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Patients' perceptions of family medicine: Mixed methods study on patients attending a family medicine clinic for a long time in Japan

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Abstract

Purpose: This study examined the long-term perceptions of family medicine in patients attending a family medicine clinic (FMC) for a long time in Japan. It also explores the unique characteristics of family medicine in Japan, which was developed in the local community in northern Japan.

Methods: We used an explanatory sequential mixed-method design to survey patients who regularly attended an FMC from April 2009. In Phase 1, we obtained their characteristics and perceptions of family medicine using a questionnaire. In Phase 2, we conducted semi-structured interviews to corroborate their responses from the questionnaire, and also to examine if there are newly emerged themes. Data from both phases were combined to explain the quantitative results by the qualitative results.

Results: Among the respondents, 91% reported having attended an FMC. In terms of their perception of what “family physicians” do, 35% stated “a doctor who treats various diseases with a general view” 29% stated “a doctor who treats outpatients and visit patients’ houses, and 13% stated “a doctor whom one can consult for anything and is familiar with one’s family and lifestyle.” The result of the qualitative analysis supported these patients’ perceptions of family medicine; It showed their perceptions of common characteristics of family medicine as “seeing the whole person and referring suitably" and “medical care at home."

Conclusion: Patients had clear perceptions of what family physicians do while having attended an FMC, and their perception of family medicine was uniquely characterized.

Strengths and limitations of this study

・This was the first study in Japan to investigate how patients who actually attend a family medicine clinic for a long time perceive family medicine.

・The study found that patients' perceptions of family medicine were either consistent with the key concept of family medicine, "Seeing the whole person and referring suitably", or unique, "'Medical care at home'".

・Patients who have attended the clinic for a long time have a positive impression of the family medicine clinic and may have a social desirability bias.

・It is difficult to generalize in a single step, as the medical environment in Muroran may have a significant impact on patients' perceptions of family medicine.

1.Introduction

As Japan approaches an increasingly aging society, it needs to address the issue of rising medical expenses and secure high-quality medical care [1]. Family physicians who provide primary healthcare to aging populations are considered key players in addressing this issue [2, 3]. In 2018, family physicians were authorized by the Japanese Medical Specialty Board to become general practice specialists [4]. While the Japanese Medical Specialty Board [5] and the World Organization of Family Doctors [6] have defined what the specialty of family medicine is, the Japanese people still need to further understand how it contributes to their health and everyday lives.

Some earlier studies in Japan have examined the general population's perceptions of family physicians [7,8]. However, these studies mainly included in their sample respondents who were not asked about their experience of family medicine. No previous study has examined patients who have actually attended a family medicine clinic in its exploration of the perceptions of a care user in primary health care.

Therefore, we investigated perceptions of family medicine among patients attending a family clinic in northern Japan. The participants were patients who had consulted family physicians for over 10 years. We also considered the unique characteristics of family medicine in Japan, which have developed within a local context, from the perspective of patients. We assumed that when

patients have not attended a family medicine clinic, they would consider it as just one of a number of medical institutions; however, as they become more aware of family medicine clinics, they would eventually come to understand the unique characteristics of family medicine. Their perceptions of family medicine developed during this process are mainly based on the impressions and expertise that patients have of their doctors, so we treated perceptions of family physicians and perceptions of family medicine as almost synonymous from the patients' point of view in this study.

Methods

2.1 Study setting and participants

The Motowanishi Family Clinic (MFC) [9] is located in Hokkaido's Muroran City, opened in 1996 before family medicine was even authorized in 2018, and is one of the oldest family medicine clinics in Japan. It is also an educational clinic that trains family physicians. While MFC mainly advocates internal medicine and pediatrics, the department of family medicine has also been listed in parentheses on its signage. The clinic operates a group practice with four physicians providing both outpatient and home visits. Patients who had been attending the MFC regularly since April 2009 and those who were still attending the clinic regularly as of April 2019 were included in the study. Patients who could not complete the questionnaire nor be interviewed due to dementia or old age were excluded.

2.2 Research design

A mixed-methods explanatory sequential design was used [10]. In Phase 1, a quantitative method based on a questionnaire was used to obtain basic information about the participants and their perceptions of family medicine. In Phase 2, a qualitative method based on interviews was used to determine the reasons behind their responses from Phase 1. The results of Phase 1 and Phase 2 were then combined and interpreted. We show the already published protocol [11].

2.3 Procedures

2.3.1 Phase 1

Participants were surveyed regarding patient characteristics, type of medical care received, their current medical care, the Japanese version of the Primary Care Assessment Tool (JPCAT) [12], and their awareness of the specialty of family medicine (whether they knew that MFC provided family medicine). The type of health problem was determined using the 17 different organ specific alphabetical chapters of the International Classification of Primary Care:(ICPC) [13]. The same items of the survey questionnaire used to investigate the general population's perception of a "family physicians" in a previous study [8] were used to clarify the characteristics of family medicine as subjectively considered by the patients. The survey method, survey items, and questionnaire are presented in appendix 1, 2 and 3.

2.3.2 Phase 2

Using the results from Phase 1 regarding patients' perceptions of specialty in family medicine, we conducted maximum variation sampling [14]. Specifically, the participants were divided into groups A, B, and C according to whether or not they knew that MFC provided family medicine. If they did, we assessed whether they more strongly perceived family medicine for its comprehensiveness or longitudinality. Semi-structured interviews were conducted with several participants (**Table 1)** according to the interview guide (appendix 4). All interviews were recorded and transcribed.

Table 1: Description of participants in the qualitative study (Phase 2)

	Sex	Age	Over 15 Years of Clinic Attendance	Number of Diseases	Living Alone
A	Female	76	Yes	2	Yes
B	Female	77	Yes	8	Yes
C	Male	75	No	3	No
D	Female	71	Yes	5	Yes
E	Female	62	Yes	7	No
F	Female	76	No	7	No
G	Male	71	No	7	No
H	Female	71	No	3	No

2.4 Data analysis

Quantitative data were analyzed using descriptive statistics. We also analyzed the univariate correlations between the nominal variable of being aware (vs. not being aware) that MFC specializes in family medicine and each item identified during the exploratory process. We managed and analyzed quantitative data with JMP version.15.2(SAS Institute) and tested hypotheses at the .05 level of statistical significance using 2-sided tests. The qualitative data were analyzed independently by two researchers using thematic analysis to explain patient perceptions [15,16]. This analysis identified recurrent patterns in the data and explored the meanings of the observed categories of patients' perceptions of family medicine. The qualitative results of Phase 2 were combined with the quantitative results of Phase 1 in terms of how they corroborate the quantitative results of Phase 1 [10].

2.5 Patients and public involvement

Patients were not involved in the design of the study. MFC physicians recruited each candidate participant at the end of a medical consultation and obtained their consent. The study's findings were disseminated to the patients and neighbors by a lecture.

3.Results

The total number of participants in Phase 1 was 184, and the number of respondents was 144 (response rate: 78%). Of all respondents, 131 (91%) were aware that the specialty of MFC was family medicine, 10 (7%) were aware of internal medicine and two (1%) were not aware of any specialty. A comparison of basic information between the groups who were and were not aware of attending a family medicine clinic is shown in **Table 2.** The group with awareness of family medicine is also shown in **Table 3** as to what kind of doctor they most perceive as family physicians. A qualitative study to explore the perceived characteristics of family medicine for those attending a family medicine clinic revealed two themes: "seeing the whole person and referring suitably " and "medical care at home."

Table 2: Patients' characteristics at baseline, by the awareness of the family medicine

Characteristic	Being aware of MFC as a family medicine clinic (n=131)	Not being aware of MFC as a family medicine clinic (n=13)	P value
Age, mean(SD)	74.5 (±10.8)	75.3 (±6.6)	0.78
Sex,female No.(%)	76 (59.8)	5 (38.5)	0.15
Living alone No.(%)	33 (27.7)	2 (18.1)	0.72
Educational attainment (High school graduate or above) No.(%)	74 (61.7)	8 (72.7)	0.54
Distance from home to MFC, mean(SD), km	3.6 (±3.1)	2.9 (±2.6)	0.47
Over 15 years of clinic attendance No.(%)	70 (53.9)	7 (58.3)	1.00
Consults with same physician No.(%)	75 (57.7)	4 (30.8)	0.08
Medical consultation within 5 minutes No.(%)	20 (15.3)	4 (30.7)	0.23
Monthly clinic visit No.(%)	83 (65.4)	10 (76.9)	0.54
Currently visiting other clinics or hospitals No.(%)	81 (61.8)	11 (84.6)	0.13
With family members who also visit MFC No.(%)	81 (61.8)	5 (41.7)	0.22
Recognizes MFC as a teaching clinic No.(%)	123 (93.9)	11 (84.6)	0.22
Number of diseases, mean(SD)	6.4 (±2.6)	7.5 (±3.1)	0.13
Nomber of organ type in ICPC above, mean(SD)	4.8 (±1.6)	5.5 (±1.5)	0.14
Presence of psychological disorders No.(%)	56 (43.8)	7 (53.9)	0.56
Presence of social disorders No.(%)	35 (27.3)	3 (23.1)	1.00
Number of unscheduled visits for 10 years, mean(SD)	8.1 (±9.7)	9.3 (±9.1)	0.67
Number of organ type in ICPC above, mean(SD)	3.2 (±1.9)	3.2 (±1.7)	0.94
Number of referrals for 10 years, mean(SD)	3.1 (±3.3)	3.2 (±2.6)	0.96
Number of organ type in ICPC above, mean(SD)	1.9 (±1.4)	2.1 (±1.6)	0.67
JPCAT total score, mean(SD)	65.6 (±17.1)	52.7 (±15.0)	0.05*
(per domain) First contact, mean(SD)	54.7 (±26.2)	42.5 (±36.4)	0.18
Longitudinality, mean(SD)	76.8 (±21.4)	57.5 (±17.9)	0.007*
Coordination, mean(SD)	78.6 (±26.9)	54.2 (±35.9)	0.01*
Comprehensiveness (services available), mean(SD)	72.8 (±22.7)	53.4 (±11.0)	0.02*
Comprehensiveness (services provided), mean(SD)	35.1 (±34.5)	37.5 (±29.3)	0.84
Community orientation, mean(SD)	75.4 (±20.8)	56.3 (±25.2)	0.007*

Motowanishi Family Clinic: MFC
International Classification of Primary Care: ICPC
Japan version of the Primary Care Assessment Tool: JPCAT
*P value<0.05

Table 3: Patients' main perception of family medicine as a specialty

Characteristic	n=131 (%)
A doctor who treats various diseases with a general view.	42 (35.3)
A doctor who can treat outpatients and visit patients' houses while showing kindness from the perspective of the patient and his/her family.	34 (28.6)
A doctor whom you can consult for anything and is familiar with your family and lifestyle.	15 (12.6)
A doctor whom you consult first and who decides which specialty you should visit in a big hospital.	9 (7.6)
A doctor who specializes in internal medicine.	7 (5.9)
A doctor who has wide knowledge of various diseases, conditions, and treatments not limited to any specific organ.	7 (5.9)
A doctor who does not specialize in any specific field.	3 (2.5)
A doctor who quickly addresses emergency health problems.	2 (1.7)
Missing	12 (9.1)

Seeing the whole person and referring suitably

Participants perceived family medicine as medical care that first looks at the whole picture, consults with the patient on all health issues, and, in some cases, refers them to a specialist doctor. Organ-specific specialists offer patients diagnoses and treatments targeted towards the specific organ they specialize in, but they cannot treat health problems in other areas not within their scope of practice. Therefore, patients look to their organ specific specialists to ensure that their health problems fit within their doctor's area of expertise. In contrast, family medicine looks at the patient's overall health, so patients can consult with family physicians on any health-related problem without reserve. The following quotations reflect these themes:

"They don't just look at this part of the body, they look at the whole body. I can talk to them without hesitation because they don't say, 'I'm only looking at this disease.' They listen to me in a relaxed atmosphere when I tell them my health concerns. I have referred them to my friends who were not sure where to go to see a doctor." (E)

"I am able to get a comprehensive review of everything, so I first consult with the clinic. They also make appropriate referrals, which is reassuring. I feel comfortable that they know me because I have been with them for a long time." (D)

"They understand everything. They look at the whole picture, and if there is anything wrong, they will refer you to a hospital. It's a clinic that looks at most things in a variety of fields." (H)

Medical care at home

Doctors and nurses would visit the patients at their homes to provide medical care if they were unable to visit the clinic or were bedridden. They also believed that doctors and nurses would be able to visit their homes to see them in cases of sudden physical changes. The following quotation relates to these themes:

"At first I didn't understand. I wonder if the clinic would make the rounds. At my age, that might be a better idea. It will be hard to move around." (C)

"I didn't know about family medicine at first. I heard that Mr. I, a neighbor, had passed away on a house call and that the nurse visited Mrs. J. That's how I found out the medical staff was coming to patients at home." (F)

"I've heard about family medicine and the doctor is going around with a bag. The doctor says, 'I can come to your house.'" (G)

In the final phase of the analysis, we created a joint display to corroborate the results of the quantitative and qualitative studies **(Figure 1).** The top three percentage of patients' perceptions of family medicine identified in the quantitative study was strongly associated with the characteristics extracted from the qualitative study and they were consistent in content.

4.Discussion

A mixed-methods research was conducted with long-term patients attending family medicine clinics in Japan. The majority of participants indicated that they had attended family medicine clinics.

The two major perceptions of the characteristics of family medicine were identified as: “seeing the whole person and referring suitably” and “medical care at home.”

Patients’ perceptions of family medicine in Japan

Previous studies on perceptions of family medicine in Japan did not focus on the patients, but on the general population [8]. They mainly focused on findings that were not based on actual experiences of receiving medical care but based on ideals [7] or impressions derived from the term ”family medicine” or “general practice”. This study was the first to reveal the perceptions of patients who had attended a family physician as their usual source of care for over 10 years. The result shows that, first, the majority of the patients were aware of family medicine. No differences were found in patient characteristics nor medical treatments in terms of awareness of family medicine. Compared to the JPCAT, which is a patient-reported scale that reflects patient experience [12], the JPCAT total score was predominantly higher in the group who were aware of family medicine, although the proportion of patients who had been attending for more than 15 years did not differ. This experience in primary care created a sense of differentiation from other healthcare settings, which led to a perception of family medicine, not internal medicine.

Comparison of patients’ and the general population’s perceptions

In a previous study of the general population aged 70 years or older [8], 36% of the specialty of family medicine were a doctor who treated various diseases with a general view, 31.5% were a doctor whom you consult first, and who decides which specialty you should visit in a big hospital. and 13.8% were a doctor who has wide knowledge of various diseases, conditions, and treatments not limited to any specific organ. The percentages of a doctor who treat various diseases with a general view were similar to those in the present study, and this was followed by a doctor whom patients can consult for anything and is familiar with the patient’s family and lifestyle (2.8%), and a doctor who can treat outpatients and visit patients’ houses while showing kindness from the

perspective of the patient (2.2%). However, their distributions were different. The general population's perception of family medicine is that of a doctor who has a wide range of disease knowledge, sees patients with a variety of diseases, and can provide diagnoses and treatments based on the patient's condition. On the other hand, the perception of patients in this study was that, in addition to seeing patients with various diseases, they could consult with family physicians on matters other than diseases and receive home-based medical care. Consultation on matters pertaining to everyday problems or family relationship concerns is not something that the general population would likely request from a medical institution. Patients who have been visiting the family medicine clinic for many years feel that this is something that differentiates them from other medical institutions. However, it has been pointed out that patients have preferences for this kind of consultation depending on their characteristics [17]. It is important to note, however, that it may be an overstatement to suggest that the patients' perception of family medicine is that family physicians can be consulted about anything, since it is possible that patients who prefer to discuss anything may be attending MFC for a long period of time in this community.

Characteristics of family medicine unique to Japan: Medical care at home

"Seeing the whole person" evokes comprehensiveness, and "referring suitably" evokes coordination, which is almost consistent with one of the key concepts that characterize family medicine [18]. "Medical care at home" is a highly unique theme in terms of the commonly accepted characteristics of family medicine [5,6]. It is possible that family medicine was interpreted by patients as medical care at home due to the historical background of the MFC, where no other medical institution provided home visits in the area, and several physicians have been providing home visits as a teaching clinic. Home visits are not an exclusive domain of the medical services offered by family physicians. However, they constitute a medical setting in which the strengths of family physicians can be utilized. Their primary goal is not to cure the patient but to set individual goals that emphasize the patient's sense of values, while also looking

after the patient's family and forming a network of cooperation with multiple professions [19]. This differentiation of MFC may have been recognized in combination with the name "family" physicians.

There have been discussions [20,21], mainly in Europe, about the workload and delegation of work to family physicians regarding home visits. Still, in our study in the Japanese context, patients perceived that a physician who had been providing outpatient care could provide home-based care if patients were unable to come to the clinic.

5.Limitations

Most participants were assumed to have had a satisfactory clinic visit experience because they had been visiting the clinic for more than 10 years. Therefore, negative perceptions of family medicine might not have emerged. We addressed this issue in Phase 2 through semi-structured interviews asking about future shortcomings and expectations. The results of this study showed that patients' perceptions of family medicine were also influenced by the medical situation surrounding the MFC in Muroran City, indicating that it may be difficult to generalize the results in a single step.

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Conflict of Interest Statement

There is no conflict of interest.

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Figure 1. Patients' perceptions of family medicine related to qualitative results

Patients' perception of family medicine (Quantitative data)	%
A doctor who treats various diseases with a general view.	35.3
A doctor who can treat outpatients and visit patients' houses while showing kindness from the perspective of the patient and his/her family.	28.6
A doctor whom you can consult for anything and is familiar with your family and lifestyle.	12.6
A doctor whom you consult first, and who decides which specialty you should visit in a big hospital.	7.6
A doctor who specializes in internal medicine.	5.9
A doctor who has wide knowledge of various diseases, conditions, and treatments not limited to any specific organ.	5.9

Patients' perception of family medicine (Qualitative data)
Seeing the whole person and referring suitably
Medical care at home

Appendix 1: Questionnaire for patients

- This questionnaire is used only for research in the Hokkaido Centre for Family Medicine.
- Please answer all the questions, and do not skip any.
- Your information is protected and will be destroyed at the end of this study.
- It takes about 15 minutes.

Please draw **a circle** around the most appropriate number in the choices.

1) For how long have you been visiting this clinic?

1. 10–15 years 2. 16–20 years 3. Over 20 years

2) Does the same doctor always see you?

1. Yes, almost all the time 2. No, they change every few months 3. No, they change every few years.

3) How long does your average surgery take ?

1. Less than 5 minutes 2. 5–10 minutes 3. 11–15 minutes 4. Over 15 minutes

4) Do you know this clinic is a training place for young doctors?

1. Yes 2. No

5) Did your family visit this clinic?

1. Yes 2. No

6) Did your family visit this clinic?

1. Yes 2. No

7) Do you go to other clinics or hospitals?

1. Yes 2. No

8) If you answered "Yes" to the above question, please indicate where you go (you may circle more than one option).

1. Internal medicine 2. Surgery 3. Psychiatry 4. Orthopedics 5. Brain surgery
6. Dermatology 7. Urology 8. Gynecology 9. Ophthalmology 10. ENT
11. Neurology 12. Dentist 13. Others

9) What do you think is the specialty of this clinic?

1. Internal medicine and Pediatrics 2. Family medicine
3. Don't know 4. Others ( )

10) What is your impression of family medicine? (you may circle more than one option)

1. A doctor you consult first, who decides which specialty you may have to consult in a big hospital.
2. A doctor who does not specialize in a particular field.
3. A doctor who specializes in internal medicine.
4. A doctor who see various diseases with a general view.
5. A doctor who quickly sees emergency health problems.
6. A doctor who has wide knowledge of various diseases, conditions and treatments not limited to a particular organ.
7. A doctor you can consult for anything who knows your family and lifestyle.
8. A doctor who see out-patients and visits patients' houses with kindness from the standpoint of the patient and family.

11) What is your impression of family medicine?

(Please circle only one appropriate choice)

1. The first doctor who decides what specialty you have to go in a big hospital.
2. The doctor who does not specialize in a particular field.
3. The doctor who specializes in internal medicine.

4. The doctor who see various diseases with a general view.
5. The doctor who quickly identifies an emergency health problem.
6. The doctor who has a wide knowledge of various diseases, conditions, and treatments and not limited a particular organ.
7. The doctor who listen your symptoms with knowing your family and lifestyle information.
8. The doctor who see outpatients and visit patients' houses from the standpoint of patients and family.

12) How do you go to the clinic?

1. On foot 2. By bicycle 3. By car 4. By bus 5. By taxi

13) Who are you living with?

1. Never 2. Alone by separation 3. Spouse 4. Single child 5. Child's family
6. Brother or sister 7. Grandchildren
8. Children and grandchildren 9. Friends 10. Others ( )

14) What is your educational background?

1. Junior high school 2. High school 3. College and University

You have completed the questionnaire. Thank you very much.

Appendix 2: Questionnaire for Patients (Japan primary assessment tool)

1) Can you call your clinic after hours when you get sick?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

2) Can you see a doctor on a closed day when you get sick?

1. Strongly agree 2. Agree 3.Can't say 4. Disagree 5. Strongly disagree

3) Can you see a doctor after hours at night when you get sick?

1. Strongly agree 2. Agree 3.Can't say 4. Disagree 5. Strongly disagree

4) Does the doctor have enough time during the consultation for your worries and problems?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

5) Is the doctor easy for you to talk to about your worries and problems?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

6) Does the doctor understand you not only as a patient with a disease but as a person?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

7) Does the doctor know what your most important problem?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

8) Does the doctor know all courses of your diseases?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

9) Have you ever seen a doctor who specialized in a field other than family medicine?

1. Yes → Go to 10) 2. No → Go to 15)

10) Does the doctor recommend a specialist to you?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

11) Does the doctor discuss with you which other clinic or hospital you can go to?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

12) Does the doctor or medical staff help you book a reservation for other specialists?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

13) Does the doctor write a letter of referral for another clinic or hospital?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

14) Does the doctor know the results from your consultation with another specialist?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

15) Does the doctor provide consultations for your mental health problems?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

15) Does the doctor provide consultations for your aging problems?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

16) Does the doctor provide consultations for dementia?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

17) Does the doctor provide consultations for ill-treatment or abuse?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

18) Does the doctor provide consultations for end-of-life care?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

19) Does the doctor advise appropriate exercise?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

19) Does the doctor advise regular bowel movement?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

20) Does the doctor advise supplements and over-the-counter drugs?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

21) Does the doctor advice getting information about health problems from TV programs and newspapers?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

22) Does the doctor advice a healthy working condition?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

23) Does the doctor visit the patients' house?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

24) Does the doctor have an interest in health problems in your community?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

25) Does the doctor hear residents' opinions for providing better care?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

26) Does the doctor investigate how medical care matches patients' requirements?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

26) Does the doctor investigate health problems in your community?

1. Strongly agree 2. Agree 3. Can't say 4. Disagree 5. Strongly disagree

You have completed the questionnaire. Thank you very much.

Appendix 3: Questionnaire for doctors

1) Please write down the age of the patient.

2) Please write down the sex of the patient.

3) Please write down the distance from the patients' home to the clinic.

4) Please write down the number of diseases followed up in this clinic at present.

5) Please write down the kinds of diseases at present.

6) Are there psychological problems?

7) Are there social problems?

8) How often do your patients see you?

9) How many walk-in patients do you see?

10) What kinds of disease do the walk-in patients have?

11) Please write down the number of diseases followed up in this clinic over the last ten years.

12) Please write down the kinds of disease over the last ten years

You have completed the questionnaire; thank you very much.

Appendix 4: Interview guide (semi-structured interview)

・If your perceptions have changed, how and why did they change?

1) Before starting the interview

If the interviewer is a doctor, explain "This interview is different from a medical interview, and therefore, you can speak frankly about what you think."

2) Patients' perception regarding the clinic

2.1 What is difference between this clinic and others from your standpoint of being a patient attending the clinic for over 10 years?

2.1.1 If you have clinical experience in another clinic: Why did you move from the other clinic to this one?

2.1.2 If you have no clinical experience in another clinic: Which clinic does your family or friends go to? If you have heard their experience, please tell us the difference between this clinic and the other one.

3) Patients' perception regarding the term Family Medicine.

3.1 There is a term in primary care called Family Medicine. Are you familiar with this term?

3.1.1 Yes: How do you know about Family Medicine?

3.1.2 No: Do you know that each clinic has a specialty?

4) Patients perception regarding the specialty of Family Medicine.

4.1. This clinic specializes in Family Medicine since 1996. Did you know that?

4.1.1 Yes: What do you think of the specialty of Family Medicine from actually going to the clinic?

4.1.2 No: What is a good point or an insufficient point for this clinic?

4.1.3 Interviewer adds the question, if there is no subject as:
4.1.3.1 What did you think of the doctor's communication and attitude?
4.1.3.2 What did you think of the doctor's diagnostic skills?
4.1.3.3 What did you think of the nurses' communication and attitude?
4.2 If you were to tell your friends unfamiliar with Family Medicine about this clinic, how would you explain it to them?
4.2.1 If you know about Family Medicine, how would you explain this to your friends who don't know about it?

*Note: Which did the interviewee explain: their knowledge or their own experience? In the case of knowledge, where did the interviewee get this knowledge? In the case of own experience, what concrete experience did they have?
*Note: Distinguish between the concept of a good doctor and the perceptions of specialty. We probe by beginning with the perception of this clinic, and then ask about their perception of the specialty of Family Medicine.

5) Changes in patients' perception regarding the specialty of family medicine

5.1 What was the reason for visiting this clinic the first time?
*Note: Ask patients by making recall periods shorter if possible.
*Note: Use reference materials to aid recall, including medical records, pictures of a family doctor in those days, and the patient's diary.

5.2 Are there differences in what you know about this clinic at present and what you have known in the past?

5.3 If you know that the clinic specializes in Family Medicine,

5.3.1 What do you think about Family Medicine again?

5.3.2 What do you think about the clinic again?

5.4 Is there a difference in how you imagine this clinic at present and how you did in the past?

5.4.1 If Yes: What did you think of those differences? Were there reasons or events for this change?

5.5 What do you expect from the clinic?

5.6 What do you expect from Family Medicine?

6) Other

・The interview is complete. Are there any additional things you would like to say?

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Perceptions of family medicine among long-term patients of a family medicine clinic in Japan: a mixed-methods study

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Abstract

Objectives: To examine the perceptions of family medicine in patients attending a family medicine clinic for over 10 years in Japan and explore the unique characteristics of family medicine, which was developed in the local community in northern Japan.

Design: Explanatory sequential mixed-method design, comprising a survey by questionnaires and semi-structured interviews.

Setting: One of the oldest family medicine primary care clinics in Japan. We surveyed and interviewed participants from November 2019 to March 2020.

Participants: 144 patients who attended a family medicine clinic since April 2009 completed questionnaires. Semi-structured interviews with nine participants were conducted.

Results: Among the respondents, 131 (91%) reported having attended a family medicine clinic. In terms of their perception of what "family physicians" do, 42 (35%) stated "a doctor who treats various diseases with a general view" 34 (29%) stated "a doctor who treats outpatients and visit patients' houses", and 15 (13%) stated "a doctor whom one can consult for anything and is familiar with one's family and lifestyle". The result of the qualitative analysis revealed two themes of patients' perceptions of family medicine: "seeing the whole person and referring suitably" and "medical care at home". The patients' perceptions of family medicine identified in the quantitative study were strongly associated with the characteristics extracted from the qualitative study.

Conclusion: Patients attending the family medicine clinic had clear perceptions of what family physicians do. The two major perceptions of the characteristics of family medicine were identified as "seeing the whole person and referring suitably" and "medical care at home".

Strengths and limitations of this study

- The participants represented a unique population with no preconceptions of family medicine at their first visit, and subsequently formulated their perceptions over 10 years or more.

- The quantitative results from phase I was used to guide the maximum variation sampling for the qualitative analysis in phase II.
- The quantitative study's results were illustrated with themes identified as a result of the qualitative study, which provided a closer look at how patients perceive family medicine.
- Changes in patients' perceptions of family medicine could not be investigated qualitatively during interviews in phase II, because the narrative of their current perception was central and limited in revealing the process of change.
- Generalizability could be limited as the medical environment in the local context might have an impact on patients' perceptions of family medicine.

INTRODUCTION

As Japan approaches an increasingly aging society, it needs to address the issue of rising medical expenses and secure high-quality medical care [1]. Family physicians who provide primary healthcare to aging populations are considered key players in addressing this issue [2, 3]. In 2018, family physicians were authorized by the Japanese Medical Specialty Board to become general practice specialists [4]. While the Japanese Medical Specialty Board [5] and the World Organization of Family Doctors [6] have defined the specialty of family medicine, the Japanese people need to further understand how it contributes to their health and everyday lives.

Some earlier studies in Japan have examined the general population's perceptions of family physicians [7,8]. However, these studies mainly included in their sample respondents who were not posed questions regarding their experience of family medicine. No previous study has examined patients who have actually attended a family medicine clinic in its exploration of the perceptions of a care user in primary health care.

Therefore, we investigated perceptions of family medicine among patients attending a family medicine clinic in northern Japan. The participants were patients who had consulted family

physicians for over 10 years. We also considered the unique characteristics of family medicine in Japan, which have developed within a local context, from the perspective of patients. We assumed that when patients have not attended a family medicine clinic, they would consider it as one of a number of medical institutions; however, as they become more aware of family medicine clinics, they would eventually come to understand the unique characteristics of family medicine. Their perceptions of family medicine developed during this process are mainly based on the impressions and expertise that patients have of their doctors. Therefore, we treated perceptions of family physicians and family medicine as almost synonymous from the patients' viewpoint in this study. The aims of this study were as follows：

・To examine the perceptions of family medicine in patients attending a family medicine clinic for over 10 years

・To explores the unique characteristics of family medicine in Japan, which was developed in the local community in northern Japan.

METHODS

Study setting and participants

The Motowanishi Family Clinic (MFC) [9] is located in Hokkaido's Muroran City, opened in 1996 before family medicine was authorized in 2018, and is one of the oldest family medicine clinics in Japan. It is also an educational clinic that trains family physicians. While MFC mainly advocates internal medicine and pediatrics, family medicine has also been listed in parentheses on its signage. The clinic operates a group practice with four physicians providing both outpatient and home visits. All patients who had been attending the MFC every 1–2 months since April 2009 and those who continued to attend the clinic regularly as of April 2019 were included in the study. Patients attending the clinic for >10 years and receiving continuous treatment are defined as long-term patients. Patients who could not complete the questionnaire or be interviewed due to

dementia or old age were excluded by MFC physicians. **(Figure 1)**. They recruited each candidate participant at the end of a medical consultation and obtained their consent.

Research design

A mixed-methods explanatory sequential design was used from the pragmatism paradigm perspective of adopting the best way to achieve this study's objectives [10]. In phase I, a quantitative method based on a questionnaire was used to obtain basic information about the participants and their perceptions of family medicine. In phase II, a qualitative method based on interviews was used to determine the reasons for their responses from phase I. The results of phases I and II were subsequently combined and interpreted. The institutional review board of the Japan Primary Care Association approved this research (2019-003). In both phases, we explained in advance and assured the participants that their cooperation or non-cooperation in the study would not affect, in any way, the medical care they receive and not suffer any disadvantages. Please refer to our published protocol [11].

Procedures

Phase I

We prepared physicians to explain the study outline before phase I. Physicians explained to participants and, if they assented, they responded to the questionnaire by mail from November 2019 to December 2019. Data from the questionnaire were entered by one researcher (K.S) and checked by another researcher (R.M). They were surveyed regarding patient characteristics, type of medical care received, their current medical care, the Japanese version of the Primary Care Assessment Tool (JPCAT) [12], and their awareness of the specialty of family medicine (whether they knew that MFC provided family medicine). The type of health problem was determined using the 17 different organ specific alphabetical chapters of the International Classification of Primary Care:(ICPC) [13]. The same items of the survey questionnaire used to investigate the

general population's perception of a "family physicians" in a previous study [8] were used to clarify the characteristics of family medicine as subjectively considered by the patients. The survey method, survey items, and questionnaire are presented in appendices 1, 2 and 3.

Phase II

Using the results from regarding patients' perceptions of specialty in family medicine, we conducted maximum variation sampling [14]. Specifically, the participants were divided into groups A, B, and C according to whether or not they knew that MFC provided family medicine. If they did, we assessed whether they more strongly perceived family medicine for its comprehensiveness or longitudinality. First, for comprehensiveness: Group A, interviewees were selected according to the number of organ type in ICPC. If comprehensiveness is recognized as a characteristic of family medicine, it is highly likely that patients are attending MFC for a wide variety of organ health problems. Therefore, to ensure diversity, we selected two participants with a low number of organ type, one with an average number of organ type, and one with a high number of organ type. For longitudinality: Group B, participants visiting the same physicians each time was closely related to longitudinality regarding the doctor-patient relationship. Therefore, we selected one participant who attended the same physician monthly, one who saw the same physician annually, and two participants who saw a different physician every time. One or two participants from each group with smaller study IDs were included in phase II after the researcher contacted them and obtained their consent to be interviewed. Semi-structured interviews were conducted by two researchers (K.S. and R.M.) with nine participants (**Table 1)** according to the interview guide (Appendix 4) from February 2020 to March 2020. There was a flow diagram **(Figure 1).** All interviews were recorded and transcribed.

Table 1. Description of participants in the qualitative study (phase II)

Group	Impression of family medicine/general practice	Code	Sex	Age	The number of	Consults with same physician

					organ type in ICPC	
A	Comprehensiveness	A	Female	70s	7	Every month
A	Comprehensiveness	B	Female	70s	1	Every year
A	Comprehensiveness	C	Male	70s	2	Every month
A	Comprehensiveness	D	Female	70s	5	Every month
B	Longitudinality	E	Female	60s	5	Every month
B	Longitudinality	F	Female	70s	6	Not same
B	Longitudinality	G	Male	70s	5	Every year
B	Longitudinality	H	Female	70s	3	Not same
C	No awareness of family medicine	I	Female	70s	8	Not same

International Classification of Primary Care: ICPC.

Data analysis

Quantitative data were analyzed using descriptive statistics. We also analyzed the univariate correlations between the nominal variable of being aware (vs. not being aware) that MFC specializes in family medicine and each item identified during the exploratory process. Pair-wise deletion was used to manage missing data in Table 2 (Appendix 5). We managed and analyzed quantitative data with JMP version.15.2 (SAS Institute) and tested hypotheses at the .05 level of statistical significance using 2-sided tests.

The qualitative data were anonymized, and each participant was allocated a coded number. They were analyzed independently by two researchers using thematic analysis to explain patient perceptions [15,16]. This analysis identified recurrent patterns in the data and explored the meanings of the observed categories of patients' perceptions of family medicine. We excluded the interview results from Group C, because no theme regarding family medicine characteristics was mentioned in the participants' narratives. We interviewed individuals from diverse backgrounds using this sampling technique and found no new themes emerging. Thus we determined that theoretical saturation had been reached with eight interviews.

The qualitative results of phase II were combined with the quantitative results of phase I. in terms of how they corroborate the quantitative results of phase I. [10].

Patients and public involvement

Patients were not involved in the design of the study. The study's findings were disseminated to the patients and neighbors via a lecture.

RESULTS

The total number of participants in phase I was 184, and the number of respondents 144 (response rate: 78%). Of all respondents, 131 (91%) were aware that the specialty of MFC was family medicine, 10 (7%) were aware of internal medicine and two (1%) were not aware of any specialty. A comparison of basic information between the groups who were and not aware of attending a family medicine clinic is shown in **Table 2.** Comparison of these two groups showed no significant differences in several basic information such as age and gender, and in items related to specific medical treatment. However, the group that was aware of MFC as a family medicine clinic had statistically significantly higher scores in the total JPCAT score (16), longitudinality, coordination, comprehensiveness, and community orientation domains. Furthermore, this group also tended to have a higher percentage of patients: consultations with the same physician.

Table 2. Patients' characteristics at baseline, by awareness of family medicine

Characteristics	Being aware of MFC as a family medicine clinic (n=131)	Not being aware of MFC as a family medicine clinic (n=13)	Missing	P value
Age, mean(SD)	74.5 (±10.8)	75.3 (±6.6)	2	0.78

Sex, female No.(%)	76 (59.8)	5 (38.5)	4	0.15
Living alone No.(%)	33 (27.7)	2 (18.1)	14	0.72
Educational attainment (High school graduate or above) No.(%)	74 (61.7)	8 (72.7)	13	0.54
Distance from home to MFC, mean(SD), km	3.6（±3.1）	2.9（±2.6）	3	0.47
Over 15 years of clinic attendance No.(%)	70 (53.9)	7 (58.3)	2	1.00
Consults with same physician No.(%)	75 (57.7)	4 (30.8)	1	0.08
Medical consultation within 5 minutes No.(%)	20 (15.3)	4 (30.7)	1	0.23
Monthly clinic visit No.(%)	83 (65.4)	10 (76.9)	4	0.54
Currently visiting other clinics or hospitals No.(%)	81 (61.8)	11 (84.6)	0	0.13
With family members who also visit MFC No.(%)	81 (61.8)	5 (41.7)	1	0.22
Recognizes MFC as a teaching clinic No.(%)	123 (93.9)	11 (84.6)	0	0.22
Number of diseases, mean(SD)	6.4（±2.6）	7.5 (±3.1)	3	0.13
Number of organ type in ICPC, mean(SD)	4.8（±1.6）	5.5 (±1.5)	3	0.14
Presence of psychological disorders No.(%)	56 (43.8)	7 (53.9)	3	0.56
Presence of social disorders No.(%)	35 (27.3)	3 (23.1)	3	1.00
Number of unscheduled visits for 10 years, mean(SD)	8.1（±9.7）	9.3 (±9.1)	3	0.67

Number of organ type in ICPC, mean(SD)	3.2 (±1.9)	3.2 (±1.7)	3	0.94
Number of referrals for 10 years, mean(SD)	3.1 (±3.3)	3.2 (±2.6)	3	0.96
Number of organ type in ICPC, mean(SD)	1.9 (±1.4)	2.1 (±1.6)	3	0.67
JPCAT total score, mean(SD)	65.6 (±17.1)	52.7 (±15.0)	27	0.05*
(per domain) First contact, mean(SD)	54.7 (±26.2)	42.5 (±36.4)	21	0.18
Longitudinality, mean(SD)	76.8 (±21.4)	57.5 (±17.9)	18	0.007*
Coordination, mean(SD)	78.6 (±26.9)	54.2 (±35.9)	22	0.01*
Comprehensiveness (services available), mean(SD)	72.8 (±22.7)	53.4 (±11.0)	24	0.02*
Comprehensiveness (services provided), mean(SD)	35.1 (±34.5)	37.5 (±29.3)	23	0.84
Community orientation, mean(SD)	75.4 (±20.8)	56.3 (±25.2)	13	0.007*

Motowanishi Family Clinic: MFC.

International Classification of Primary Care: ICPC.

Japanese version of the Primary Care Assessment Tool: JPCAT.

*P value<0.05.

The group with awareness of family medicine is also shown in **Table 3** regarding the kind of doctor they most perceive as family physicians.

Table 3. Patients' main perception of family medicine*

Characteristics	**n=131 (%)**

A doctor who treats various diseases with a general view.	42 (35.3)
A doctor who can treat outpatients and visit patients' houses while showing kindness from the perspective of the patient and his/her family.	34 (28.6)
A doctor whom you can consult for anything and is familiar with your family and lifestyle.	15 (12.6)
A doctor whom you consult first and who decides which specialty you should visit in a big hospital.	9 (7.6)
A doctor who specializes in internal medicine.	7 (5.9)
A doctor who has wide knowledge of various diseases, conditions, and treatments not limited to any specific organ.	7 (5.9)
A doctor who does not specialize in any specific field.	3 (2.5)
A doctor who quickly addresses emergency health problems.	2 (1.7)
Missing	12 (9.1)

*Refer to question 10 in the patient questionnaire (online) Supplementary Appendix 1.

A qualitative study to explore the perceived characteristics of family medicine for those attending a family medicine clinic revealed two themes: "seeing the whole person and referring suitably " and "medical care at home."

Seeing the whole person and referring suitably

This theme encompassed five codes: comprehensiveness, coordination, responsiveness, longitudinal care, and understanding the whole person. Participants perceived family medicine as medical care that first looks at the whole picture, consults with the patient on all health issues, and, in some cases, refers them to a specialist doctor. Organ-specific specialists offer patients diagnoses and treatments targeted towards the specific organ they specialize in, but they cannot treat health problems in other areas outside their scope of practice. Therefore, patients look to their organ specific specialists to ensure that their health problems fit within their doctor's area of expertise. Contrastingly, family medicine looks at the patient's overall health, therefore, patients can consult with family physicians on any health-related problem without reservation. The following quotations reflect these themes:

"They don't just look at this part of the body, they look at the whole body. I can talk to them without hesitation because they don't say, 'I'm only looking at this disease.' They listen to me in a relaxed atmosphere when I tell them my health concerns. I have referred them to my friends who were not sure where to go to see a doctor." (E)

"I am able to get a comprehensive review of everything, so I first consult with the clinic. They also make appropriate referrals, which is reassuring. I feel comfortable that they know me because I have been with them for a long time." (D)

"They understand everything. They look at the whole picture, and if there is anything wrong, they will refer you to a hospital. It's a clinic that looks at most things in a variety of fields." (H)

Medical care at home

This theme encompassed three codes: medical care coming home, home care, and continual care. Doctors and nurses would visit the patients at their homes to provide medical care if they were unable to visit the clinic or bedridden. They also believed that doctors and nurses would be able to visit their homes to see them in cases of sudden physical changes. The following quotation relates to these themes:

"At first I didn't understand. I wonder if the clinic would make the rounds. At my age, that might be a better idea. It will be hard to move around." (C)

"I didn't know about family medicine at first. I heard that Mr. I, a neighbor, had passed away on a house call and that the nurse visited Mrs. J. That's how I found out the medical staff was coming to patients at home." (F)

"I've heard about family medicine and the doctor is going around with a bag. The doctor says, 'I can come to your house." (G)

In the final phase of the analysis, we created a joint display to corroborate the results of the quantitative and qualitative studies **(Figure 2).** The top three of patients' perceptions of family medicine identified in the quantitative study strongly associated with the characteristics extracted from the qualitative study and were consistent in content.

DISCUSSION

A mixed-methods research was conducted with long-term patients attending family medicine clinics in Japan. The majority of participants indicated that they had attended family medicine clinics. The two major perceptions of the characteristics of family medicine were identified as "seeing the whole person and referring suitably" and "medical care at home."

Patients' perceptions of family medicine in Japan

Previous studies on perceptions of family medicine in Japan did not focus on the patients, but on the general population [8]. They mainly focused on findings that were not based on actual experiences of receiving medical care but on ideals [7] or impressions derived from the term "family medicine" or "general practice." This study was the first to reveal the perceptions of patients who had attended a family physician as their usual source of care for >10 years. The result showed that, first, the majority of the patients were aware of family medicine. No differences were found in patient characteristics or medical treatments in terms of awareness of family medicine. Compared to the JPCAT, which is a patient-reported scale that reflects patient experience [12,17], the JPCAT total score was predominantly higher in the group aware of family medicine, although the proportion of those attending for >15 years did not differ. The high-quality patient experience of primary care based on the experience of receiving care may have established the new name of family medicine instead of internal medicine.

Comparison of patients' and the general population's perceptions

In a previous study of the general population aged 70 years or older [8], 36% of the specialty of family medicine were a doctor who treated various diseases with a general view, 31.5% whom you consult first, and decides which specialty you should visit in a big hospital. and 13.8% has wide knowledge of various diseases, conditions, and treatments not limited to any specific organ. The percentages of a doctor who treated various diseases with a general view were similar to those in this study. This was followed by a doctor whom patients can consult for anything and is familiar with the patient's family and lifestyle (2.8%), and who can treat outpatients and visit patients' houses while showing kindness from the patient's perspective (2.2%). However, their distributions were different. The general population's perception of family medicine is that of a doctor who has a wide range of disease knowledge, sees patients with a variety of diseases, and can provide diagnoses and treatments based on the patient's condition. However, the perception of patients in this study was that, in addition to seeing patients with various diseases, they could consult with family physicians on matters other than diseases and receive home-based medical care. Consultation on matters pertaining to everyday problems or family relationship concerns is not something that the general population would likely request from a medical institution. Patients who have been visiting the family medicine clinic for many years feel that this is something that differentiates them from other medical institutions. However, it has been highlighted that patients have preferences for this kind of consultation depending on their characteristics [18]. It is noteworthy, however, that it may be an overstatement to suggest that the patients' perception of family medicine is that family physicians can be consulted about anything, since it is possible that patients who prefer to discuss anything may be attending MFC for a long period of time in this community.

Characteristics of family medicine unique to Japan: medical care at home

"Seeing the whole person" evokes comprehensiveness, and "referring suitably" evokes coordination, which is almost consistent with one of the key concepts that characterize family medicine [19]. "Medical care at home" is a highly unique theme regarding the commonly accepted characteristics of family medicine [5,6]. It is possible that family medicine was interpreted by patients as medical care at home due to the MFC's historical background, where no other medical institution provided home visits in the area, and several physicians have been providing home visits as a teaching clinic. Home visits are not an exclusive domain of the medical services offered by family physicians. However, they constitute a medical setting in which the strengths of family physicians can be utilized. Their primary goal is not to cure the patient but to set individual goals that emphasize the patient's sense of values, while also looking after the patient's family and forming a network of cooperation with multiple professions [19]. This differentiation of MFC may have been recognized in combination with the name "family" physicians.

There have been discussions [20,21], mainly in Europe, about the workload and delegation of work to family physicians regarding home visits. In this study in the Japanese context, patients perceived that a physician who had been providing outpatient care could provide home-based care if patients were unable to come to the clinic.

Study limitations

It is possible that many of the patients who agreed to cooperate in the study after receiving explanations from their doctors but did not respond to the questionnaire were not aware that they were in a family medicine clinic. However, the questionnaire collection rate was 78%, which was considered representative of the target population. Additionally, the multiple-choice format of the questionnaire was considered unlikely to cause social desirability bias.

It was assumed that most participants had a satisfactory clinic visit experience because they visited the clinic for >10 years. Therefore, negative perceptions of family medicine might not have

emerged. We addressed this issue in phase II through semi-structured interviews posing questions about future shortcomings and expectations. This study's results showed that patients' perceptions of family medicine were also influenced by the medical situation surrounding the MFC in Muroran City, indicating that it may be difficult to generalize the results. We also initially attempted to identify temporal changes in patients' perceptions of family medicine. However, the narratives of how they currently perceive family medicine were central to their talks, which made it difficult to reveal the process of change.

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Contributors

KS, RM designed the study; derived the indicators and analysis data set and conducted the analysis. KS, RM, and TK contributed to the interpretation of the work. KS and RM drafted the paper. KS, RM and TK contributed to the paper; read and approved the final manuscript.

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Competing interests

We declare no competing interests.

Ethics approval

The institutional review board of the Japan Primary Care Association approved this research (2019-003).

Data availability statement

No additional data available.

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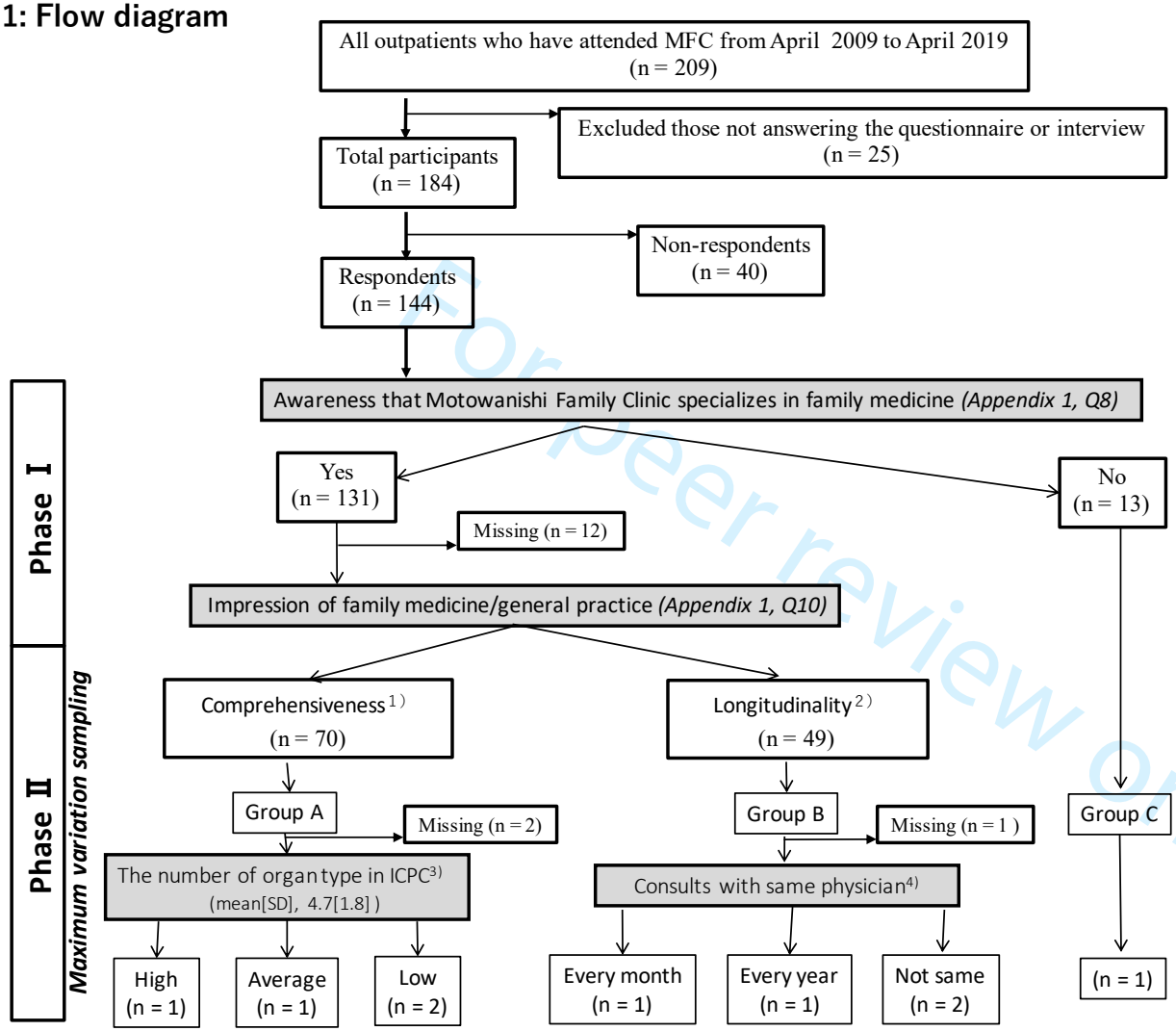
Figure 1. Study flow diagram

Figure 2. Patients' perceptions of family medicine related to qualitative results

Figure 1: Flow diagram



1) Participants who selected options *1-6* for question 10 in the patient questionnaire (online) *Supplementary Appendix 1*.
2) Participants who selected options *7-8* for question 10 in the patient questionnaire (online) *Supplementary Appendix 1.*
3) Refer to question 5 in the doctor questionnaire (online) *Supplementary Appendix 3.*
4) Refer to question 2 in the patient questionnaire (online) *Supplementary Appendix 1.*

Figure 2: Patients' perceptions of family medicine related to qualitative results

Patients' perception of family medicine (Quantitative data)	%
A doctor who treats various diseases with a general view.	35.3
A doctor who can treat outpatients and visit patients' houses while showing kindness from the perspective of the patient and his/her family.	28.6
A doctor whom you can consult for anything and is familiar with your family and lifestyle.	12.6
A doctor whom you consult first, and who decides which specialty you should visit in a big hospital.	7.6
A doctor who specializes in internal medicine.	5.9
A doctor who has wide knowledge of various diseases, conditions, and treatments not limited to any specific organ.	5.9

Patients' perception of family medicine (Qualitative data)
Seeing the whole person and referring suitably
Medical care at home

Appendix 1: Questionnaire for patients

- This questionnaire is used only for research in the Hokkaido Centre for Family Medicine.
- Please respond to all the questions, and do not skip any.
- Your information is protected and will be destroyed at the end of this study.
- It takes approximately 15 minutes to complete the questionnaire.

Please draw **a circle** around the most appropriate number in the choices.

1) For how long have you been visiting this clinic?

1. 10–15 years 2. 16–20 years 3. Over 20 years

2) Does the same doctor always see you?

1. Yes, almost all the time 2. No, they change every few months 3. No, they change every few years.

3) How long does your average surgery take ?

1. Less than 5 minutes 2. 5–10 minutes 3. 11–15 minutes 4. Over 15 minutes

4) Do you know this clinic is a training place for young doctors?

1. Yes 2. No

5) Did your family visit this clinic?

1. Yes 2. No

6) Do you go to other clinics or hospitals?

1. Yes 2. No

7) If you responded “Yes” to the above question, please indicate where you go (you may circle more than one option).

1. Internal medicine 2. Surgery 3. Psychiatry 4. Orthopedics 5. Brain surgery
6. Dermatology 7. Urology 8. Gynecology 9. Ophthalmology 10. ENT
11. Neurology 12. Dentist 13. Others

8) What do you think is the specialty of this clinic?

1. Internal medicine and Pediatrics 2. Family medicine
3. Do not know 4. Others ( )

9) What is your impression of family medicine? (you may circle more than one option)

1. A doctor you consult first, who decides which specialty you may have to consult in a big hospital.
2. A doctor who does not specialize in a particular field.
3. A doctor who specializes in internal medicine.
4. A doctor who sees various diseases with a general view.
5. A doctor who quickly sees emergency health problems.
6. A doctor who has wide knowledge of various diseases, conditions and treatments not limited to a particular organ.
7. A doctor you can consult for anything who knows your family and lifestyle.
8. A doctor who sees out-patients and visits patients' houses with kindness from the standpoint of the patient and family.

10) What is your impression of family medicine?

(Please circle only one appropriate choice)

1. The first doctor who decides what specialty you have to go to in a big hospital.
2. The doctor who does not specialize in a particular field.
3. The doctor who specializes in internal medicine.
4. The doctor who sees various diseases with a general view.
5. The doctor who quickly identifies an emergency health problem.
6. The doctor who has a wide knowledge of various diseases, conditions, and treatments and not limited a particular organ.

7. The doctor who listens to your symptoms, knowing your family and lifestyle information.
8. The doctor who sees outpatients and visit patients' houses from the standpoint of patients and family.

11) How do you go to the clinic?

1. On foot 2. By bicycle 3. By car 4. By bus 5. By taxi

12) Who are you living with?

1. Living alone all one's life 2. Alone by separation 3. Spouse 4. Single child
5. Child's family 6. Brother or sister 7. Grandchildren
8. Children and grandchildren 9. Friends 10. Others ( )

13) What is your educational background?

1. Junior high school 2. High school 3. College and University

You have completed the questionnaire. Thank you very much.

Appendix 2: Questionnaire for Patients (Japan primary assessment tool)

1) Can you call your clinic after hours when you get sick?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

2) Can you see a doctor on a closed day when you get sick?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

3) Can you see a doctor after hours at night when you get sick?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

4) Does the doctor have sufficient time during the consultation for your worries and problems?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

5) Is the doctor easy for you to talk to about your worries and problems?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

6) Does the doctor understand you not only as a patient with a disease but as a person?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

7) Does the doctor know what your most important problem is?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

8) Does the doctor know all causes of your diseases?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

9) Have you ever seen a doctor who specialized in a field other than family medicine?

1. Yes → Go to 10) 2. No → Go to 15)

10) Does the doctor recommend a specialist to you?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

11) Does the doctor discuss with you which other clinic or hospital you can go to?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

12) Does the doctor or medical staff help you to book a reservation for other specialists?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

13) Does the doctor write a letter of referral for another clinic or hospital?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

14) Does the doctor know the results from your consultation with another specialist?

1. Strongly agree 2. Agree 3 Cannot say 4. Disagree 5. Strongly disagree

15) Does the doctor provide consultations for your mental health problems?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

15) Does the doctor provide consultations for your aging problems?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

16) Does the doctor provide consultations for dementia?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

17) Does the doctor provide consultations for ill-treatment or abuse?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

18) Does the doctor provide consultations for end-of-life care?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

19) Does the doctor advise appropriate exercise?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

19) Does the doctor advise regular bowel movement?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

20) Does the doctor advise supplements and over-the-counter drugs?

1. Strongly agree 2. Agree 3 Cannot say 4. Disagree 5. Strongly disagree

21) Does the doctor advise you about acquiring information about health problems from TV programs and newspapers?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

22) Does the doctor advise you of a healthy working condition?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

23) Does the doctor visit the patients' house?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

24) Does the doctor have an interest in health problems in your community?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

25) Does the doctor hear residents' opinions for providing better care?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

26) Does the doctor investigate how medical care matches patients' requirements?

1. Strongly agree 2. Agree 3. Cannot say 4. Disagree 5. Strongly disagree

26) Does the doctor investigate health problems in your community?

1. Strongly agree 2. Agree 3. Cannot 4. Disagree 5. Strongly disagree

You have completed the questionnaire. Thank you very much.

Appendix 3: Questionnaire for doctors

1) Please note the patient's age.

2) Please note the sex of the patient.

3) Please note the distance from the patients' home to the clinic.

4) Please note the number of diseases followed up in this clinic at present.

5) Please note the kinds of diseases at present.

6) Are there psychological problems?

7) Are there social problems?

8) How often do your patients see you?

9) How many walk-in patients do you see?

10) What kinds of disease do the walk-in patients have?

11) Please note the number of diseases followed up in this clinic over the last ten years.

12) Please note the kinds of disease over the last ten years.

You have completed the questionnaire; thank you very much.

Appendix 4: Interview guide (semi-structured interview)

・If your perceptions have changed, how and why did they change?

1) Before starting the interview

If the interviewer is a doctor, explain "This interview is different from a medical interview, and therefore, you can speak frankly about what you think."

2) Patients' perception regarding the clinic

2.1 What is difference between this clinic and others from your standpoint of being a patient attending the clinic for over 10 years?

2.1.1 If you have clinical experience in another clinic: Why did you move from the other clinic to this one?

2.1.2 If you have no clinical experience in another clinic: Which clinic does your family or friends go to? If you have heard of their experience, please tell us the difference between this clinic and the other one.

3) Patients' perception regarding the term Family Medicine.

3.1 There is a term in primary care called Family Medicine. Are you familiar with this term?

3.1.1 Yes: How do you know about Family Medicine?

3.1.2 No: Do you know that each clinic has a specialty?

4) Patients' perception regarding the specialty of Family Medicine.

4.1. This clinic specializes in Family Medicine since 1996. Did you know that?

4.1.1 Yes: What do you think of the specialty of Family Medicine from going to the clinic?

4.1.2 No: What is a good point or an insufficient point for this clinic?

4.1.3 Interviewer adds the question, if there is no subject as:
4.1.3.1 What did you think of the doctor's communication and attitude?
4.1.3.2 What did you think of the doctor's diagnostic skills?
4.1.3.3 What did you think of the nurses' communication and attitude?
4.2 If you were to tell your friends unfamiliar with Family Medicine about this clinic, how would you explain it to them?
4.2.1 If you know about Family Medicine, how would you explain this to your friends who do not know about it?

*Note: Which did the interviewee explain: their knowledge or their own experience? In the case of knowledge, where did the interviewee get this knowledge? In the case of own experience, what concrete experience did they have?
*Note: Distinguish between the concept of a good doctor and the perceptions of specialty. We probe by beginning with the perception of this clinic, and subsequently about their perception of the specialty of Family Medicine.

5) Changes in patients' perception regarding the specialty of family medicine

5.1 What was the reason for visiting this clinic the first time?
*Note: Pose questions to patients by making recall periods shorter if possible.
*Note: Use reference materials to aid recall, including medical records, pictures of a family doctor in those days, and the patient's diary.

5.2 Are there any differences in what you know about this clinic at present and what you have known in the past?
5.3 If you know that the clinic specializes in Family Medicine:

5.3.1 What do you think about Family Medicine again?

5.3.2 What do you think about the clinic again?

5.4 Is there a difference in how you imagine this clinic at present and how you did in the past?

5.4.1 If Yes: What did you think of those differences? Were there reasons or events for this change?

5.5 What do you expect from the clinic?

5.6 What do you expect from Family Medicine?

6) Other

・The interview is complete. Is there anything you would like to add?

Appendix 5: Supplemental Methods

Missing data

The number of missing values for each item was described in Table 2. For items with missing values of >5 (living alone, education attainment, and JCPAT total score and the score for each domain), Fisher's exact test was conducted between the two groups with and without missing values and whether or not the respondent being aware of MFC as a family medicine clinic, but none of the missing values were statistically significant. Therefore, missing values were considered to be missing at random (MAR). Univariate analyses were conducted using pair-wise deletion.

Supplement 3: Checklist for Reporting Of Survey Studies (CROSS)

Section/topic	Item	Item description	Reported on page #
Title and abstract			
Title and abstract	1a	State the word "survey" along with a commonly used term in title or abstract to introduce the study's design.	P2
	1b	Provide an informative summary in the abstract, covering background, objectives, methods, findings/results, interpretation/discussion, and conclusions.	P2
Introduction			
Background	2	Provide a background about the rationale of study, what has been previously done, and why this survey is needed.	P3-4
Purpose/aim	3	Identify specific purposes, aims, goals, or objectives of the study.	P4
Methods			
Study design	4	Specify the study design in the methods section with a commonly used term (e.g., cross-sectional or longitudinal).	P5
Data collection methods	5a	Describe the questionnaire (e.g., number of sections, number of questions, number and names of instruments used).	P5-6
	5b	Describe all questionnaire instruments that were used in the survey to measure particular concepts. Report target population, reported validity and reliability information, scoring/classification procedure, and reference links (if any).	P5-6
	5c	Provide information on pretesting of the questionnaire, if performed (in the article or in an online supplement). Report the method of pretesting, number of times questionnaire was pre-tested, number and demographics of participants used for pretesting, and the level of similarity of demographics between pre-testing participants and sample population.	NA (The questionnaire was not pretestd for this study.)
	5d	Questionnaire if possible, should be fully provided (in the article, or as appendices or as an online supplement).	Appendix 1-3
Sample characteristics	6a	Describe the study population (i.e., background, locations, eligibility criteria for participant inclusion in survey, exclusion criteria).	P4-5
	6b	Describe the sampling techniques used (e.g., single stage or multistage sampling, simple random sampling, stratified sampling, cluster sampling, convenience sampling). Specify the locations of sample participants whenever clustered sampling was applied.	P4
	6c	Provide information on sample size, along with details of sample size calculation.	All-case survey
	6d	Describe how representative the sample is of the study population (or target population if possible), particularly for population-based surveys.	All-case survey
Survey	7a	Provide information on modes of questionnaire administration, including the type and number of contacts, the location where the survey was conducted (e.g., outpatient	P4-5

administration		room or by use of online tools, such as SurveyMonkey).	
	7b	Provide information of survey's time frame, such as periods of recruitment, exposure, and follow-up days.	P5
	7c	Provide information on the entry process: –>For non-web-based surveys, provide approaches to minimize human error in data entry. –>For web-based surveys, provide approaches to prevent "multiple participation" of participants.	P5
Study preparation	8	Describe any preparation process before conducting the survey (e.g., interviewers' training process, advertising the survey).	P5
Ethical considerations	9a	Provide information on ethical approval for the survey if obtained, including informed consent, institutional review board [IRB] approval, Helsinki declaration, and good clinical practice [GCP] declaration (as appropriate).	P5
	9b	Provide information about survey anonymity and confidentiality and describe what mechanisms were used to protect unauthorized access.	P5-6
Statistical analysis	10a	Describe statistical methods and analytical approach. Report the statistical software that was used for data analysis.	P7
	10b	Report any modification of variables used in the analysis, along with reference (if available).	Not applicable
	10c	Report details about how missing data was handled. Include rate of missing items, missing data mechanism (i.e., missing completely at random [MCAR], missing at random [MAR] or missing not at random [MNAR]) and methods used to deal with missing data (e.g., multiple imputation).	P7, Appendix 5
	10d	State how non-response error was addressed.	P7
	10e	For longitudinal surveys, state how loss to follow-up was addressed.	Not applicable
	10f	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for non-representativeness of the sample.	Not applicable
	10g	Describe any sensitivity analysis conducted.	Not applicable
Results			
Respondent characteristics	11a	Report numbers of individuals at each stage of the study. Consider using a flow diagram, if possible.	Figure.1
	11b	Provide reasons for non-participation at each stage, if possible.	Figure.1
	11c	Report response rate, present the definition of response rate or the formula used to calculate response rate.	P8

	11d	Provide information to define how unique visitors are determined. Report number of unique visitors along with relevant proportions (e.g., view proportion, participation proportion, completion proportion).	Figure.1
Descriptive results	12	Provide characteristics of study participants, as well as information on potential confounders and assessed outcomes.	Table.2
Main findings	13a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates along with 95% confidence intervals and p-values.	Table.2
	13b	For multivariable analysis, provide information on the model building process, model fit statistics, and model assumptions (as appropriate).	Not applicable
	13c	Provide details about any sensitivity analysis performed. If there are considerable amount of missing data, report sensitivity analyses comparing the results of complete cases with that of the imputed dataset (if possible).	Not applicable
Discussion			
Limitations	14	Discuss the limitations of the study, considering sources of potential biases and imprecisions, such as non-representativeness of sample, study design, important uncontrolled confounders.	P15
Interpretations	15	Give a cautious overall interpretation of results, based on potential biases and imprecisions and suggest areas for future research.	P15
Generalizability	16	Discuss the external validity of the results.	P15-16
Other sections			
Role of funding source	17	State whether any funding organization has had any roles in the survey's design, implementation, and analysis.	P16
Conflict of interest	18	Declare any potential conflict of interest.	P16
Acknowledgements	19	Provide names of organizations/persons that are acknowledged along with their contribution to the research.	P16

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

	Page/line no(s).
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Page 1, # 1-2
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 2, # 2-21
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 3, # 12-23 Page 4, # 1-8
Purpose or research question - Purpose of the study and specific objectives or questions	Page 4, # 9-13
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	Page 5, #5-6
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Appendix 4
Context - Setting/site and salient contextual factors; rationale**	Appendix 4 Page 4, #17-22
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	Page 6, #5-22 Figure 1 Page 7 #12-17
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page5 #10-14
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Page 6, # 19-22

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Page 6, # 19-22 Appendix 4
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Page 6, #9-19, Table 1
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Page 7, #10-12
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	Page 7, #12-17
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	Page 7, #12-17

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Page 11, #3-5
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Page 11 #17-20 Page 12, #1-6,13-19

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Page 12, #20-21 Page 13, #1-2 Page 14, #23-26 Page15, #1-13
Limitations - Trustworthiness and limitations of findings	Page 15, #21-25 Page 16, #1-4

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Page 16, #19
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Page 16, #16-17

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388