# Comparison of Primary Care Experience in Hospital-Based Practices and Community-Based Office Practices in Japan

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## ABSTRACT

**PURPOSE** The quality of health care, including primary care, is influenced by the context in which care is delivered. We investigated the association between primary care practice location and patient experience with a focus on differences between hospital-based practices and community-based office practices.

**METHODS** We conducted a cross-sectional study in a primary care practice-based research network in Japan among 25 participating facilities: 6 small and medium-sized hospitals and 19 community-based offices. We assessed patient experience of primary care using a Japanese version of Primary Care Assessment Tool (JPCAT), which comprises 6 domains: first contact, longitudinality, coordination, comprehensiveness with respect to services available, comprehensiveness with respect to services provided, and community orientation.

**RESULTS** Analyses were based on 1,725 primary care patients. After adjustment for possible confounders and clustering within facilities, compared with community-based office practices, hospital-based practices were associated with poorer patient experience of community orientation (adjusted mean difference = −5.76; 95% CI, −10.35 to −1.17). In contrast, hospital-based practices were associated with comparatively better patient experience of first contact (adjusted mean difference = 15.43; 95% CI, 5.13 to 25.72).

**CONCLUSIONS** Our study elucidates differences in the strengths and challenges of primary care between hospital-based practices and community-based office practices, with a focus on patient centeredness. Improving community orientation in hospital-based practices and improving accessibility, including out-of-hours care, in community-based office practices may enhance the quality of primary care and promote standardization of care across settings.

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## INTRODUCTION

Among the components of quality of medical care, patient centeredness—the concept that care provided corresponds to a patient's wishes, needs, and values—is globally deemed to be one of the key goals of a health care system.[1,2] Patient-centered care improves patients' health status and increases the efficiency of care by reducing diagnostic tests and referrals.[3]

Assessment of patient satisfaction, a conventional quality indicator of patient centeredness, has some limitations, such as discriminability.[4] Patient experience has therefore recently gained popularity as a new quality indicator of patient centeredness, replacing patient satisfaction. Numerous studies have suggested that better patient experience improves patient health outcomes through modification of patient behaviors, namely, through those associated with adherence and self-management, and that better patient experience is also associated with more efficient use of medical resources.[5-7]

Internationally, demographic changes have increased the number of patients with complex medical needs, including those with multimorbid-

ity and psychosocial problems.[8] At the same time, improvement of primary care quality is a pressing need, especially in the context of financial pressures due to medical costs and the need to shift medical care settings to communities.[9] In Japan, primary care services are generally available both in outpatient departments of small and medium-sized hospitals with fewer than 200 beds and in community-based offices independent of hospitals that are predominantly privately owned and managed.[10-12] Patients can visit any of these facilities without restricted access and additional out-of-pocket costs. The presence of beds and inpatient care distinguishes between these 2 types of primary care facilities (Table 1). Staff size also differs. Primary care in both practice types is typically delivered by primary care physicians trained in an internal medicine–based residency program, some of whom belong to the Japan Primary Care Association.[10] In Japan, the system for accrediting board-certified family physicians was only recently established, in 2018.

The quality of health care, including primary care, is influenced by the context in which care is delivered.[13] A few previous studies have compared the clinical quality and efficiency of primary care between hospital-based practices and community-based office practices.[14,15] Evidence supporting an influence of primary care practice location on patient experience is limited both in Japan and elsewhere, however. We therefore investigated the association between primary care practice location and patient experience, focusing on differences between hospital-based practices and community-based office practices.

## METHODS

### Design, Setting, and Participants

Data used for this study were collected from the Primary Care Organizations Reciprocal Evaluation Survey Study (PROGRESS) 2018 conducted in a primary care practice-based research network from February to March 2018. PROGRESS was a cross-sectional survey undertaken to collect data on patient experience, clinical processes, health care use, health conditions, and sociodemographic characteristics among adult outpatients in primary care.[16] This national practice-based research network comprises primary care facilities that have a physician member of the Japan Primary Care Association and that voluntarily applied for participation in PROGRESS. The Japan Primary Care Association has about 10,000 members, both physicians and other health professionals. A total of 25 facilities (6 small and medium-sized hospitals and 19 community-based offices) distributed in both urban and rural areas (Kanto, Chubu, Kinki, and Kyushu areas) participated in PROGRESS 2018 (Supplemental Table 1, available at http://www.AnnFamMed.org/content/18/1/24/suppl/DC1/).

The proportions of patients who visited hospitals and community-based offices in our study population were generally reflective of the national profile in Japan.[17] A self-administered questionnaire was distributed to all outpatients aged 20 years or older who visited a primary care department in one of the participating facilities within a week of the survey period.

Adult patients were eligible for this study if they responded to the PROGRESS 2018 survey and their participating facility served as their usual source of care. To identify an individual's usual source of care, we used the same 3 questions and algorithm in the Japanese version of Primary Care Assessment Tool (JPCAT)[18] that were used in the original Primary Care Assessment Tool Adult Expanded Edition (PCAT-AE)[19]: (1) Is there a doctor whom you usually go to if you are sick or need advice about your health? (usual source); (2) Is there a doctor who knows you best as a person? (knows best); and (3) Is there a doctor who is most responsible for your health care? (most responsible). A patient was considered to have a usual source of care if he or she answered yes to any of the 3 questions.

The ethical committee of the Kyoto University Graduate School of Medicine provided ethical approval for this study (approval number R1342).

### Measures

The primary outcome measures in this study were the JPCAT[18] scores, which served as measures of the patient experience of primary care (Supplemental Table 2, available at http://www.AnnFamMed.org/content/18/1/24/suppl/DC1/). The JPCAT, based on the PCAT-AE,[19] was developed using Delphi methodology, with cognitive testing and a validation

| Characteristic | Small and Medium-Sized Hospitals | Community-Based Offices |
|---|---|---|
| Beds | Yes | No |
| Services provided | Outpatient care, home care, inpatient care | Outpatient care, home care |
| Ownership | Mostly private | Mostly private |
| Number of primary care physicians | 2 or more | Usually 1 |
| Staff | Physicians, nurses, medical assistants, pharmacists, therapists, technologists, etc | Physicians, nurses, medical assistants, etc |

**Table 1. Characteristics of Primary Care Facilities in Japan**

study to assess its applicability to the Japanese health care system. This 29-item tool comprises 6 multi-item domains/subscales representing 5 primary care attributes: first contact, longitudinality, coordination, comprehensiveness, and community orientation.[20] Scoring of the JPCAT is structured so that each response on a 5-point Likert scale is converted to an item score between 0 and 4. The calculated means of item scores within each domain are multiplied by 25 to yield domain scores ranging from 0 to 100 points, with higher scores indicating better patient experience. Previous work has shown that the JPCAT has good reliability and validity.[18]

We selected covariates for their known associations with patient preference about choosing a medical institution and with patient experience.[21-23] We included covariates for age, sex, years of education, annual household income, and self-rated health status. All covariates were collected with a self-administered questionnaire and evaluated as categorical variables.

We also collected data on morbidity status using a structured questionnaire. Participants responded to questions about the occurrence of each chronic health condition on a checklist and were categorized as not having any chronic health conditions if they did not answer any questions with "present."

## Statistical Analysis

We computed descriptive statistics for participants' characteristics. Unadjusted associations between practice location and participants' characteristics were analyzed by the $\chi^2$ test for trend. Unadjusted associations between practice location and JPCAT scores were analyzed by the Student $t$ test. We used linear mixed effects models (random intercept models) to assess the associations between primary care practice location and each JPCAT domain score. The models included a random effect for facility, and covariates (age, sex, years of education, annual household income, and self-rated health status) as fixed effects. For each analysis, we used a 2-sided significance level of $P = .05$. We accounted for missing data for independent and dependent variables by using multiple imputation with a fully conditional specification. For reference, a 3-point increase in patient experience measures linearly scaled to a range of 0 to 100 has been associated with a reduction in disenrollment from health plans and with advance care planning discussions with primary care professionals; thus, a difference exceeding 3 points is considered clinically important in magnitude.[24-27] Statistical analyses were conducted using R version 3.4.2 (R Foundation for Statistical Computing) and the lme4 (CRAN) and MICE (Multivariate Imputation by Chained Equations in R; CRAN) packages.

# RESULTS
## Participants' Characteristics

Of 2,111 adult patients, 1,795 (85.0%) responded to the PROGRESS 2018 survey. Of these respondents, we excluded 70 who did not have a usual source of care and based analyses on the remaining 1,725 patients. Table 2 shows the characteristics of these participants. The proportion aged 70 years or older was 43.3%, and the prevalence of multimorbidity was 50.0%. The number of participants who visited hospitals and community-based offices was 617 (35.8%) and 1,108 (64.2%), respectively. As shown in the table, the 2 groups were generally similar on characteristics.

## JPCAT Scores

Table 3 shows the mean (SD) JPCAT scores overall and by practice location. The best-scored domain was longitudinality (79.8), and the most poorly scored domain was comprehensiveness of services provided (42.5). We noted trends suggesting that the participants who visited hospitals had higher first contact scores and lower community orientation scores compared with the participants who visited community-based offices.

## Associations Between Practice Location and JPCAT Scores

Table 4 shows the adjusted mean differences in JPCAT scores between hospital-based practices and community-based office practices. Hospital-based practices had a poorer patient-reported experience of community orientation, with an adjusted mean difference of –5.76 (95% CI, –10.35 to –1.17) compared with community-based office practices. In contrast, hospital-based practices had a better patient-reported experience of first contact, with an adjusted mean difference of 15.43 (95% CI, 5.13 to 25.72) compared with community-based office practices. No other associations between practice location and JPCAT scores were statistically significant.

# DISCUSSION

Our study investigated differences in patients' experience of primary care between hospital-based practices and community-based office practices. The results of our multivariate analysis revealed that the first contact score for primary care in community-based offices was lower than that in hospitals, whereas the community orientation score was lower for primary care in hospitals vs community-based offices.

Several studies on primary care settings have investigated gaps in patient centeredness according to practice location and ownership,[26,28-30] but few have compared hospitals with community-based offices in this respect.

A Chinese study of outpatients found that patient satisfaction levels were higher in offices than in hospitals for several parameters, such as waiting times, attitudes of medical staff, explanations by medical staff, and trust in medical staff.[31] The study had some methodologic limitations, however; for instance, the outcome measure was the level of satisfaction, and the scales used have not been tested for measurement validity and reliability.

Standardizing the quality of primary care provided to the population requires strengthening the respective weaknesses of each practice type. The reasons for the poorer patient experience of community orientation in hospitals may be attributed to a broader scope of practice of hospital primary care physicians. Identifying the community's health problems and needs, developing and implementing interventions, conducting ongoing evaluation of the results of interventions, and involving community representatives are essential processes for community-oriented primary care.[32] In Japan, however, primary care physicians in hospitals may not be able to provide community-oriented primary care compared with counterparts in community-based offices because they are engaged in inpatient care in addition to outpatient and home care. Improving the work environments of hospital primary care physicians through team-based approaches that reduce the burden on physicians may help promote community orientation in hospital-based primary care practices. Our findings may also be relevant to primary care physicians who work in both outpatient and inpatient care in other countries, including the United States.

One of the concerns associated with poorer patient experience of accessibility with respect to primary care in community-based office practices is that the majority of Japanese offices are solo practices, wherein a single full-time physician runs the

office, making it difficult to provide out-of-hours care. When the JPCAT was developed, an item associated with out-of-hours care was adopted for the first contact domain reflecting Japanese residents' needs in primary care.[18] Out-of-hours care from primary care physicians ensures continuity of care and reduces costly emergency department visits.[33] There is limited ability to improve the accessibility, including out-of-hours care, of community-based offices by facility-level measures

### Table 2. Characteristics of Patients by Primary Care Practice Location

| Characteristic[a] | Total (N = 1,725) | Primary Care Practice Location | | P Value[b] |
|---|---|---|---|---|
| | | Hospital (n = 617) | Community-Based Office (n = 1,108) | |
| Sex, No. (%) | | | | .41 |
| Male | 663 (38.4) | 227 (36.8) | 436 (39.4) | |
| Female | 765 (44.3) | 278 (45.1) | 487 (44.0) | |
| Age-group, No. (%) | | | | .30 |
| 20-29 y | 20 (1.2) | 10 (1.6) | 10 (0.9) | |
| 30-39 y | 47 (2.7) | 10 (1.6) | 37 (3.3) | |
| 40-49 y | 87 (5.0) | 35 (5.7) | 52 (4.7) | |
| 50-59 y | 162 (9.4) | 60 (9.7) | 102 (9.2) | |
| 60-69 y | 399 (23.1) | 133 (21.6) | 266 (24.0) | |
| 70-79 y | 510 (29.6) | 159 (25.8) | 351 (31.7) | |
| ≥80 y | 236 (13.7) | 113 (18.3) | 123 (11.1) | |
| Education, No. (%) | | | | .44 |
| <High school | 324 (18.8) | 115 (18.6) | 209 (18.9) | |
| High school | 610 (35.4) | 213 (34.5) | 397 (35.8) | |
| Junior college | 213 (12.3) | 77 (12.5) | 136 (12.3) | |
| ≥College | 281 (16.3) | 107 (17.3) | 174 (15.7) | |
| Annual household income, in million JPY, No. (%) | | | | .79 |
| <3.00 (≈US$27,000) | 676 (39.2) | 258 (41.8) | 418 (37.7) | |
| 3.00-4.99 | 388 (22.5) | 120 (19.4) | 268 (24.2) | |
| 5.00-6.99 | 152 (8.8) | 52 (8.4) | 100 (9.0) | |
| 7.00-9.99 | 82 (4.8) | 33 (5.3) | 49 (4.4) | |
| ≥10.00 | 39 (2.3) | 16 (2.6) | 23 (2.1) | |
| Self-rated health status, No. (%) | | | | <.001 |
| Excellent | 26 (1.5) | 11 (1.8) | 15 (1.4) | |
| Very good | 223 (12.9) | 70 (11.3) | 153 (13.8) | |
| Good | 832 (48.2) | 271 (43.9) | 561 (50.6) | |
| Poor | 333 (19.3) | 144 (23.3) | 189 (17.1) | |
| Very poor | 35 (2.0) | 22 (3.6) | 13 (1.2) | |
| Number of chronic health conditions, No. (%)[c] | | | | .81 |
| 0 | 423 (24.5) | 152 (24.6) | 271 (24.5) | |
| 1 | 439 (25.4) | 160 (25.9) | 279 (25.2) | |
| 2 | 376 (21.8) | 132 (21.4) | 244 (22.0) | |
| ≥3 | 487 (28.2) | 173 (28.0) | 314 (28.3) | |

[a] Data were missing for 297 patients for sex; 264 for age-group; 297 for education; 388 for annual household income; 276 for self-rated health status; and none for number of chronic conditions.

[b] By $\chi^2$ test for trend.

[c] Simple counts of the following chronic conditions: hypertension, diabetes, dyslipidemia, malignancy, stroke, cardiac diseases, dementia, neurologic diseases, chronic respiratory diseases, digestive diseases, hepatobiliary and pancreatic diseases, kidney diseases, urologic diseases, endocrine diseases, arthritis, rheumatism, lumbar diseases, osteoporosis, mental disorders, and skin diseases.

## Table 3. JPCAT Scores by Primary Care Practice Location (N = 1,725 Patients)

| JPACT Domain[a] | Total (N = 1,725) | Primary Care Practice Location | | |
| --- | --- | --- | --- | --- |
| | | Hospitals (n = 617) | Community-Based Offices (n = 1,108) | P Value[b] |
| First contact, mean (SD) score | 60.8 (23.9) | 69.3 (18.7) | 56.1 (25.2) | <.001 |
| Longitudinality, mean (SD) score | 79.8 (16.0) | 79.2 (17.3) | 80.2 (15.3) | .23 |
| Coordination, mean (SD) score | 67.4 (23.1) | 64.7 (23.4) | 67.9 (24.2) | .01 |
| Comprehensiveness: services available, mean (SD) score | 67.4 (23.1) | 66.1 (25.1) | 68.0 (22.0) | .18 |
| Comprehensiveness: services provided, mean (SD) score | 42.5 (27.7) | 40.9 (28.4) | 43.3 (27.3) | .15 |
| Community orientation, mean (SD) score | 71.3 (18.3) | 66.2 (19.1) | 74.1 (17.2) | <.001 |

JPCAT = Japanese version of Primary Care Assessment Tool.

[a] All domain scores range from 0 to 100, with higher scores indicating better patient experience.

[b] By the Student t test.

## Table 4. Differences in JPCAT Scores Between Hospital-Based Practices and Community-Based Office Practices (N = 1,725 Patients)

| JPACT Domain[a] | Unadjusted Mean Difference (95% CI) in Score | P Value | Adjusted[b] Mean Difference (95% CI) in Score | P Value |
| --- | --- | --- | --- | --- |
| First contact | 15.89 (4.80 to 26.99) | .005 | 15.43 (5.13 to 25.72) | .003 |
| Longitudinality | 0.24 (−2.82 to 3.30) | .88 | −0.26 (−3.00 to 2.48) | .85 |
| Coordination | −2.08 (−6.17 to 2.00) | .32 | −2.72 (−6.18 to 0.73) | .12 |
| Comprehensiveness: services available | −0.92 (−5.44 to 3.61) | .69 | −1.49 (−5.54 to 2.56) | .47 |
| Comprehensiveness: services provided | −1.39 (−5.24 to 2.46) | .48 | −1.60 (−5.23 to 2.03) | .39 |
| Community orientation | −5.52 (−10.31 to −0.74) | .02 | −5.76 (−10.35 to −1.17) | .01 |

JPCAT = Japanese version of Primary Care Assessment Tool.

Note: Differences computed with a linear mixed effects model, a random effect on facility, and community-based offices as the reference group.

[a] All domain scores range from 0 to 100, with higher scores indicating better patient experience.

[b] Adjusted for age, sex, years of education, annual household income, and self-rated health status.

alone; however, as in the patient-centered medical home in North America, a policy incentive that encourages conversion from solo to team-based practice may be effective in this regard.

To our knowledge, this study is the first to investigate differences in patients' experience of primary care between hospital-based practices and community-based office practices using validated scales. The participating facilities were distributed widely throughout Japan and covered both urban and rural areas; therefore, the results have relatively high external validity. Furthermore, the response rate for the study survey was high (85.0%), suggesting a low risk of selection bias. In addition, the PCAT is an internationally established measure for evaluating the patient experience of primary care.

Our study has several potential limitations. First, the proportion of patients with missing data was relatively high; we therefore used multiple imputation for missing data to reduce bias. Second, we did not adjust for disease severity in analyses. Its impact on study results may be minimal, however, because a previous

study indicated that subjective health status has greater influence than objective health status on patient experience.[34] Third, this study was limited by the fact that participating facilities were recruited publicly, raising the possibility that these facilities have greater interest in the quality of medical care. In addition, our study setting did not include community-based offices with beds; although these offices accounted for only approximately 8% of Japanese community-based offices and have been declining in recent years, this point should be considered when interpreting the study results.

In conclusion, our study elucidates differences in the strengths and challenges of primary care between hospital-based practices and community-based office practices, with a focus on patient-centeredness. Improving community orientation in hospital-based primary care practices and improving accessibility including out-of-hours care in community-based office primary care practices may enhance the overall quality of primary care and promote standardization of care across settings.

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