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Differences in demographics and complementary and alternative medicine use between patients attending integrative kampo versus biomedical clinics in Japan

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ABSTRACT

Objectives: Growing interest in integrative medicine motivates examination of who seeks integrative care, and why. By examining differences in demographics and complementary and alternative medicine (CAM) use between patients recruited from Japanese Kampo (traditional herbal medicine) versus biomedical clinics, this study aimed to identify whether integrative medicine options might attract different patients.

Design and setting: In this cross-sectional, observational study we administered the International Complementary and Alternative Medicine-Questionnaire (I-CAM-Q) to 209 patients recruited from four hospital clinics. Demographics, use of different types of CAM (self-help CAM, CAM practitioners, CAM products), and motivations were compared between Kampo and Non-Kampo patients and by gender. Factors influencing attendance at the Kampo clinic and CAM use were identified using logistic regression.

Results: While some demographic characteristics, CAM provider and total CAM use differed between Kampo and non-Kampo patients, self-help CAM use did not. Motivations (for acute, long-term, health maintenance, or other reasons) differed between Kampo and non-Kampo clinic patients for going to non-Kampo physicians ($P = 0.02$) and Kampo physicians ($P = 0.1$). Logistic regression results for 'any CAM' use showed odds ratio of 0.32 (95%CI 0.15-0.67) for self-rated health, and 1.60 (95%CI 1.10–2.32) for Macarthur subjective social status scale. Attendance at the Kampo clinic showed odds ratios of 1.50 (95%CI 1.11–2.02) for education and 0.56 (95%CI 0.39-0.80) for employment status.

Conclusions: Better understanding of factors such as motivation, self-rated health, and socioeconomic conditions that influence patients' CAM use and integrative clinic attendance may enable more effective targeting of populations and integration of CAM into biomedical settings.

1. Introduction

There is growing interest in biomedicine and public health in complementary and alternative medicine (CAM), and increasingly in integrative medicine, yet much remains unknown about who chooses to use CAM and why.[1–3] While CAM is often defined in contrast to 'conventional' western biomedicine,[4] Japan has a long history of traditional herbal medicine (Kampo) co-existing with western biomedicine, and thus may provide a model for how to practice integrative medicine. While much research focuses on CAM efficacy, a broader public health agenda invites us to examine issues of access and equity, and to explore existing models that integrate CAM and biomedicine to provide effective, accessible and equitable health care.[5] This study focuses on 'access' by examining who accesses CAM in a biomedical setting in Japan, and how (through biomedical versus Kampo clinics) and why (motivations).

Although all physicians in Japan can prescribe the 148 Kampo formulae covered under Japan's national health insurance program,[6] only Kampo physicians are trained in both Kampo and biomedicine, and thus Kampo can be considered integrative medicine. A critical difference between Kampo and Biomedicine is Kampo's emphasis on pattern diagnosis of patients' *sho* (証),[7] physiologic or constitutional differences among individuals. Even if people become ill from the same external cause (e.g., virus), clinical manifestations and reactions will vary depending on a patient's *sho*, and require a different Kampo formula, thus resulting in quintessential personalized, patient-centered

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medicine.[8]

This study aimed to assess whether patients attending an integrative Kampo clinic or biomedical clinics differed in terms of sociodemographic characteristics, health history, and various CAM practices in order to explore two models of integrative care: (1) biomedical physicians giving Kampo prescriptions vs. (2) biomedically-trained Kampo physicians giving Kampo prescriptions and exams. Research questions were: (1) Do patients at Kampo clinics differ from those at non-Kampo clinics and if so how (e.g., demographics, motivations, health history); and (2) Do patients at Kampo clinics use more forms of all types of CAM (including Kampo products, Kampo practitioners, and self-help CAM)? We hypothesized that Kampo clinic patients would have more health problems, and poorer self-rated health, and have more CAM use (including CAM providers, CAM products, and self-help CAM practices).

2. Methods

2.1. Design

A cross-sectional survey was administered in face-to-face interviews to 209 patients in four clinics. The study was reviewed and approved by Keio University Hospital Research Ethics Board (2015-464), and considered exempt by the University of Delaware. Written informed consent was obtained from all participants.

2.2. Setting and population

We recruited participants from a Kampo clinic (5 physicians) and three non-Kampo clinics (6 physicians) representing the three primary complaints of Kampo patients (Dermatology, Gynecology and Psychiatry/Neurology) in a large university hospital in Tokyo. The target sample size was 180, with approximately equal numbers in each non-Kampo clinic. Data collection occurred from mid-May to mid-June of 2016, with follow-up observations in March 2018. To minimize bias, all patients who met inclusion criteria (age 20 or older; ability to speak and read Japanese; able to understand the research explanation and provide written informed consent) were invited to participate, either before their exam by the primary investigator in the waiting room, or after their exam by nursing staff, depending on clinic workflow to minimize disruption. Participation was voluntary and physicians were unaware of who participated.

2.3. Questionnaires

Two instruments were used: (1) Demographic questionnaire including: age, gender, marital status, employment status, household number and generations living together, self-rated health, income category, education, health problems in past one year, and MacArthur scale of subjective social status[9]; and (2) International Complementary and Alternative Medicine Questionnaire (I-CAM-Q),[10] which assesses CAM use in the past year, motivations, helpfulness, and whether patients informed physicians for four sections: (1) CAM providers consulted; (2) CAM treatments received from physicians; (3) self-administered CAM practices; and (4) use of herbal medicine and dietary supplements. We used a Japanese translation previously administered in Japan.[11] Questionnaire administration took 10–15 minutes for most patients. Although designed to be self-administered, in face-to-face interviews we discovered some issues (e.g., the need to distinguish between Kampo and non-Kampo physicians in this setting) that required modification of the I-CAM-Q. These changes resulted in removal of initial participants (N = 38) from the analytical sample.

2.4. Data coding and analysis

Following literature methods,[11] CAM product types were categorized as: Kampo; vitamins; supplements; other herbs; other supplements; or other. 'Any form CAM' was computed as a combination of the 4 sections of the I-CAM-Q and included CAM providers, CAM treatments, self-help CAM, and CAM herbal medicines and supplements. Self-help CAM practices were analyzed combined, excluding religious practices (prayer, healing ceremonies at temples/shrines, and talisman), and excluding religious practices and dietary therapy. All types of CAM use were examined for the total population and compared between Kampo and Non-Kampo patients, and between males and females, as health behaviors and health care use may differ by gender.[12] Chi-square tests for categorical variables and ANOVA for continuous variables were used to assess significant differences in sociodemographic variables and CAM use between Kampo and Non-Kampo patients and between males and females. Differences between motivations for seeing non-Kampo and Kampo physicians were tested using the Bonferroni-adjusted z-test. Logistic regression was conducted to examine which sociodemographic variables that were correlated in univariate analyses predicted attendance at the Kampo clinic versus biomedical clinics, and to examine whether use of various CAM types differed by Kampo versus non-Kampo patients. Missing data were rare because questionnaires were filled out face-to-face and missed responses were usually caught by the investigator.

3. Results

Of the 209 participants who completed questionnaires, 171 were used in this analysis due to confusion about Kampo and non-Kampo physicians on one section of the I-CAM-Q, resulting in removal of the first 38 participants from the analytical sample. The questionnaire was revised and all subsequent participants were included. Recruitment differed somewhat between clinics, with participation rate ranging from 46% of patients with appointments to 68% of patients asked to participate directly by the interviewer. Participation was voluntary, and participants did not usually provide reasons for declining. Table 1 shows demographics by non-Kampo clinic (N = 81) versus Kampo clinic (N = 90). Three-quarters (129/171) of patients were female, but relative gender composition did not differ significantly between Kampo and non-Kampo clinics. Females comprised 100%, approximately 50% and 75% of patients recruited from Gynecology, Dermatology and Psychiatry respectively. Household structure, socioeconomic status (SES) scale, income and number of health problems showed no significant differences between Kampo and non-Kampo patients. Compared to non-Kampo patients, Kampo patients were 4.5 years older, more were married and had higher education, but more non-Kampo patients were employed full-time. Twice as many non-Kampo patients (36%) were company employees compared to Kampo patients (18%), and fewer non-Kampo patients were unemployed or housewives/students (17% and 16% respectively) compared to Kampo patients (23% and 26% respectively). Almost half (48%) of females were unemployed, and more males attained higher education levels than females.

In contrast to our hypothesis, no significant differences were observed in the number of health problems or self-rated health between Kampo and non-Kampo clinic patients. Males reported higher self-rated health: only 12.5% of females reported being healthy or very healthy compared to 33.4% of males, with a higher percentage of females reporting being not healthy or not healthy at all. Continuous variables with significant sex differences all showed females greater than males, except in the case of SES scale, where males had higher scores than females. The average number of CAM providers seen, and total CAM used in the past 12 months, were significantly higher for Kampo clinic patients than non-Kampo clinic patients. Self-help CAM use in the past 12 months was not significantly different between clinic populations, even when religious practices and dietary practices were excluded. Self-help CAM practices were all significantly higher among females than males.

While no significant differences in self-help CAM practices between

Table 1
Demographics: Frequencies (%) and means (standard deviations) for Non-Kampo and Kampo clinic patients.

	Total		Non-Kampo		Kampo		Significant Differences[a] (P-values)	
Variable	**Counts**	**%**	**Counts**	**%**	**Counts**	**%**	**Clinic**	**Sex**
N[b]	**171**		**81**		**90**			
Clinic Recruited From							0.000****	0.000****
Dermatology	31	(18.1)	31	(38.3)	0	(0.0)		
Gynecology	27	(15.8)	27	(33.3)	0	(0.0)		
Psychiatry	23	(13.5)	23	(28.4)	0	(0.0)		
Kampo	90	(52.6)	0	(0.0)	90	(100.0)		
Sex							0.454	–
Female	129	(75.4)	59	(72.8)	70	(77.8)		
Male	42	(24.6)	22	(27.2)	20	(22.2)		
Marital Status							0.039*	0.682
Single	55	(32.2)	35	(43.2)	20	(22.2)		
In relationship	6	(3.5)	4	(4.9)	2	(2.2)		
Married	93	(54.4)	34	(42.0)	59	(65.6)		
Separated	2	(1.2)	1	(1.2)	1	(1.1)		
Divorced	8	(4.7)	3	(3.7)	5	(5.6)		
Widowed	7	(4.1)	4	(4.9)	3	(3.3)		
Marital Status (2 categories)							0.006**	0.636
Married/In relationship	99	(57.9)	38	(46.9)	61	(67.8)		
Not married	72	(42.1)	43	(53.1)	29	(32.2)		
Employment Status	N = 168				N=87		0.014*	0.012**
Unemployed	74	(44.0)	28	(34.6)	46	(52.9)		
Part-time	14	(8.3)	5	(6.2)	9	(10.3)		
Full-time	80	(47.6)	48	(59.3)	32	(36.8)		
Education Level							0.032*	0.001***
High school or less	27	(15.8)	15	(18.5)	12	(13.3)		
< 4 years college	32	(18.7)	21	(25.9)	11	(12.2)		
Trade/vocational school	24	(14.0)	7	(8.6)	17	(18.9)		
College (≥4 yrs)	88	(51.5)	38	(46.9)	50	(55.6)		
Self-Rated Health	N = 169		N = 80		N=89		0.397	0.040*
Not healthy at all	6	(3.6)	4	(5.0)	2	(2.2)		
Not healthy	49	(29.0)	20	(25.0)	29	(32.6)		
Somewhat healthy	84	(49.7)	43	(53.8)	41	(46.1)		
Healthy	24	(14.2)	9	(11.3)	15	(16.9)		
Very healthy	6	(3.6)	4	(5.0)	2	(2.2)		
	Mean	(SD)	Mean	(SD)	Mean	(SD)		
Age (yrs)	53.58	(14.6)	51.17	(13.8)	55.76	(15.0)	0.040*	0.278
Macarthur Scale of Subjective Social Status	6.40	(1.7)	6.44	(1.7)	6.36	(1.7)	0.750	0.017*
Household Size (# members)	2.44	(1.1)	2.36	(1.2)	2.51	(1.1)	0.379	0.805
# generations in household	1.50	(0.6)	1.51	(0.6)	1.50	(0.6)	0.946	0.735
Income category[c]	5.93	(2.4)	5.96	(2.5)	5.91	(2.2)	0.887	0.416
# health problems	3.51	(2.3)	3.35	(2.4)	3.67	(2.1)	0.355	0.000****
In past 12 months, # of different types of:								
CAM providers seen[d]	1.16	(1.1)	0.69	(1.0)	1.57	(0.9)	0.000****	0.076[t]
CAM products used[e]	2.17	(1.8)	1.33	(1.6)	2.92	(1.7)	0.000****	0.000****
Self-help CAM practices used[f]	2.24	(1.9)	2.03	(2.0)	2.42	(1.9)	0.412	0.005**
Self-help CAM practices (except religious) used[f]	1.59	(1.4)	1.53	(1.4)	1.64	(1.4)	0.755	0.000****
Self-help CAM practices (except religious & dietary) used[f]	1.46	(1.3)	1.41	(1.3)	1.50	(1.4)	0.776	0.000****

CAM: Complementary and alternative medicine.

* $P \leq 0.05$.

** $P \leq 0.01$.

*** $P \leq 0.001$.

**** $P \leq 0.0001$.

[t] $P < 0.1$.

[a] Significant differences assessed by Pearson chi-square (2-sided asymptotic) for frequencies and ANOVA for means.

[b] Unless otherwise noted.

[c] Income cateogry is a categorical variables with 10 categories, but shown here analyzed as a continous variable to minimize space. Chi-square of P = 0.674 for clinic and P = 0.949 for sex.

[d] from list of 9 possible including: rehabilitation therapist, bonesetter, chiropractor, massage therapist, acupuncturist/moxa-cauterizer, kampo physician, qigong therapist, spiritual healer, and other.

[e] from list of 6 possible including: Kampo; vitamins; supplements; other herbs; other supplements; or other.

[f] from list of 16 possible including: zen/meditation, tai chi/qigong, yoga, cupping, moxibustion, pain relief pads, hot-spring therapy, massage done by self/family, massage device, electrotherapy device (not massage), praying for own health, attending traditional healing ceremony or health recovery/promotion, wearing talisman for health promotion/recovery, aromatherapy, dietary therapy (for illness/allergies), and other.

Table 2
Healthcare providers seen in past 12 months (in decreasing order of frequency), with significant differences between Kampo and non-Kampo clinic patients and between males and females. Motivation, helpfulness, and % who tell Dr are for valid cases of those reporting seeing various providers.

	Providers seen in past 12 months[a]														
			Significant Differences[b] (P-values)				Motivation						Helpfulness[c]		% Who Tell Dr	
	N	%	Clinic	Sig	Sex	Sig	Acute (%)	Long-term illness (%)	Health maintenance (%)	Other (%)	Clinic Significant Differences[b]	Sig	Very or somewhat (%)	Clinic Significant Differences[b]	Clinic Significant Differences[b]	Sig
Non-Kampo Physician[d]	158	92.4	0.016	*	0.589		19.4	63.9	7.7	9.0	0.019	*	90.4	0.424		
Non-Kampo clinic patients	79	97.5					14.1	60.3	11.5	14.1			89.9			
Kampo clinic patients	79	87.8					24.7	67.5	3.9	3.9			91.0			
Kampo Physician[d]	98	57.3	0.000	****	0.270		2.1	79.4	13.4	5.2	0.114		91.8	0.825	0.650	
Non-Kampo clinic patients	9	11.1					11.1	77.8	0.0	11.1			100.0			
Kampo clinic patients	89	98.9					1.1	79.5	14.8	4.5			90.9			
Massage Therapist	22	13.0	0.505		0.067	t	9.5	57.1	28.6	4.8	0.148		90.5	0.554	0.056	t
Acupuncturist	20	11.8	0.450		0.102		15.0	65.0	15.0	5.0	0.221		80.0	0.841	0.264	
Chiropractor	18	10.7	0.070	t	0.395		5.6	66.7	27.8	0.0	0.095	t	88.9	0.266	0.490	
Other	8	7.8	0.862		0.324		25.0	62.5	0.0	12.5	0.549		87.5	0.513	0.465	
Bonesetter (joint manipulation)	12	7.1	0.294		0.496		25.0	50.0	25.0	0.0	0.325		100.0	0.408	0.221	
Rehabilitation Therapist	8	4.7	0.545		0.396		50.0	50.0	0.0	0.0	0.465		75.0	0.766	0.465	
Qigong Therapist	2	1.2	0.953		0.013	*	50.0	50.0	0.0	0.0	0.157		100.0	[e]	0.157	
Spiritual Healer	2	1.2	0.953		0.413		0.0	50.0	50.0	0.0	0.157		100.0	[e]	[e]	

*P ≤ 0.05.
****P ≤ 0.0001.
tP < 0.1.
[a] Binary variable (yes, no).
[b] Pearson Chi-Square (asymptotic 2-sided) P-values for tests of significant differences between Non-Kampo and Kampo clinic patients, and males and females.
[c] Chi-square test for helpfulness was for all 4 categories, although frequency data only for the combined 'very' or 'somewhat' response categories are presented here.
[d] Significant differences were observed between patients recruited from non-Kampo and Kampo clinics. Thus, data are also shown separately for these categories of healthcare providers.
[e] No statistics could be computed because variable was a constant.

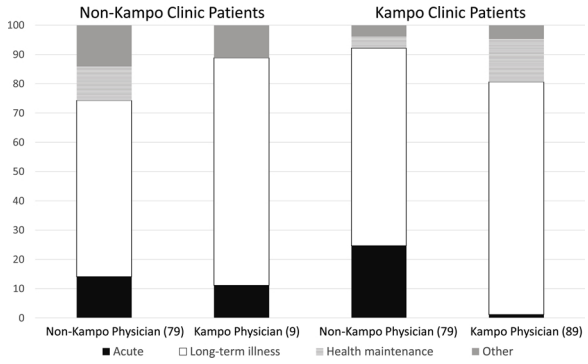

Fig. 1. Motivations (acute, long-term illness, health maintenance, and other reason) for seeing non-Kampo physicians versus Kampo physicians, by non-Kampo versus Kampo clinic patients (N).

clinic populations were observed, sex differences were found, with higher prevalence rates for females for pain relief pads, massage, yoga, and aromatherapy. Pain relief pads were the most widely reported self-help practices, followed by massage/*shiatsu*, with both reported to be somewhat or very helpful by over 80% of those using them. Approximately half of people reported using pain relief pads or dietary therapy to doctors, while most other widely used self-help CAM practices were reported less than 25% of the time. In open-ended questions about CAM use, only Kampo showed significant differences between clinic populations (89% Kampo patients versus 32% of non-Kampo patients). Significantly more females reported taking vitamins.

Table 2 shows results for patients' visits to CAM providers in the past 12 months, four categories of motivation, extent to which visits were helpful, and percentage of patients informing their physician about seeing CAM providers. Proportions of Kampo and non-Kampo-clinic patients seeing physicians and Kampo practitioners in the past 12 months differed significantly ($P = 0.02$ and $P < 0.0001$ respectively). Sex differences were observed only for Qigong therapist, seen by two males. Fig. 1 shows motivations for seeing non-Kampo versus Kampo physicians by patients recruited from Non-Kampo and Kampo clinics. Long-term illness was the primary motivation (> 60% of respondents) for seeing non-Kampo physicians, and for seeing Kampo physicians (> 77% of respondents), regardless of clinic recruitment. Among those who reported seeing non-Kampo physicians in the past 12 months, more Kampo clinic patients reported acute illness as the reason for seeing them, while more non-Kampo clinic patients reported health maintenance or 'other' ($P = 0.02$. For health maintenance, similar proportions of Kampo clinic patients (14.8%) saw Kampo physicians as did non-Kampo clinic patients (11.5%) who saw non-Kampo physicians. Pairwise comparisons among Kampo clinic patients who saw both Kampo and non-Kampo physicians for long-term illness or health maintenance ($N = 54/76$) showed significant differences in motivations for seeing non-Kampo physicians and Kampo physicians ($P < 0.05$) (data now shown). Differences were not significant for similar non-Kampo patients ($N = 6/9$).

As shown in Table 3, significantly more Kampo clinic patients received Kampo products from physicians, although any physician in Japan can prescribe Kampo. The motivation for receiving Kampo from physicians also differed between groups, with more non-Kampo patients (15.0%) reporting acute illness as a reason, and a similar percentage of Kampo patients (13.1%) reporting health maintenance. Regardless of where patients were recruited, over 85% reported Kampo as somewhat or very helpful. Reasons for physician-prescribed supplements differed ($P = 0.05$) between clinic populations, with non-Kampo patients taking them for health maintenance, and Kampo patients taking them primarily for long-term illness.

Logistic regression was performed using outcome variables of 'any CAM provider', 'any CAM treatment', 'any CAM product', 'any self-help CAM', and the combined variable 'any form CAM', as well as 'attending Kampo clinic'. No variables were included in models of 'any self-help CAM'. Results for 'any form CAM' and 'attending Kampo clinic' are shown in Table 4. Results for 'any form of CAM' were similar to those for 'any CAM provider' except that income (OR 1.19, 95%CI 1.03–1.39, $P = 0.02$) replaced SES scale in the model, and for 'any CAM product' where marital status (OR 3.75, 95% CI 1.37–10.23, $p = 0.01$) was included in the model (data not shown). For each unit decrease in self-rated health, patients were more likely to use any form of CAM. Patients were more likely to attend the Kampo clinic if they had higher education (OR 1.5, 95% CI 1.11–2.02, $p = 0.008$), and less likely to attend the Kampo clinic if employed part or full time (OR 0.56, 95%CI 0.39-0.8, $p = 0.002$). Age, gender, and number of health problems were not included in any final models.

4. Discussion

Kampo physicians aim to promote the health of the body and mind, emphasize the therapeutic relationship, and make use of both conventional and alternative therapies. Our results suggest that patients who seek such integrative Kampo medicine and use CAM differ in terms of demographics and motivations. Japanese Kampo clinic patients shared many similarities with US CAM users, who are mostly well-educated, middle-aged people using CAM for reasons including musculoskeletal dysfunction, mood care, and maintaining wellness.[13]

People often seek CAM for management of cancer and chronic pain and arthritis,[5] for which biomedicine lacks effective treatments with minimal side effects. Ethnographic data suggest patients with certain conditions (e.g., cancer) choose Kampo, often as part of integrated approaches with biomedicine (e.g., chemotherapy). Additionally, several patients shared stories of coming to Kampo after lack of success with biomedicine. Thus, Kampo may be sought for health issues such as GI symptoms associated with cancer treatment and intractable conditions that have not responded to biomedicine. Poorer self-rated health predicted use of any form of CAM, any CAM provider, and any CAM product, consistent with previous studies that found CAM-users often have poorer self-rated health.[14] While no sex differences between non-Kampo and Kampo clinics existed, females saw more CAM providers (statistical trend), and used more CAM products and self-help CAM practices of all kinds, consistent with previous studies finding CAM users more likely to be female.[14,15]

Logistic regression results suggest that those with higher education are more likely to attend the Kampo clinic, consistent with studies finding higher educational attainment correlated with CAM use.[15] Kampo patients were less likely to be employed full-time, perhaps related to them being older and retired, or possibly having more complex health problems impacting their ability to work. Although no SES differences between clinic populations were observed, patients with higher SES and income were more likely to use any form of CAM and CAM providers respectively, suggesting possible barriers to use of some CAM forms and providers, and raising potential issues of equity and access to CAM in it many forms. While Kampo medicine provided by hospitals is covered by health insurance, many people may choose to use non-insured clinics and Kampo pharmacies, and other forms of CAM that are not covered by insurance. Logistic regression results suggest the possibility that poor health may *drive* use of CAM, while higher income may *enable* use of CAM in Japan. These potential drivers and enablers of CAM use should be explored in future longitudinal studies. The situation in Japan may contrast with countries lacking national health insurance, including the US, where people with low SES may be more likely to use CAM because they cannot access biomedicine. Contrary to our hypothesis that rates of self-help CAM practice would differ between patients attending Kampo and non-Kampo clinics, they did not differ significantly, suggesting that Kampo patients do not have a general 'CAM-orientation', but that the two groups have different motivations in seeking what Kampo physicians offer. Furthermore, while

Table 3
Alternative treatments received from physicians in past 12 months (in decreasing order of frequency), with significant differences between Kampo and non-Kampo clinic patients and between males and females. Motivation, helpfulness, and % who tell Dr are for valid cases of those reporting receiving treatments.

	Treatments Received															
			Significant Differences[a] (P-values)				Motivation						Helpfulness[c]		% Who Tell Dr	
	N	%	Clinic	Sig	Sex	Sig	Acute (%)	Long-term illness (%)	Health maintenance (%)	Other (%)	Clinic Significant Differences[a]	Sig	Very or somewhat (%)	Clinic Significant Differences[a]	%	Clinic Significant Differences[a]
Kampo products[b]	107	62.9	0.000	****	0.102		3.8	81.7	11.5	2.9	0.024	*	85.8	0.425	74.3	0.823
Non-Kampo clinic patients	21	26.3					15.0	75.0	5.0	5.0			85.7			
Kampo clinic patients	86	95.6					1.2	83.3	13.1	2.4			85.9			
Supplements[b]	10	6.0	0.066	t	0.266		0.0	60.0	40.0	0.0	0.053	t	60.0	0.335	60.0	0.197
Non-Kampo clinic patients	2	2.5					0.0	0.0	100.0	0.0			50.0		100.0	
Kampo clinic patients	8	9.3					0.0	75.0	25.0	0.0			62.5		50	
Acupuncture	9	5.4	0.817		0.331		11.1	66.7	11.1	11.1	0.308		100.0	0.217	57.1	0.659

None reported from Qigong or Other.
*P ≤ 0.05.
** P ≤ 0.01.
***P ≤ 0.001.
****P ≤ 0.0001.
tP < 0.1.
[a] Pearson Chi-Square (asymptotic 2-sided) P-values for tests of significant differences between Non-Kampo and Kampo clinic patients, and males and females.
[b] Significant differences were observed between patients recruited from non-kampo and kampo clinics and thus data are shown combined and separately for these categories of healthcare providers.
[c] Chi-square test for helpfulness was for all 4 categories, although frequency data for the combined 'very' or 'somewhat' response categories are presented here.

Table 4
Odd ratios (OR), 95% confidence intervals (CI) and significance (Sig) of variables[a] associated with 'any form CAM' use and attendance at Kampo Clinic in logistic regression.

Outcome	Any Form CAM[b]				Attending Kampo Clinic			
		95% CI				95% CI		
Variables[c]	OR	Lower	Upper	Sig	OR	Lower	Upper	Sig
Non-Kampo vs. Kampo Clinic	27.13	3.42	215.05	0.002				
Self-Rated Health	0.32	0.15	0.67	0.003				
Subjective Social Status Scale	1.60	1.10	2.32	0.014				
Educational Level					1.50	1.11	2.02	0.008
Employment Status					0.56	0.39	0.80	0.002

[a] Variables potentially in models: Kampo vs. Non-Kampo clinic recruitment (for CAM use); age; sex; self-rated health; income; Macarthur subjective social status scale; education; marital status; number of health problems; employment status.

[b] Any Form CAM = any CAM provider OR any CAM treatment OR any self-help CAM OR any CAM product (i.e., union of the set of the 4 sections of the I-CAM-Q questionnaire).

[c] Non- vs Kampo clinic (0 vs 1); Self-Rated Health (5 pt scale, 1 = not healthy at all, 5 = very healthy); Macarthur Subjective Social Status Scale (continuous visual scale from 1 = low, 10 = high); Education Level (1 = high school or less, 2 = < 4 years college, 3 = trade or vocational school, 4 = college or more); Employment Status (0 = unemployed, 1 = part-time, 2 = full-time).

CAM is often perceived as being used by the so-called 'affluent, worried well' in the West, this hospital-based Japanese population was affluent but could not be considered 'well'. Thus, our data provide insight into CAM use among the 'unwell.' Further research is needed among the general population to assess CAM use among people with less severe health issues.This research aimed to understand why people attend Kampo clinics and why they use CAM. Patients of both Kampo and non-Kampo clinics were more likely to report seeing Kampo rather than non-Kampo practitioners for long-term illness. Higher percentages of Kampo patients than non-Kampo patients were motivated by health maintenance to see Kampo physicians and by acute illness to see non-Kampo physicians. But survey data may not tell the whole story. While patients can receive Kampo prescriptions from any physician in Japan, Kampo approaches (e.g., examinations characterized by pulse-taking, tongue examination, and palpation of abdomen) involve more "laying on of hands" (i.e., power of tactile experiences[16]), and integration of multiple symptoms and organ systems. Discussion of lifestyle, social networks, grooming and hygiene practices impacting the microbiome, reflecting integrated ecological models of health, were common in the Kampo clinic. Thus, Kampo patients may be attracted to the 'culture' of Kampo integrative medicine,[17] involving more holistic approaches that integrate not only biomedicine and CAM, but also bodily systems and their contexts. Such approaches appear to embody more authentically patient-centered care, particularly for complex, chronic conditions and for those seeking health maintenance and illness prevention.[18]

Kampo appears to deliver broadly 'person-centered' health care for people, not just when sick, but throughout their lives, incorporating consideration of many social and behavioral determinants. The sizable proportion (15%) of Kampo patients who chose to go to the Kampo clinic for health maintenance suggests some people have already embraced this model. Patient-centered care is a function of the quality of clinician-patient interaction, and not only improves disease outcomes and quality of life, but also health disparities.[19] Thus, integrative medicine models such as Japanese Kampo may offer potential models for healthcare delivery in ways that increase access to care.

Health equity can be defined as the "right to the highest attainable standard of health as indicated by the health status of the most socially advantaged group."[20] Our data suggest that people with higher SES appear more likely to choose to attend the Kampo clinic, and to use CAM, suggesting that more socially advantaged groups may choose Kampo and CAM if the options exist. Health equity is a broader concept than cost and health insurance, as demonstrated by this case in Japan where all patients had health insurance and costs were relatively low (compared to North America). Equity is not achieved by giving people identical treatments, but by tailoring treatments to individuals' conditions in all their complexity (including gender, age, education, health history, etc.). Kampo, as a form of integrative medicine, puts patients at the center and considers myriad contextual factors that influence health (including body, mind, and community), utilizes both biomedicine and CAM to facilitate innate healing responses, and personalizes care to best address the individual's unique conditions, needs and circumstances (*Sho)*. Our data suggest that those with poorer self-rated health are more likely to use CAM, perhaps motivated in part by the more holistic approach of CAM compared to conventional biomedicine. Thus, expanding CAM options through integrative medicine practices might help patients with poorer health get access to optimal care.

There is increased pressure to evaluate CAM treatments similar to biomedical treatments, with randomized controlled trials (RCTs). But could the requirement to use RCTs, which examine average effects of identical treatments in large populations to assess significant effects, be akin to achieving *equality* but not *equity* in health: that is, similar treatments for everyone, when people need different options to achieve similar health outcomes? While evidence-based biomedicine and RCTs may lead more toward "one size fits all" prescriptions, Kampo approaches embedded in biomedical settings may provide "one-stop shopping" for optimal personalized health care. If health care goals are to promote optimal personalized and patient/person-centered care, *should* physicians be trained to pick and choose from biomedicine and CAM to combine the best options for patients? Should biomedical physicians at minimum communicate and coordinate with CAM practitioners consulted by patients? Since economics seem to matter, even in a country like Japan, should healthcare offer, and insurance cover, more CAM options in addition to Kampo?

Our results may be limited by the biomedical clinics chosen to achieve comparable health conditions to the Kampo clinic patients, as well as self-selection of physicians willing to assist with recruitment of their patients. Future studies should stratify analyses by clinic if sample sizes permit. As the interviewer was a foreigner, bias may have been introduced by patients who had language concerns (although discomfort appeared alleviated when patients heard the interviewer speak Japanese, and nursing staff reassured patients when recruiting). Finally, statistical analyses should be considered exploratory in cases where chi-square categories had fewer than five people.

Our results suggest that integration of CAM and biomedical providers in the same institution might increase CAM usage (e.g., people may use CAM to treat side effects of biomedicine) compared to those attending clinics without Kampo practitioners,[11] but also provide models for how to partner with patients to improve contexts and behaviors that result in improved health. Future research should examine forms of

CAM that are less mainstream than Kampo in other cultures with less integration to assess how users and non-users differ in terms of demographics, health history, and CAM practices. Longitudinal studies may help identify causal relationships between demographic factors and CAM use.

5. Conclusions

This study examined the who, how and why of CAM use in an integrated Kampo clinic and biomedical clinics in the same institution in Japan. Those attending the Kampo clinic had more education but were less likely to be employed full-time. Higher socioeconomic status, but poorer self-rated health were associated with use of any form of CAM. Our results showed that differences in demographics and motivations are associated with differential use of Kampo physicians and CAM, and suggest that expansion of models that integrate CAM and biomedicine may provide greater access to care for different categories of concerns (e.g., long-term and health maintenance).

Authors' contributions

MM was the PI of the project, designed the study and received funding, administered all surveys face-to-face, entered all demographic data, analyzed all data, and drafted and revised the manuscript. DT provided inspiration for the project and assisted with study design. TY, YH, KW assisted with translations and study design, and coordinated and supported research in Japan. TY and KW provided feedback on analyses. All authors approved the final manuscript.

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Conflict of interest

None.

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