**Descriptive Analysis of Patient Experience in Shanghai Primary and Tertiary Care Settings**

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**ABSTRACT**

**Context:** Since 2009, China has undertaken a nation­wide healthcare reform for the introduction of primary care. The new Ottawa-Shanghai Joint School of Medicine (OSJSM) enters into this context of reform by developing family medicine training centres for its students. **Objective:** This study seeks to understand patients’ demographic, perceptions of family medicine, and alignment of needs and values towards family medicine in order to inform the creation of these new centres. **Design/Setting/Patients:** To study this, a culturally and linguistically appropriate patient experience survey was created and administered at CaoJiaDu and TangQiao Community Health Centers (primary care settings); and at Renji Hospital (tertiary care setting). The survey comprised of 20 questions on demographics, frequency of healthcare usage, satisfaction of care, barriers to access, prioritized values and perceptions of family medicine. It was administered to 400 patients conveniently sampled to have a balance of primary/tertiary settings, and only those under 18 were excluded. **Results:** Despite common assumptions that Chinese patients may prefer specialist services, this descriptive analysis in primary and tertiary care centres showed a 67.2% preference of General Practitioners (GP) over Specialists. There was also overall agreement and preference for values of continuity, comprehensiveness, and coordination of healthcare. **Conclusion:** These preliminary findings reveal that primary care is present in Shanghai and that the core values of family medicine are desired by a majority of respondents. This study is limited by convenience sampling. Further analysis, qualitative corroboration and repeating the study in a wider population sample, may be required for more generalizable conclusions.

KEYWORDS: Family Medicine, General Practice, Shanghai, China, Primary Care, Tertiary Care, Patient Experience, Health Quality, Patient Satisfaction, Wait Times, Community Medicine

# **INTRODUCTION**

Amongst Chinese healthcare policy leaders, it is a common consensus that the medical profession faces a crisis of patient-physician mistrust [1]. A recent World Bank report also highlights an impending healthcare driven fiscal crisis where “business as usual, without reform, would result in growth of total health expenditure from 5.6 percent of GDP in 2015 to 9.1 percent in 2035, an average increase of 8.4% per year in real terms” [2]. Both locally and internationally, it is recognized that the challenges to the Chinese healthcare system will require a range of solutions that includes, but is not limited to, strengthening primary healthcare systems andraising the status of primary care workers [1, 2]. Indeed, this concurs with primary care literature that provides consistent evidence that countries with a strong primary care system have better health outcomes delivered more equitably and at lower cost [3].

Since the Chinese Communist Revolution of 1949, healthcare in China has undergone multiple transformations. Most notably, reforms began with an equality-based, planned economy phase from 1949 to the 1980s, followed by a market oriented approached in the late 1980s [4]. Most recently in 2009, China launched a healthcare reform plan, with the development of a primary care system as one of its main goals [5]. However, eight years after the healthcare plan has been unveiled, China still suffers from “severe maldistribution of human resources and lack of primary care practitioners (PCPs), lack of a functional gate-keeping mechanism, the low educational attainment of PCPs, and the detrimental elements of health reforms” [6]. In practical terms, this has resulted in a tertiary care oriented system that focuses on revenue generation and allowing patient direct à-la-carte selection of specialist chosen from a menu of doctors located in hospital lobbies [4]. Adding to the confusion, different models of primary care, as well as different residency program reforms are among the continual changes being piloted at various municipal and provincial levels [7, 8]. This has contributed to the continual stagnation of the ratio of medical doctors who choose to become general practitioners that stands at a relatively low 5.3% [9]. In comparison, over 51.7% of Canadian physicians are family physicians [10]. This is despite the relatively comparable proportion of doctors to the population that stands at 1.9 physicians per thousand and 2.1 physicians per thousand in China and Canada, respectively [11].

In October 2014, the University of Ottawa enters this fluid reform landscape by partnering with the Shanghai Jiao Tong University School of Medicine (SJTUSM) to open the Ottawa-Shanghai Joint School of Medicine (OSJSM) at the SJTUSM affiliated Renji Hospital in Shanghai [12]. In order to implement a North American undergraduate medical education program in China, the joint school requires adequate primary care exposure for its students to comply with standards of the Canadian Accreditation Committee for Canadian Medical Schools (CACMS) [13]. The OSJSM International Family Medicine Clinic was inaugurated in October 2015 with the long-term goal to provide a Canadian-inspired Family Medicine training for students, residents and physicians and deliver primary care to patients speaking either Mandarin Chinese or English. This initiative provides a unique opportunity to study the rapidly evolving Chinese primary care landscape in order to better understand the impact primary care may or may not have, and to inform the continued development of OSJSM Family Medicine training sites in Shanghai [14].

In this context of Sino-Canadian partnership and national healthcare reform in China, we chose to explore perceptions of Family Medicine among patients attending general practice clinics and a tertiary hospital, to ultimately inform the development of the OSJSM Family Medicine training sites to meet the clinical and social realities of Shanghai. In particular, the study was developed around the following three objectives:

1. To describe the demographic characteristics of patients attending Shanghai tertiary hospitals and community health clinics;
2. Understand the satisfaction of patients attending tertiary healthcare clinics in comparison to general practice;
3. Gather insight on the general knowledge, perceptions, needs and values of Shanghai patients towards Family Medicine.

Our hypothesis for this study was twofold. Firstly, we expected that the majority of patients prefer receiving healthcare from specialized tertiary hospitals as compared to general practice community clinics. This projection was based on reports that patients perceive GPs as less trustworthy and providing poorer quality of care [5]. Secondly, we hypothesized that patients may perceive the introduction of Family Medicine favourably as an alternative to the existing system, due to the continuity, comprehensiveness and coordination of care that Family Medicine can provide. This was based on accounts that the current General Practice system is faced with the “absence of primary care gatekeeping, weak coordinated care, and a lack of an effective referral system” [5].

# **METHODS**

A culturally and linguistically appropriate survey was developed in English and then translated to Mandarin Chinese (Appendix 1&2). This was adapted from various Health Quality Ontario surveys, modified to accommodate our particular objectives and revised for medical/cultural orientation[15]. The final survey consists of 2 identity-verifying questions, 6 basic demographic questions, and a combination of yes/no questions, rank order questions, multiple choice questions, and five-point Likert scale questions (Strongly Agree, Somewhat Agree, Neutral, Somewhat Disagree, Strongly Disagree) (Appendix 1). One notable exception was the use of a four-point Likert scale question, with the removal of a neutral option, for the evaluation of General Practise Doctor preference instead of a Hospital Doctor. Consultation for linguistic and cultural translation was provided by the Office of Internationalization at University of Ottawa, and validated by physician partners at the SJTUSM. In particular, survey questions were reviewed to respect cultural customs (e.g. personal questions) and edited with commonly used vocabulary in Shanghai to ensure patient comprehension. Pilot surveys were then provided to physicians at various sites in Shanghai, which again prompted further revisions. The study was submitted for review and was approved by the Research Ethics Board of the Ottawa Health Sciences Network and the Ethics Committee of the Renji Hospital in Shanghai.

The final survey was distributed to a convenience sampleof 400 patients across six sites representing both primary care and tertiary care settings in Shanghai: 100 at CaoJiaDu Community-Health-Center (CJD); 100 at TangQiao Community-Health-Center (TQ); and 200 at Renji Hospital tertiary care settings including Geriatrics-Outpatient, Emergency/General–Outpatient; VIP Inpatient/Outpatient and Emergency In-patient. The outpatient to inpatient ratio was 150 to 50. The participant sample was established at these sites because of their affiliation to the Shanghai Jiao Tong University School of Medicine, the University of Ottawa’s international partner, and the convenience of having partner physicians and trainees willing to support the study and help collect data.

The sampling model was chosen to identify perceptions and characteristics of the patient groups that receive care at primary and tertiary care settings. Participants were 18 years of age or older and provided consent to complete the survey. Surveys were distributed and collected with the aid of volunteer medical residents-in-training and nurses from the CJD and TQ community health centers, the department of geriatrics and the emergency departments at the Renji Hospital (Appendix 3&4). Hard copy surveys were compiled in Shanghai and transcribed into an electronic database in Canada and analyzed by the Canadian members of the research team..

The Ottawa Health Sciences Network Research Ethics Board (OHSN-REB) and the Renji Hospital Research Ethics Board reviewed and approved the project.

# **RESULTS**

Of 400 surveys distributed, 397 returned useable responses producing a 99.25% response rate. The number of patients declining to participate was not recorded, however the distribution collaborators reported less than 10% refusal to consent to the survey.

Demographic information showed an equal distribution between male and female respondents, mostly over 55 years old, with half the respondents having post-secondary education but more than a quarter reported not having completed high-school level education. of respondents Also, less than 22% agreed that costs prevented their access to care or affected their financial wellbeing (Table 2) and over 87.4% of respondents reported having Shanghai resident insurance or employer insurance (Table 1).

Furthermore, the study established that there was a higher satisfaction with hospital care compared to general practitioner care, 74.1% vs. 58.2% respectively, and that only 44.3% of respondents believed their GPs are skillful (Table 2). Although respondents indicated little concern about waiting for the hospital doctors, over half indicated that the time spent with physicians is not sufficient (Table 2).

On the other hand, based on a Likert scale question that removed a “neutral” response option, respondents were more likely to agree that they would prefer a GP to a hospital doctor at a more than 2:1 ratio (Table 4). Respondents were subsequently asked to list all qualities that were factors in their preference for a GP or Hospital Doctor. The highest frequency of respondents indicated a “shorter wait time” and “closer location” as factors, while only a few respondents noted “longer opening hours” as a factor.

Despite this preference, less than a third of participating patients have signed contracts with a GP and many have had numerous specialists for their care and redirection of referrals due to inappropriate consultation (Table 3).

Most importantly, there was a high degree of agreement towards valuing principles of family medicine such as comprehensiveness and continuity of care, as reflected by the 81.1% and 77.6% agreement with statements to that effect respectively (Table 2). The majority of respondents also understood Family Medicine as different from General Practice (Table 2). The ranking of preferred characteristics of healthcare seems to have been misunderstood by respondents with many indicating a number of items as most important. Using only the data from those that performed the ranking exercise correctly, “having the best care possible” was the most valued characteristic followed by having “the same care provider over time” (Table 5).

# **DISCUSSION**

A cornerstone of family medicine is to understand the social determinants and the health needs of the communities we serve. This descriptive analysis provides demographics, preferences and perceptions of the patients in Community Health Centers and tertiary care centers in Shanghai. As a result, this study also assists in understanding the social, economic and cultural challenges that the OSJSM may face in the development of family medicine training sites.

## Demographics

One of the highlighted demographic results are that 27.5% of those surveyed reported being without a high school level of education and 71.0% reported being somewhat or very uncomfortable with English. Although this won’t be a problem for local Chinese students, North American medical students and clinicians seeking to engage with the Shanghai population will be challenged to have meaningful interactions without translators or training in the local language.

Also, despite the low income of many respondents, cost did not appear as a barrier to accessing care and most respondents reported having Shanghai resident insurance or employer insurance. However, these findings are limited by the fact that the survey was only administered to individuals already accessing healthcare, and may have excluded those for whom costs are a completely prohibitive barrier.

**Patient Satisfaction**

One of the most significant findings was that a majority of individuals preferred seeing a General Practice physician to a Hospital Doctor (i.e. specialist). This was not predicted in our hypothesis based on prevailing accounts that Chinese patients were increasingly shifting away from centers of primary care, and towards the most highly qualified specialists [4]. The most significant contributing factors to this preference were shorter wait times, proximity in location, and lower costs.

Although the majority of respondents were satisfied with their care from GPs, there also remains a strong satisfaction with hospital care and more than half of respondents did not believe their GPs are skillful (Table 2). One explanation of the dichotomy of preference and high frequency of GP visits, versus a high satisfaction with hospital care and misperceptions of GP skilfulness may be due to adequate distribution and access [16]. While there was a perceived decrease in quality, “shorter wait times” and “closer location”, and thus timely access seems to trump quality when a patient needs to determine their preferred care provider (table 4).

## Perceptions of Family Medicine

Patients’ perceptions of family medicine are encouraging for embarking on the introduction of this model of care in Shanghai. As noted above, the values of continuity, coordination and comprehensiveness that underpin Canadian family medicine appear to be well rooted and desired by the Chinese population studied. This is both supported by our data, as well as corroborated by other recent studies done in Guangdong province [17].

Other factors that may support a shift to more comprehensive GP care include the current limitations of patient driven self-selection of specialists (Table 3). Our results show there was a significant amount of misused resources as well as an overwhelming amount of specialists. In a well-functioning system, the family physician would provide appropriate gatekeeping, navigation of the system and reduce inappropriate referrals [16]. Specialists may at first suffer from a decrease in volume, but may consequently allow more capacity for appropriate consultation and specialty care.

## Limitations

This study was limited by a number of cultural, socio-economic and methodological elements. Language barriers may have resulted in misinterpretation of survey items. The surveyors were physicians and trainees and this may have led to overly positive responses, as patients may have misperceived that negative responses could affect their care despite addressing this in our training protocol. Distributors were instructed to maximize privacy for respondents, but cramped examination rooms and waiting areas may have limited the candidness of responses. The use of a convenience sample that excluded those unable to access the healthcare system was balanced by distributing the survey in both hospital and community based settings.

# **CONCLUSION**

In summary, this study rejects our hypothesis that Shanghai patients prefer specialist care over general practitioners, but supports our hypothesis that the values underpinning Family medicine, would be well received. The Shanghai patients’ preferences suggest that family medicine may be welcomed if it is able to provide continuity, coordination and comprehensiveness of care and can ensure patients are receiving high quality care. Overall, these findings are encouraging to the development of primary care in Shanghai. However, further qualitative research will be required to validate and clarify the analyses made in this study. Also, if the OSJSM is to succeed at training future family physicians in Shanghai, parallel research will be needed to understand the primary factors that affect Chinese medical students’ career preferences, since currently only 4.6% of SJTUSM students choose general practice as their preferred career paths [18].

# **LEGENDS FOR FIGURES AND TABLES**

Table 1 Demographic value of Sex, Education, Health Insurance, English comprehension, Income, and Age

Table 2 Likert scale responses), percent who agreed (scale responses 4 and 5), and mean

Table 3 Reponses regarding referrals, multiplicity of usage, and GP contracts

Table 4 Likert scaled preference of GPs over a Hospital Doctor and the given reason(s) for their preference

Table 5 Compilation of ranked preference with improperly filled rankings omitted

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**CONFLICTS OF INTEREST**

None

**TABLES AND FIGURES**

Table 1 Demographic value of Sex, Education, Health Insurance, English comprehension, Income, and Age



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SUPPORTING INFORMATION

Appendix 1: Survey in English

Appendix 2: Survey in Chinese

Appendix 3: REB approval from Shanghai

Appendix 4: REB approval from OHRI

**REFERENCES**

1. Chan CS, Cheng Y, Cong Y, Du Z, Hu S, Kerrigan A, et al. Patient-physician trust in China: a workshop summary. Lancet. 2016;388 Suppl 1:S72.

2. World Bank Group; World Health Organization; Ministry of Finance PRC, National Health and Family Planning Commission PRC, Ministry of Human Resources and Social Security PRC. Deepening Health Reform in China: Building High-Quality and Value-Based Service Delivery. Washington, DC: World Bank, 2016.

3. Starfield B, Shi L, Macinko J. Contribution of Primary Care to Health Systems and Health. The Milbank quarterly. 2005;83(3):457-502.

4. Chen Z. Launch of the health-care reform plan in China. Lancet. 2009;373(9672):1322-4.

5. Wu D, Lam TP. Underuse of Primary Care in China: The Scale, Causes, and Solutions. J Am Board Fam Med. 2016;29(2):240-7.

6. Li H, Qian D, Griffiths S, Chung RY, Wei X. What are the similarities and differences in structure and function among the three main models of community health centers in China: a systematic review. BMC Health Serv Res. 2015;15:504.

7. Zhu J, Li W, Chen L. Doctors in China: improving quality through modernisation of residency education. The Lancet. 2016;388(10054):1922-9.

8. Dai H, Fang L, Malouin RA, Huang L, Yokosawa KE, Liu G. Family medicine training in China. Fam Med. 2013;45:341-44.

9. CMA. Number of Physicians by Province/Territory and Specialty, Canada, 2016. In: Association CM, editor. Ottawa 2016.

10. Blumenthal D, Hsiao W. Lessons from the East — China's Rapidly Evolving Health Care System. New England Journal of Medicine. 2015;372(14):1281-5.

11. OSJSM. History of the Joint School Shanghai, China2016 [updated September 30 2017; cited 2017 September 30]. Available from: <https://med.uottawa.ca/joint-school/about-us/history-joint-school>.

12. CACMS. Standards for accreditation of medical education programs leading to the MD degree. Ottawa, Ontario: AFMC, 2015.

13. Foster M. Exporting our medical model Ottawa, Canada2015 [Available from: <https://www.uottawa.ca/tabaret/en/content/exporting-our-medical-model>.

14. HQO. Primary Care Patient Experience Survey: Support Guide. Health Quality Ontario. 2015.

15. EIU. Worldwide cost of living survey. The Economist. New York 2016.

16. Wu D, Lam TP. Underuse of Primary Care in China: The Scale, Causes, and Solutions. The Journal of the American Board of Family Medicine. 2016;29(2):240-7.