2007;13(4):284-292.
- Faculty of Medicine, The Chinese University of Hong Kong. Press Release: CUHK Research by Medical Undergraduates Reveals Poor Medication Adherence Among Hypertensive Patients in Hong Kong [Internet]. 2015 Mar 24 [cited 2025 Oct 6]. Available from: <https://www.med.cuhk.edu.hk/press-releases/cuhk-research-by-medical-undergraduates-reveals-poor-medication-adherence-among-hypertensive-patients-in-hong-kong>
- Lee VW, Pang KK, Hui KC, Kwok JC, Leung SL, Yu DS, et al. Medication Adherence: Is It a Hidden Drug-related Problem in Hidden Elderly? *Geriatr Gerontol Int*. 2013;13(4):978-985.
- Leung DY, Bai X, Leung AY, Liu BC, Chi I. Prevalence of Medication Adherence and its Associated Factors among Community-dwelling Chinese Older Adults in Hong Kong. *Geriatr Gerontol Int*. 2015;15(6):789-796.
- Chan PP, Li JC, Wong JK. Review of Pharmacy-Based Vaccination in Hong Kong. *Hong Kong Pharm J*. 2023;30(2):54-57.
- Tam TK, Lau DM, Lau KK, Ng K, Fan CY. Patients' Sources, Views and Perceptions of Drug Information, and the Relationship with Drug Compliance in a Primary Care Setting. *HK Pract* 2022;44:37-50.
- John JN, Gorman S, Scales D, Gorman J. Online Misleading Information About Women's Reproductive Health: A Narrative Review. *J Gen Intern Med*. 2025;40(5):1123-1131.
- Singh AG, Singh S, Singh PP. YouTube for Information on Rheumatoid Arthritis – A Wakeup Call? *J Rheumatol*. 2012;39(5):899-903.
- Jobsdb [Internet]. [cited 2025 Aug 14]. Available from: <https://hk.jobsdb.com/>
- Hospital Authority. Careers [Internet]. [cited 2025 Oct 6]. Available from: https://www.ha.org.hk/visitor/ha_visitor_index.asp?Content_ID=2010
- Civil Service Bureau. Master Pay Scale (w.e.f. 1.4.2025) [Internet]. [cited 2025 Oct 6]. Available from: <https://www.csb.gov.hk/english/admin/pay/42.html>
- HKSAR Government. Press release: Hospital Authority implements fees and charges reform rationalising healthcare services and enhancing patient protection [Internet]. 2025 Mar 25 [cited 2025 Oct 6]. Available from: <https://www.info.gov.hk/gia/general/202503/25/P2025032500462.htm>
- Hung S. Are community pharmacies the magic bullet for Hong Kong's patients? *South China Morning Post* [Internet]. 2025 Apr 10 [cited 2025 Oct 6]. Available from: https://www.scmp.com/news/hong-kong/health-environment/article/3305896/are-community-pharmacies-magic-bullet-hong-kongs-patients?module=perpetual_scroll_0&pgtype=article
- Joint Subcommittee on Long-term Care Policy, Legislative Council. Submission on Amendments to the Residential Care Homes (Elderly Persons) Ordinance (Cap. 459) and the Residential Care Homes (Persons with Disabilities) Ordinance (Cap. 613) from Hong Kong Pharmaceutical Care Foundation (CB(2)1288/19-20(01)) [Internet]. 2020 Jul 2 [cited 2025 Oct 6]. Available from: <https://www.legco.gov.hk/yr19-20/english/panels/ltpc/papers/ltpc20200623cb2-1288-1-e.pdf>
- Hospital Authority. New Arrangement for Drug Dispensing Service – Frequently Asked Questions [Internet]. 2025 Apr [cited 2025 Oct 6]. Available from: https://www.ha.org.hk/haho/ho/cc/v3/doc/drug_dispensing_service_FAQ_Eng.pdf
- Hospital Authority. Press Release: HA implements further enhancement for drug dispensing service [Internet]. 2025 Jun 27 [cited 2025 Oct 6]. Available from: <https://www.ha.org.hk/haho/ho/pad/280128enn.pdf>
- No author. 藥物回收 | 屈臣氏藥房再推藥餘回收計劃. *Hong Kong Economic Times* [Internet]. 2025 Jun 18 [cited 2025 Oct 6]. Available from: <https://news.hket.com/article/3966530/>
- Wong, MF. 萬寧回收藥物 | 萬寧推限時免費回收藥物計劃. *Hong Kong Economic Times* [Internet]. 2025 Jun 19 [cited 2025 Oct 6]. Available from: <https://topick.hket.com/article/3966231/>