Desire for Alternative Treatment Options in Patients with Atopic Dermatitis in Japan: Results of a Web-Based Cross-Sectional Study (AD-JOIN Study)

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ABSTRACT

Introduction: Treatment satisfaction in patients with atopic dermatitis (AD) has been investigated in several studies, but the desire for alternative treatment options is unclear and has not been previously evaluated. We conducted a cross-sectional, web-based survey aimed at evaluating the desire for alternative treatment options in adults with AD from a patient registry in Japan.

Methods: Main eligibility criteria were adults aged ≥ 18 years with AD who were receiving treatment with topical corticosteroids (TCS) and not systemic therapy. Questionnaires included the Patient Oriented Eczema Measure (POEM) and pruritus Numeral Rating Scale. The proportion of patients with a desire for an alternative treatment option was assessed, overall (Overall Desire) and by specific type of alternative treatment option (Specific Desire), including change in medication, hospital transfer, and complementary and alternative medicine (CAM) use. Patient background factors associated with desire were evaluated using multivariate logistic regression.

Results: Of the 1500 patients included in the analysis, 91.5% ($n = 1372$) had an Overall Desire, with the most common Specific Desire being a change in medication ($n = 1213$, 80.9%), followed by CAM ($n = 593$, 39.5%) and hospital transfer ($n = 429$, 28.6%). Dissatisfaction with current treatment was significantly ($p < 0.05$) associated with Overall Desire and Specific Desire ($p < 0.001$ each). Severe disease according to POEM was significantly associated with Overall Desire and a change in medication ($p < 0.001$ each).

Conclusions: A high proportion of Japanese patients with AD being treated with TCS had a desire for alternative treatment options. The desire was greatly affected by patients' satisfaction with their current treatment and perception of disease severity. These findings highlight the importance of assessing patients' satisfaction or perception of disease severity, and facilitating early discussions between patient and doctor on their available treatment options, including new treatment options.

Keywords: Atopic dermatitis; Complementary and alternative medicine; Desire; Doctor shopping; Patient Oriented Eczema Measure;

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Patient-reported outcomes; Pruritus Numerical Rating Scale

Key Summary Points
Why carry out this study?
Treatment satisfaction in atopic dermatitis (AD) patients has been evaluated, but it was not clear how satisfaction affects the desire for alternative treatment options, including changing their doctor or trying complementary and alternative medicines (CAM).
This cross-sectional, web-based survey aimed to evaluate the desire for alternative treatment options in adults with AD from a patient registry in Japan.
What was learned from the study?
A high proportion (91.5%) of patients had an overall desire for an alternative treatment option in our study, of whom 80.9% had a desire for a change in medication, 39.5% for CAM, and 28.6% for a hospital transfer.
The desire for alternative treatment was greatly affected by patients' satisfaction with their current treatment and perception of disease severity.
These findings highlight the importance of assessing patients' satisfaction or perception of disease severity, and facilitating early discussions between patient and doctor on their available treatment options, including new treatment options.

INTRODUCTION

Atopic dermatitis (AD) is the second most frequently observed skin disease in dermatology clinics in Japan [1]. Prevalence of AD is relatively high in industrialized countries such as the USA, the UK, and Australia, affecting approximately 15–20% of children and 2.1–6.2% of adults [2–4]. Consistent with other developed countries, the prevalence of AD in Japan is relatively high, and has increased in adults in recent decades [1].

Current treatment guidelines in Japan, Europe, and the USA recommend a combination approach consisting of topical antiinflammatory treatment (topical corticosteroids [TCS], topical calcineurin inhibitors, or a topical Janus Kinase [JAK] inhibitor), skin care, and elimination of exacerbating factors for the treatment of AD, with varying strengths of TCS used depending on disease severity [5–9]. Several new systemic therapies have recently been approved in Japan, but the use of traditional systemic therapy has been limited. In a noninterventional observation registry (ADDRESS-J), approximately 17% of adults with moderate–severe AD had been treated with systemic therapy or phototherapy, including oral corticosteroids in 3.0% of patients and an oral immunosuppressant in 6.0% of patients. Cyclosporine A was the only approved immunosuppressant at the time the study was conducted [10]. This is in contrast to a real-world treatment registry in Germany, in which 60.9% of adults with moderate–severe AD had received prior treatment with oral corticosteroids and 36.8% with cyclosporin A [11].

Patients may indirectly express their dissatisfaction with current treatments via a range of behaviors. For example, in a cross-sectional single-center study in Japan, patients with AD were more likely to change their hospital than patients with bronchial asthma (48.8% versus 30.1%, respectively), with the most common reason being a perceived lack of improvement in symptoms (75.0%) [12]. Complementary and alternative medicines (CAM) use is also popular in Japan and may suggest that patients' expectations regarding efficacy of current therapies are not being met [13–15].

To date, only one qualitative study has evaluated the desire for alternative treatment options in AD in Japan [15]. In the study by Ohno et al. [15], ten adults with AD were interviewed to evaluate their reasons for CAM use and hospital transfer. Three factors were

identified to influence the decision to change, including convenience, perceived effectiveness of the treatment, and availability of information. Although that study evaluated the reasons underlying a desire for alternative treatment options, there are a lack of quantitative studies, and thus the number of patients with a desire for alternative treatment options in Japan remains unclear at present. With this in mind, we conducted a web-based cross-sectional study (AD-JOIN study) to evaluate the desire for alternative treatment options, overall and by specific type, in AD patients receiving TCS treatment in Japan. Patient background factors potentially influencing these decisions were also explored.

METHODS

Study Design and Participants

This was a noninterventional, cross-sectional, web-based survey conducted in patients with AD treated with TCS in Japan. Screening emails were randomly sent to adults aged ≥ 18 years with AD who were registered with Rakuten Insight Co., Ltd. Patients were considered eligible for inclusion if they had a Patient Oriented Eczema Measure (POEM) [16] score of ≥ 3 (indicating mild AD severity or greater) and were receiving treatment with TCS. Patients were excluded if they were receiving treatment with systemic therapy or phototherapy for AD or had a history of ≥ 1 dose of dupilumab or baricitinib treatment. Patients who met eligibility criteria and consented to participate in the study were registered as participants, at which point they were transferred to a secure study-specific website, where they were required to complete the web-based survey. The questionnaire was designed to be completed within 20 min, and participants received a small amount of e-commerce shopping points as a reward for their cooperation. No personal information was collected from study participants, and all responses were anonymous. As this was a noninterventional, cross-sectional, web-based survey using anonymized data, clinical trial registration was not required.

The study was conducted in accordance with the ethical principles as laid down in the 1964 Declaration of Helsinki and its later amendments [17], and the Ethical Guidelines for Medical and Health Research Involving Human Subjects [18]. The study protocol was reviewed and approved by the Team Medical Clinic Ethical Committee (no. 2020–004, November 2020) according to the Ethical Guidelines. Patients provided web-based informed consent to participate in the study.

Assessments

As part of the primary analysis, patients were required to answer several dichotomous questions (i.e., yes/no response) regarding their desire for alternative treatment options overall and by specific type, including change in medication, hospital transfer, and CAM use (Table 1). This questionnaire was developed from previous research [15], with slight modifications made by clinicians experienced in AD treatment. For this analysis, CAM were defined as any action provided by an institution or individual other than an authorized medical institution for the treatment of AD, including but not limited to hot springs, bath salts, acidic water, Chinese medicine, special cosmetics, tea, health foods, fasting, and qigong.

Patients rated their dermatitis severity using the POEM [19] and Peak Pruritus Numerical Rating Scale (PP-NRS) [20]. Patients also completed questionnaires to assess their impression of response to current treatment (Patient Global Impression of Change [PGIC] [21]) and satisfaction with current treatment (Patient Global Impression of Treatment [PGIT] [22] and Patient Treatment Satisfaction with Current Medication [TSQM-9] [23]). Finally, patients also completed questionnaires to assess their adherence to current treatment using the 8-item Morisky Medication Adherence Scale (MMAS-8) [24]. Disease control was assessed using the validated Atopic Dermatitis Control Tool (ADCT) [25].

Patient data were also collected on demographics (sex, age, relationship status, and household income), disease-related information (duration of AD, current and recent clinic/

Table 1 Questionnaire assessing Overall Desire and by specific type of alternative treatment option

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Desire for alternative treatment options (Overall Desire)

  Do you want to find more treatments that will make your AD symptoms and feelings a little easier than they are now?

Desire for specific type of alternative treatment option

Desire for change in medication

  Do you want to switch from your current medication if there are other medications that have not been used in the past?

Desire for hospital transfer

  Are you considering moving from your current clinic/hospital to another site with the intention of changing your AD treatment?

Desire for use of complementary and alternative medicines

  Do you want to try complementary or alternative medicines or are you currently using complementary or alternative medicines?

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hospital visits [including their duration], and type of specialist visited [e.g., dermatologist, internist, pediatrician, other]), and treatment-related information (duration and strength of TCS treatment).

As participants were required to answer all questions and requested to correct any missing values or inconsistent information prior to form submission, there were no missing values.

Endpoints

The primary endpoint was the proportion of patients with mild to very severe AD receiving treatment with TCS who had a desire for alternative treatment options (Overall Desire). Secondary endpoints were the proportion of patients with a desire according to the specific alternative treatment type (Specific Desire), including change in medication, hospital transfer, CAM use, and the factors influencing their decision. Endpoints were stratified by POEM/PP-NRS severity category, PGIC, duration of TCS treatment (< 5 years versus ≥ 5 years), duration of outpatient care (< 5 years versus ≥ 5 years), and ADCT category.

Statistical Analysis

A total of 1500 patients was planned; this sample size was considered to provide a sufficient 95% confidence interval (CI) of approximately $50 \pm 2.53\%$ at the widest point and was expected to provide 90 patients with very severe disease for the primary endpoint. Baseline demographics and primary and secondary endpoints were summarized using descriptive statistics, with the mean, standard deviation (SD), and median (min, max) calculated for continuous variables, and the frequency number and proportion calculated for categorical variables.

Patient background factors associated with a desire for alternative treatment were evaluated using a multiple logistic regression model, with odds ratio and 95% CI calculated. A two-sided significance level of 0.05 was used to evaluate statistical significance.

All statistical analyses were performed using SAS software (SAS Institute, Cary, NC, USA).

RESULTS

Patient Disposition and Baseline Characteristics

From 10 to 15 June 2021, 39,366 invitation emails were sent to adults with AD who were registered with Rakuten Insight Co., Ltd, 2357 of whom responded. A total of 634 patients were currently receiving systemic therapy or phototherapy and 217 patients had previously received dupilumab or baricitinib and were excluded (Fig. 1). From the remaining 1653 patients, 1500 were randomly selected, with the exception of 1 patient who completed the survey prior to eligibility criteria being met.

Baseline demographic and clinical characteristics of patients included in the study are presented in Table 2 and Supplementary Table S1. Patients with AD tended to be female, with a peak prevalence in patients aged between 30 and < 40 years. More than 90% ($n = 1371$) had been diagnosed with AD for $\geq$ 5 years, over two-thirds ($n = 1,035$, 69.0%) of whom had been receiving TCS for $\geq$ 5 years.

According to POEM severity, patients most frequently rated their severity as moderate or mild (Table 3). Regarding patients' global impression of treatment, most patients were either somewhat dissatisfied, neither dissatisfied nor satisfied, or slightly satisfied. Mean (SD)

patient satisfaction with their current treatment, as assessed by TSQM, was 51.1 (15.4) for effectiveness, 58.3 (15.7) for convenience, and 53.1 (15.8) for global satisfaction.

Desire for Alternative Treatment Options Overall and by Specific Type

Almost all ($n = 1372$, 91.5%) patients had a desire for an alternative treatment option (Fig. 2), with the most common type being for a change in medication ($n = 1213$, 80.9%), followed by CAM ($n = 593$, 39.5%) and hospital transfer ($n = 429$, 28.6%).

Stratification Based on Patient-Reported Outcome Measures or Treatment Duration

When evaluating Overall Desire by patient-reported outcome (PRO) measure, the proportion of patients with an Overall Desire was higher in patients with moderate and more severe symptoms versus mild symptoms according to POEM and PP-NRS self-assessment (Fig. 3A; Supplementary Table S2). These findings were also consistent with the PGIC, with a higher proportion of patients who perceived their condition as minimally improved to very much worse having an Overall Desire versus those who were much improved or very much improved. With respect to duration of treatment and outpatient visits, no clear trend was observed between groups (Fig. 3A; Supplementary Table S2).

Consistent with Overall Desire, patients who assessed their symptoms as moderate to more severe according to the POEM and PP-NRS were more likely to have a desire for a change in medication versus mild symptoms (Fig. 3B; Supplementary Table S2). Similar findings were observed for CAM or hospital transfer (Fig. 3C; Supplementary Table S2), although the proportion of patients with a desire for these alternative treatment options was relatively low overall. No clear trend was observed regarding duration of TCS treatment or outpatient visits (Fig. 3B–D; Supplementary Table S2).
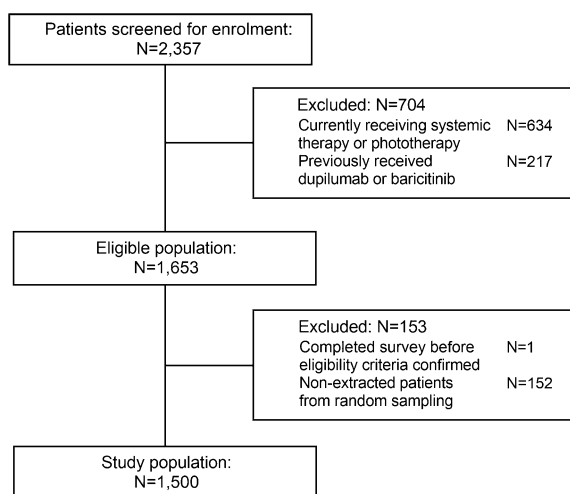
Fig. 1 Patient disposition

Table 2 Demographic and baseline clinical characteristics

	Analysis set $N = 1500$
Total	1500 (100.0)
Age, years, median (min, max)	40.5 (18.0−80.0)
Sex, n (%)	
Male	670 (44.7)
Female	830 (55.3)
Household income category, yen, n (%)	
< 3.7 million	421 (28.1)
3.7 −< 7.7 million	632 (42.1)
7.7 −< 11.6 million	325 (21.7)
≥ 11.6 million	122 (8.1)
Current status of hospital visits, n (%)	
None	270 (18.0)
Yes	1230 (82.0)

AD atopic dermatitis

Patient Background Factors (Multivariate Analysis)

We firstly examined the correlation coefficient of the variables to select the variables for multivariate analysis. The results of bivariate analysis of the selected variables and multiple logistic regression analysis are presented in Supplementary Table S2 and Table 4, respectively. Dissatisfaction with current treatment by PGIT was the only patient background factor significantly associated with Overall Desire and each specific type ($p < 0.001$ each) (Table 4). Severe disease according to POEM and not currently visiting a hospital were also significantly associated with an Overall Desire ($p < 0.001$ each) and a desire to change medication ($p < 0.001$ and $p = 0.009$, respectively). Higher household income was also significantly associated with a desire to change medication ($p = 0.032$). Aside from PGIT, patient background factors significantly associated with a desire for hospital transfer included worsened PGIC ($p = 0.009$) and younger age ($p = 0.016$).

Younger age was associated with a desire for CAM ($p = 0.015$).

DISCUSSION

In this large cross-sectional, web-based survey conducted in 1500 AD patients treated with TCS in Japan, over 90% of patients had a desire for alternative treatment. Treatment dissatisfaction was significantly associated with a desire for an overall alternative treatment and each specific alternative treatment type ($p < 0.001$ each), and the odds ratio was relatively high (Table 4). With respect to PGIT, over 90% of patients were extremely dissatisfied to slightly satisfied with their current treatment (Table 3), which coincided with the number of patients with a desire to change treatment. Interestingly, a large proportion of patients had an Overall Desire despite perceiving their disease as relatively mild. These findings suggest that clinicians should be particularly alert to the fact that patients may desire alternative treatment

Table 3 Assessment of patient-reported outcomes at baseline

	Analysis set $N = 1500$
Patients, n (%)	1500 (100.0)
POEM score, median (min, max)	10.0 (3.0, 28.0)
POEM severity classification, n (%)	
Mild	517 (34.5)
Moderate	656 (43.7)
Severe	246 (16.4)
Very severe	81 (5.4)
PP-NRS score, median (min, max)	4.0 (0.0, 10.0)
PP-NRS severity classification, n (%)	
No itch	24 (1.6)
Mild itch	696 (46.4)
Moderate itch	487 (32.5)
Severe itch	251 (16.7)
Very severe itch	42 (2.8)
Treatment satisfaction	
PGIC classification, n (%)	
Very much improved	94 (6.3)
Much improved	460 (30.7)
Minimally improved	630 (42.0)
No change	280 (18.7)
Minimally worse	22 (1.5)
Much worse	10 (0.7)
Very much worse	4 (0.3)
PGIT classification, n (%)	
Extremely satisfied	22 (1.5)
Very satisfied	114 (7.6)
Slightly satisfied	341 (22.7)
Neither dissatisfied nor satisfied	502 (33.5)
Slightly dissatisfied	389 (25.9)
Very dissatisfied	107 (7.1)
Extremely dissatisfied	25 (1.7)

Table 3 continued

	Analysis set $N = 1500$
TSQM, mean (SD)	
Effectiveness	51.1 (15.4)
Convenience	58.3 (15.7)
Global satisfaction	53.1 (15.8)
Medication adherence	
MMAS-8 score, median (min, max)	3.5 (0.0, 8.0)
MMAS-8 classification, n (%)	1500 (100.0)
Low adherence	1249 (83.3)
Medium adherence	212 (14.1)
High adherence	39 (2.6)
Atopic dermatitis control	
ADCT score, median (min, max)	7.0 (0.0, 24.0)
ADCT classification, n (%)	1500 (100.0)
Good control	396 (26.4)
Poor control	1104 (73.6)

No. of patients (%) is shown, unless otherwise specified
ADCT Atopic Dermatitis Control Tool, *MMAS-8* Morisky Medication Adherence Scale-8, *PP-NRS* Peak Pruritus Numerical Rating Scale, *PGIC* Patient's Global Impression of Change, *PGIT* Patient's Global Impression of Treatment, *POEM* Patient Oriented Eczema Measure, *TSQM* Treatment Satisfaction with Current Medication

despite having adequate symptom control from a clinician's point of view.

The most frequent desire for alternative treatment was to change medication, reported in approximately 80% of patients. Notably, the desire to change medication was high overall (Fig. 3A), with over 70% of patients with mild disease according to POEM desiring a change in medication. The mean (SD) TSQM global satisfaction domain score was 53.1 (15.8) in this study (Table 3). This was consistent with the previous qualitative study in AD by Nakahara et al. [26], in which the mean TSQM score did
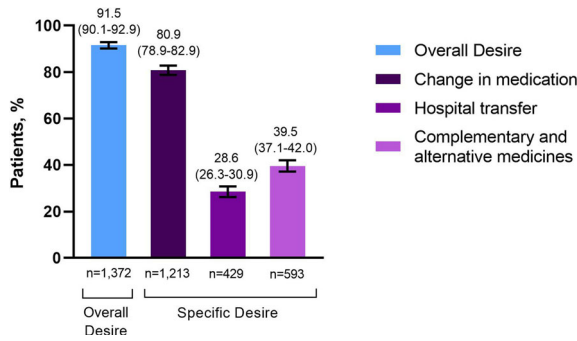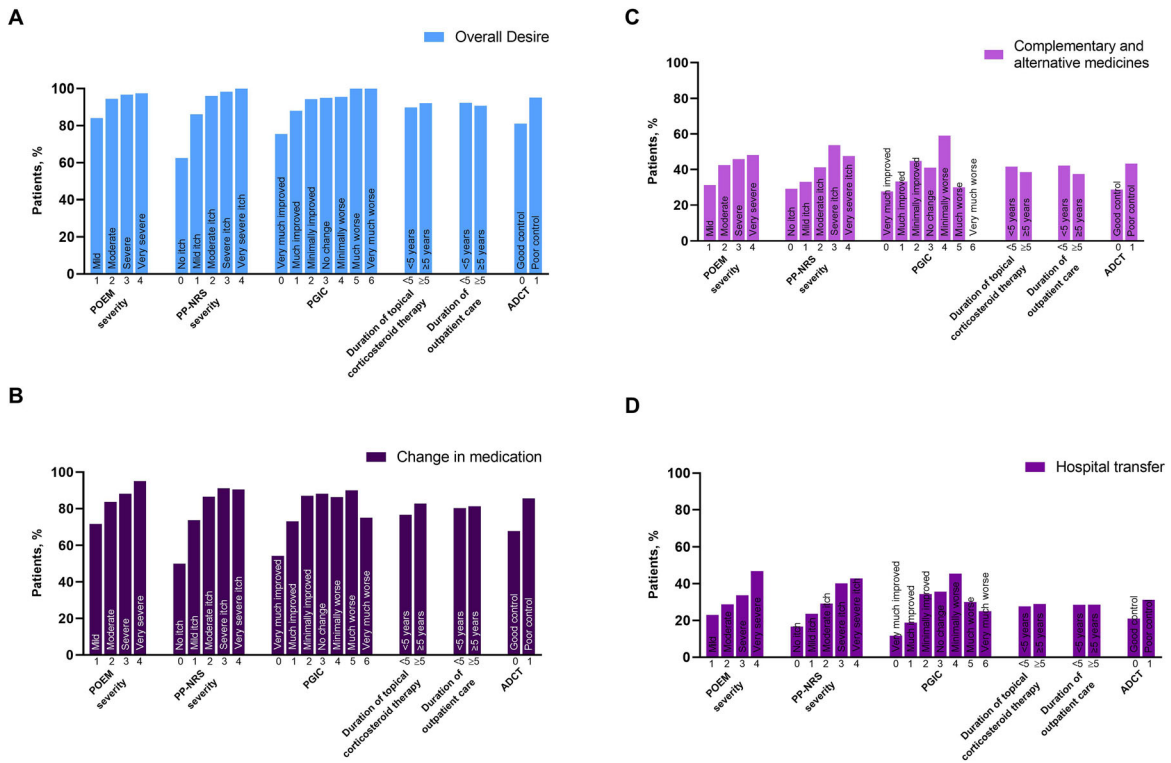
Fig. 2 Proportion of patients with an Overall Desire and by specific type of alternative treatment option

not exceed 50, even in those with mild disease. Taken together, these results suggest that even patients with mild disease would like their disease activity reduced, or treatment options that are safer and more convenient. These results may also reflect patients' desire for newer and

more effective drugs. This notion has some support from a recent study, which reported high levels of patient satisfaction with the new monoclonal antibody, dupilumab, which is an inhibitor of interleukin-4/13 activity. Dupilumab is approved by the Food and Drug Administration in the USA for the treatment of moderate-to-severe AD, in adults, adolescents, and children aged $\geq$ 6 years, and is one of the new targeted immunomodulators approved for moderate-to-severe AD in Japan [27–32]. Since JAK inhibitors (such as baricitinib and upadacitinib) and other novel therapies are becoming available, patient satisfaction with AD therapies may continue to evolve in the future.

In our study, 28.6% of patients had a desire to transfer hospitals, with multivariate analysis identifying lower PGIC ($p = 0.009$) and PGIT ($p < 0.001$) as significantly associated with "doctor shopping." Doctor shopping is defined as the practice of visiting multiple treatment

Fig. 3 Proportion of patients with an Overall Desire (**A**) and Specific Desire by type of alternative treatment option (**B–D**), by patient-reported outcome measure. *ADCT* Atopic Dermatitis Control Tool, *PP-NRS* Peak

Pruritus Numerical Rating Scale, *PGIC* Patient Global Impression of Change, *POEM* Patient Oriented Eczema Measure

Table 4 Patient background factors significantly associated with an Overall Desire and Specific Desire by type of alternative treatment option

| | Overall Desire | | Specific Desire by type of alternative treatment | | | | | |
| | | | Change in medication | | Hospital transfer | | CAM | |
	OR (95% CI)	p-Value	OR (95% CI)	p-Value	OR (95% CI)	p-Value	OR (95% CI)	p-Value
Sex								
Female	Reference							
Male	1.12 (0.73–1.72)	0.590	1.24 (0.92–1.68)	0.163	1.11 (0.86–1.43)	0.439	0.92 (0.73–1.16)	0.463
Age, years								
< 30	Reference							
30 –< 40	0.79 (0.42–1.50)	0.386	0.98 (0.64–1.50)	0.652	0.75 (0.52–1.09)	**0.016**	0.85 (0.60–1.18)	**0.015**
40 –< 50	0.95 (0.48–1.87)		1.29 (0.83–2.03)		0.75 (0.51–1.11)		0.65 (0.46–0.93)	
50 –< 60	0.62 (0.29–1.31)		1.14 (0.67–1.92)		0.47 (0.30–0.73)		0.54 (0.36–0.81)	
≥ 60	0.48 (0.18–1.25)		1.17 (0.57–2.42)		0.56 (0.30–1.06)		0.60 (0.34–1.06)	
Household income category, yen								
3.7 –< 7.7 million	Reference							
< 3.7 million	1.26 (0.77–2.07)	0.501	0.91 (0.65–1.27)	**0.032**	1.09 (0.81–1.48)	0.118	0.85 (0.65–1.12)	0.698
7.7 –< 11.6 million	1.19 (0.70–2.03)		1.27 (0.87–1.87)		1.41 (1.02–1.93)		0.94 (0.71–1.26)	
≥ 11.6 million	1.81 (0.78–4.22)		2.22 (1.18–4.19)		0.98 (0.61–1.59)		0.99 (0.65–1.51)	
Current hospital visit status								
Yes	Reference							
None	0.42 (0.27–0.66)	**< 0.001**	0.63 (0.45–0.89)	**0.009**	1.82 (1.34–2.47)	**< 0.001**	0.97 (0.73–1.29)	0.826
Duration of topical corticosteroid use, years								
≥ 5	Reference							
< 5	0.79 (0.51–1.20)	0.268	0.76 (0.56–1.03)	0.072	1.02 (0.78–1.33)	0.879	1.13 (0.89–1.43)	0.323

Table 4 continued

| | Overall Desire | | Specific Desire by type of alternative treatment | | | | | |
| | | | Change in medication | | Hospital transfer | | CAM | |
	OR (95% CI)	p-Value	OR (95% CI)	p-Value	OR (95% CI)	p-Value	OR (95% CI)	p-Value
POEM severity classification								
Mild	Reference							
Moderate	2.49 (1.59–3.90)	**< 0.001**	1.67 (1.22–2.28)	**< 0.001**	1.07 (0.81–1.43)	0.250	1.36 (1.05–1.76)	0.113
Severe	3.11 (1.41–6.88)		1.91 (1.19–3.07)		1.06 (0.73–1.53)		1.32 (0.94–1.85)	
Very severe	2.92 (0.67–12.77)		4.04 (1.39–11.75)		1.73 (1.01–2.95)		1.31 (0.78–2.19)	
PGIC classification								
Very much improved	Reference							
Much improved	1.28 (0.67–2.41)	0.782	1.47 (0.88–2.45)	0.077	1.38 (0.67–2.82)	**0.009**	1.08 (0.64–1.83)	0.192
Minimally improved	1.32 (0.65–2.67)		2.10 (1.22–3.61)		2.30 (1.14–4.65)		1.38 (0.82–2.35)	
No change	0.92 (0.39–2.20)		1.67 (0.88–3.14)		1.96 (0.93–4.09)		1.01 (0.57–1.79)	
Minimally, much or very much worse	1.76 (0.21–14.91)		1.38 (0.44–4.28)		2.28 (0.84–6.17)		1.04 (0.44–2.47)	
PGIT classification								
Extremely or very satisfied	Reference							
Slightly satisfied	3.68 (2.20–6.16)	**< 0.001**	2.32 (1.50–3.59)	**< 0.001**	2.50 (1.09–5.76)	**< 0.001**	1.69 (1.02–2.80)	**< 0.001**
Neither dissatisfied nor satisfied	8.75 (4.79–15.97)		4.56 (2.88–7.23)		5.14 (2.29–11.55)		2.22 (1.34–3.65)	
Slightly dissatisfied	25.98 (10.60–63.71)		11.71 (6.60–20.76)		12.04 (5.34–27.17)		4.37 (2.62–7.27)	
Extremely or very dissatisfied	29.28 (6.57–130.40)		10.58 (4.77–23.50)		14.76 (6.20–35.11)		7.46 (4.09–13.61)	

Bold indicates p-value less than 0.05 was considered statistically significant

CAM complementary and alternative medicines, OR odds ratio, PGIC Patient's Global Impression of Change, PGIT Patient's Global Impression of Treatment, POEM Patient Oriented Eczema Measure

providers across different treatment facilities, and is a recognized phenomenon in Japan [33, 34]. The reasons are varied, such as inconvenient office hours or locations, long waiting times, persistence of symptoms, and lack of improvement, some of which likely contributed to the results we observed [35, 36].

Patient-reported outcome measures such as the POEM, PP-NRS, and ADCT have been identified as important outcome measures in dermatology clinical trials [37, 38] and are valuable tools for evaluating AD severity and disease control in clinical practice [39, 40]. Each is easily implemented in daily clinical practice, but defining thresholds and what action is recommended based on the evaluation is unclear. The proportion of patients with an Overall Desire increased with increasing POEM severity. Specifically, approximately 50% of patients with very severe disease according to POEM had a desire to transfer hospital, which was 2.5-fold higher than in patients with mild disease, and clinicians should be alert to this fact.

In the current study, the desire for CAM was relatively low (39.5%) compared with the desire to change medications (80.9%). However, when considering the lack of valid evidence regarding the effectiveness of many CAM, it was still clinically significant. Regulatory oversight of CAM is typically less stringent, and the use of alternative therapies may lead to deviation from standard of care and the potential for worsening disease control [45]. To prevent these unfavorable effects, clear communication between the patient and physician is recommended regarding any alternative therapies that the patient may be using.

Limitations of this study included its cross-sectional design, which prevented evaluation of the effect of treatment course on the desire for alternative treatment options. To account for potential recall bias, patient impression of change in severity and treatment or consultancy period were included to potentially mitigate the need for evaluation of treatment course. However, the accuracy of disease diagnosis and treatment information was reliant on participant response, and providing shopping points as a reward for participation may have acted as an incentive for patients to participate,

irrespective of the accuracy of their responses. In addition, sampling bias may have existed due to the web-based nature of the survey, preferentially selecting participants with digital literacy who may have had a greater desire for alternative treatment options. Patients in the registry also tended to be older, with a peak prevalence of AD observed in patients aged 30−39 years old, compared with previous studies (20−29 years) [1]. Patients receiving systemic therapy were also excluded from this study, missing an opportunity to study the desire for alternative treatment in this patient population. The effect of adverse events in influencing the desire for alternative treatment options was also not evaluated but has been reported to influence desire to change treatment in other studies, even if the therapy is otherwise efficacious [47]. Given the recognized relationship between treatment safety and convenience and satisfaction with current therapies [48], further research is warranted.

CONCLUSION

A high proportion of patients with AD receiving treatment with TCS had a desire for alternative options, including a change in medication, CAM use, and hospital transfer. Patient dissatisfaction with current treatment and increased disease severity were significantly associated with the desire for alternative treatment options. These findings highlight the importance of assessing patient satisfaction or perception of disease severity, and facilitating early discussions between patient and doctor on their available treatment options, including new treatment options.

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