

## Research Article

# Job preferences of Japanese global health personnel: results from a discrete choice experiment

Eriko Jibiki<sup>1,2</sup>, Timothy Bolt<sup>3</sup>, Tomohiko Sugishita<sup>1</sup>

<sup>1</sup> Department of Hygiene and Public Health, Tokyo Women's Medical University, <sup>2</sup> Human Resource Strategy Center for Global Health, National Center for Global Health and Medicine, <sup>3</sup> Faculty of Economics, Saitama University

Keywords: Discrete choice experiment, Job preference, International organizations, Globalization of health, Japan

<https://doi.org/10.29392/001c.75463>

## Journal of Global Health Reports

Vol. 7, 2023

### Background

The disintegration of the boundary between global and national health due to the emergence of global health issues, such as COVID-19, led to the increasing need to nurture global health experts so as to strengthen global and national health capacity. One approach is to engage in work at health-related United Nations (UN) and international organizations. However, the issue of member states underrepresentation exists, which poses a challenge both in nurturing global health experts and realizing the equitable geographical distribution prescribed in Article 101 of the United Nations Charter. Japan, among other member states, remains underrepresented in UN organizations. This study aimed to understand the job preferences of Japanese experts wishing to work at health-related international organizations and present policy proposals for strengthening capacity development and promoting international dispatch.

### Methods

The discrete choice experiment (DCE) survey was conducted online to determine the job preferences of health/non-health experts and students – (i) who wished to work at health-related international organizations (*Seekers*), (ii) who are currently working at these organizations (*Workers*), and (iii) who resigned from these organizations (*Resignees*). The binary logit main effects model was used to examine the relative importance of various job attributes.

### Results

DCE analysis showed the relative importance of duty station, salary, work–life balance (WLB), and job satisfaction for all groups and return post and employer's contribution to welfare benefits for *Seekers* and *Resignees* but not for *Workers*.

### Conclusions

The “uncertainty-avoidance” characteristics mainly perceived in *Seekers* and *Resignees* propose two separate approaches, which entails supporting (i) the few selected ones, and (ii) the majority who are interested but remain uncertain and indecisive to work overseas. The social structural challenge associated with the lack of national organizations and hospitals that value experiences gained at international organizations needs to be addressed by introducing systems such as sabbatical leaves or reemployment systems for returnees. Furthermore, an incentive information package combining both financial and nonfinancial incentives focusing on favorable conditions relating to duty station, salary, WLB, and job satisfaction, which could be achieved at international organizations, could be actively publicized at career development seminars.

Global health issues, such as COVID-19, are quickly disintegrating the boundary between global and national health. Such issues have increased the need for national health experts to obtain knowledge and skills in global health. One approach toward strengthening the global and national capacity for health is for health experts to be en-

gaged in work at health-related UN/international organizations and nongovernmental organizations and return their newly acquired knowledge and skills to their original workplaces or societies upon their return. The reciprocal value of health experts' participation in overseas work is emphasized in several international reports and studies.<sup>1-4</sup>

The placement of health experts to international organizations is also associated with the issue of underrepresentation of UN member states. This issue poses a challenge to “recruiting staff on as wide a geographical basis as possible” prescribed in Article 101 of the United Nations Charter.<sup>5</sup> The Geographical Diversity Strategy of the United Nations’ Office of Human Resources sets the following goal: “every unrepresented member state be represented in the organization and to bring as many underrepresented member states to be within range in the system of desirable ranges”.<sup>6</sup>

Since the mid-2010s, the Japanese government has been promoting human resource development and dispatch of global health personnel (herein broadly indicating medical and non-medical experts interested in global health) to health-related international organizations, such as the World Health Organization (WHO), United Nations Population Fund (UNFPA), and Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) (hereafter referred to as health-related international organizations). In 2016, the Ministry of Health, Labor and Welfare released a policy proposal “Report by the Working Group on Human Resources Development for Global Health Policy”<sup>7</sup> to develop and increase leaders in global health.

Nevertheless, there is still shortage of Japanese global health personnel working at health-related international organizations. The number of health-related professional staff working at the six major international organizations (WHO, Joint United Nations Program on HIV/AIDS, United Nations Children’s Fund, UNFPA, GFATM, and Gavi, the Vaccine Alliance) has gradually increased from 77 (1.8%) in 2017 to 79 (1.7%) in 2018, 84 (1.8%) in 2019, 96 (1.9%) in 2020, and 97 (1.8%) in 2021.<sup>8</sup> However, several UN organizations employ fewer Japanese professional staff than the official desirable range calculated based on elements, such as financial contribution and population. For instance, the desirable range for the WHO Western Pacific Region is 94 to 128; however, only 40 staff are employed.<sup>9</sup>

To date, research on global health collaboration and partnerships have mainly focused on the documentation of reciprocal values of international partnerships.<sup>1–4</sup> There is a little research on the placement of global health personnel in health-related international organizations focusing on the required competencies and skills or gap between actual qualifications possessed by global health personnel and international standards or proposals for their development.<sup>10–12</sup>

The present study aimed to determine the job preferences of Japanese global health personnel when making job choices for health-related international organizations using discrete choice experiment (DCE). DCE is based on the Lancasterian theory, which suggests that the use of a good or service is defined by its characteristics (attributes).<sup>13</sup> Hence, by presenting the hypothetical job scenarios described by combinations of different attributes and levels, and statistically modeling the choices of study participants, it estimates the impact of each characteristic on the applicants’ utility or probability of accepting the job. Based on the assumption that understanding the applicants’ insights

on job preferences is the key to elucidating the reason for nonapplication and underrepresentation, DCE was chosen to complement the market-oriented approach adopted by previous studies<sup>10–12</sup> and ongoing career development seminars focusing on the required competencies. Based on the job preferences, the current study aimed to inform researchers and policymakers of the priority areas that need improvement. Given that the employment conditions of international organizations are internally decided, such as through the United Nations Common System, we intended to establish policy proposals on areas practical and amenable to change, namely, on national stakeholders’ approaches.

## METHODS

The conduct of this study involved two phases: (i) development of job attributes and levels mainly through qualitative interviews and (ii) implementation of the DCE questionnaire survey (Online Supplementary Document).

### DEVELOPING ATTRIBUTES AND LEVELS

Prior to the qualitative interviews, potential attributes were broadly predefined through literature review<sup>14–17</sup> and discussions among co-authors. Based on these predefined sets of attributes, in-depth semi-structured interviews were conducted from May 2019 to January 2020 on 20 Japanese global health personnel, of whom 13 wished to work at health-related international organizations (*Seekers*), 4 were currently working at these organizations (*Workers*), and 3 resigned from these organizations (*Resignees*). Three groups across the career stage were included to determine whether any characteristics or tendencies were unique to each group. The participants were initially chosen from those working at the National Center for Global Health and Medicine and international organizations in Tokyo/abroad and gradually increased through snowball sampling. During the interviews, 11 predefined attributes (contents of the job, opportunity for self-realization, opportunity for capacity development, salary, welfare, job location, work–life balance (WLB), job security/length of contract, opportunity for children’s education, opportunity for spouse’s job, and guaranteed job upon return to Japan) were presented. The participants were then asked to select all attributes they thought were important when they consider/considered working at international organizations and arrange them in the order of importance. These were later graded to obtain an overall ranking. Then, they were asked to speak freely regarding each selected attribute and add others, if any. For the final DCE questionnaire, eight attributes and levels were defined through content analysis and further discussions with the co-authors (Tables 1 and 2). Details of the qualitative study are described in a separate report.<sup>16</sup>

### DEFINING CHOICE SETS

The eight attributes and corresponding levels ( $2^1 \times 3^7$ ) from the qualitative interviews were organized to form a

**Table 1. Defining attributes and levels**

Attributes	Reason for inclusion	How the levels were defined
Relating to individual social welfare benefits/ incentives		
Job satisfaction	Results of the qualitative interview suggested that attributes related to job satisfaction i.e. 'contents of the job', 'opportunity for self-realization', and 'opportunity for capacity development' were highly valued by all three groups. The tendency for Japanese personnel who work at international organizations (not restricted to health field) to value job satisfaction rather than social welfare benefits is indicated in other literature as well. <sup>15</sup>	We did not include simple levels such as 'low', 'ordinary', and 'high' which would have become subjective and of little significance to policy. Instead, we included different types of job satisfactions i.e. (1) 'ordinary job satisfaction' as baseline plus, (2) 'The post is particularly likely to strengthen my capacity and skills', and (3) 'The post is particularly likely to allow me to fully utilize my expertise, capacity and experiences' which were repeatedly mentioned in the interviews.
Career development	This attribute was not included in the original sets of attributes presented at the qualitative interview. However, several interviewees expressed their wish to gain discretionary power. Given that discretionary power is thought to be attained from higher position, the attribute of career development was included.	Three levels of (1) 'The grade of the post is low compared to my expected post in Japan', (2) 'The grade of the post is the same as my expected post in Japan', and (3) 'The grade of the post is higher than my expected post in Japan' were included to have the level in Japan as the baseline plus levels thought to be close to real conditions in international organizations.
Duty station	The qualitative interview made it apparent that interviewees highly valued the assurance of safety and security in terms of working and living conditions (almost as highly as job satisfaction) and wanted to avoid working in high-risk areas.	We referred to the 6 categories of the UN duty stations and grouped them into (1) 'HQ location' (H category), (2) 'family duty station' (A-D categories), and (3) 'non-family duty station' (E category). <sup>18</sup> Family duty station was set as the baseline.
Work-life balance	Work-life balance was also valued in the qualitative interview, mainly due to interviewees' past regretful experiences where they had to work overtime continuously, effectively destroying the balance between work and private life.	The following three levels were included: (1) 'I have to work overtime every day, and it is not easy to take a cohesive period of paid leave', (2) 'I barely have to work overtime, and I can take a cohesive period of paid leave during holiday seasons', and (3) 'I have to work overtime during busy periods, but otherwise there are no overtime work and I can take cohesive periods of paid leave during holiday seasons if I coordinate with my colleagues'. Level in Japan ('I have to work overtime everyday and it is not easy to take a cohesive period of paid leave') was set as the baseline, and other levels thought to be close to real conditions in international organizations were included.
Salary	Results of the qualitative interview suggested that salary was moderately valued in terms of 'minimum required amount for survival' or 'amount required to support family subsistence'. However, given that the former opinions were heard from young singles in their 30's, we wanted to include this attribute to determine the overall picture.	We compared the UN salary <sup>19</sup> with that of the Japanese civil servants' salary <sup>20</sup> for an equivalent rank based on experience and expertise (not on age). Almost the same results were obtained, with Japanese senior management ranks having slightly higher and junior ranks having slightly lower salaries. We then added the local adjustment fee <sup>21</sup> for the lower end of the scale ('1.2 times the expected salary in Japan') as well as high HQ location level ('1.8 times the expected salary in Japan'). The level of '0.9 times

		the expected salary in Japan' was also included as the expected salary if one wanted to change his/her specialty and career completely and was willing to compromise salary.
Contract duration	Qualitative interview results suggested that there were mixed opinions toward job security/longer contract duration. On the one hand, some interviewees were anxious regarding an international organization's precarious contract and constant need for job hunting. On the other hand, some accepted the precariousness and did not place much importance on job security. For both groups, unstable job security at an international organization was highlighted. We wanted to further examine whether longer contract durations could become an incentive.	The following three levels were included: (1) 'Contract duration is between 1 and 5 years', (2) 'Contract duration is between 5 and 10 years including application and acceptance of other posts after current post', (3) 'Contract duration is over 10 years, including the application and acceptance of other posts after the current post'. 'Contract duration of 1 to 5 years' based on UN's common Temporary appointment (TA, usually less than 1 year) and Fixed-term appointment (FTA, 1 to 5 years) was set as the baseline. <sup>22</sup>
Welfare	Welfare was not highly valued by the interviewees during the qualitative interview. However, interest toward the UN's affluent welfare scheme, especially a pension scheme and educational allowance, were shown when explained in detail. Therefore, we wanted to examine this further and determine how welfare attracted people by presenting actual benefits.	The following three levels based on Japan's common welfare scheme: (1) 'I will join the organization's health insurance, pension insurance, worker's accident compensation insurance, and child parenting contribution'; UN's welfare scheme: (2) I will join the organization's affluent welfare scheme for health insurance, pension insurance, worker's accident compensation insurance, housing allowance (up to 40%), educational allowance (60%-85% of education fee per child per year), family allowance etc.); and UN's consultant scheme: (3) The employer does not contribute to welfare, and I have to secure health insurance, pension insurance, worker's accident compensation insurance etc. by myself at my own expense) were included. Japan's common welfare scheme was set as the baseline.
Relating to wider social structural issues		
Guaranteed post in Japan	This attribute was included in the qualitative interview based on the assumption that it might be easier to work at international organization if there is a guaranteed post in Japan where one can come back after serving one's term. As with contract duration, there were mixed opinions by the interviewees. On the one hand, some lamented on the scarcity of Japanese hospitals and organizations that appreciate and accept returnees. Some showed expectations for establishment of leave and reinstatement systems in their current department/organization. On the other hand, some were optimistic and assumed things will work out somehow even if they are unemployed after working at international organization. It also became apparent through the interview that there are few Japanese organizations and hospitals that would actively appreciate the experiences gained at international organizations and accept returnees, which may have led to low preferences (9th out of 11 attributes). Thus, we wanted to further examine how people regarded this issue and would actually value 'guaranteed post in Japan' if they were offered the opportunity.	The following two levels were included: (1) 'There is no guaranteed post where I can return to when I leave the international organization's post' and (2) 'There is a guaranteed post where I can return to when I leave the international organization's post'. 'There is no guaranteed post' was set as the baseline.

**Table 2. DCE attributes and levels**

Attributes	Category	Regression labels	Levels
Guaranteed post in Japan	Social structural issue	returnrole	<ul style="list-style-type: none"> <li>There is no guaranteed post where I can return to when I leave the international organization's post</li> <li>There is a guaranteed post where I can return to when I leave the international organization's post</li> </ul>
Job satisfaction	Individual social welfare benefits/incentives	jobsatis	<ul style="list-style-type: none"> <li>Ordinary job satisfaction</li> <li>The post is particularly likely to strengthen my capacity and skills</li> <li>The post is particularly likely to allow me to fully utilize my expertise, capacity and experiences</li> </ul>
Career development	Individual social welfare benefits/incentives	careerdev	<ul style="list-style-type: none"> <li>The grade of the post is lower than my expected grade in Japan</li> <li>The grade of the post is the same as my expected grade in Japan</li> <li>The grade of the post is higher than my expected grade in Japan</li> </ul>
Duty station	Individual social welfare benefits/incentives	dutystation	<ul style="list-style-type: none"> <li>Country's security and living conditions are severe, preventing the accompaniment of my family members</li> <li>Country's security and living conditions are safe and developed enough to allow the accompaniment of my family members</li> <li>Location is either at the headquarters or other similarly designated location</li> </ul>
Work-life-balance	Individual social welfare benefits/incentives	wlb	<ul style="list-style-type: none"> <li>I have to work overtime every day, and it is not easy to take a cohesive period of paid leave</li> <li>I have to work overtime during busy periods, but otherwise there is no overtime work and I can take a cohesive period of paid leave if I coordinate with my colleagues</li> <li>I barely have to work overtime, and I can take a cohesive period of paid leave</li> </ul>
Salary	Individual social welfare benefits/incentives	salary	<ul style="list-style-type: none"> <li>0.9 times the expected salary in Japan</li> <li>1.2 times the expected salary in Japan</li> <li>1.8 times the expected salary in Japan</li> </ul>
Contract duration	Individual social welfare benefits/incentives	contract	<ul style="list-style-type: none"> <li>Contract duration is between 1 and 5 years</li> <li>Contract duration is between 5 and 10 years including the application and acceptance of other posts after the current post</li> <li>Contract duration is over 10 years including the application and acceptance of other posts after the current post</li> </ul>
Welfare	Individual social welfare benefits/incentives	welfare	<ul style="list-style-type: none"> <li>The employer does not contribute to welfare, and I have to secure health insurance, pension insurance, worker's accident compensation insurance, etc. by myself at my own expense</li> <li>I will join the organization's general welfare scheme for health insurance, pension insurance, worker's accident compensation insurance and child parenting contribution</li> <li>I will join the organization's affluent welfare scheme for health insurance, pension insurance, worker's accident compensation insurance, housing allowance (up to 40%), educational allowance (60%-85% of education fee per child per year), family allowance, etc.</li> </ul>

main effect orthogonal array of 18 choice sets with a 100% D-efficiency. These 18 hypothetical job profiles were presented in a questionnaire as the description of potential posts at health-related international organization with different conditions.

The present study aimed to examine not only the relative importance of the attributes but also the impact of each attribute on the expected post uptake. Therefore, the DCE was structured as an acceptance of each presented post rather than a comparison among options. To obtain detailed information on the relative importance from each respondent, they were asked to choose one answer for each choice: (1) I strongly want to take the post, (2) I weakly

want to take the post, (3) I weakly do not want to take the post, and (4) I strongly do not want to take the post. [Figure 1](#) presents an example of a choice set.

#### DCE DATA COLLECTION

Using Google Forms, three separate online questionnaires for *Seekers*, *Workers*, and *Resignees* were created. The first half of the questionnaire was designed to obtain information on the respondents' sociodemographic characteristics and reasons for application and resignation from the international organization if applicable. The latter half contained the DCE questions, which were identical for all three

**Figure 1. Example of a choice set**

Below are 18 posts of health-related international organizations with different conditions and levels. If it is offered to you now, please choose whether you would (1) strongly want to take the post, (2) weakly want to take the post, (3) weakly don't want to take the post, or (4) strongly don't want to take the post.

**Post 9: Are you interested in the post below?**

Guaranteed post in Japan	There is a guaranteed post where I can return to when I leave the international organization's post
Job satisfaction	The post is particularly likely to allow me to fully utilize my expertise, capacity and experiences
Career development	The grade of the post is the same as my expected post in Japan
Duty station	Location is either at headquarters or other similarly designated location
Work-life balance	I have to work overtime during busy periods, but otherwise there is no overtime work and I can take cohesive periods of paid leave if I coordinate with my colleagues
Salary	0.9 times the expected salary in Japan
Contract	Contract duration is between 5 to 10 years, including the application and acceptance of other posts after the current post
Welfare	I will join the organization's affluent welfare scheme for health insurance, pension insurance, worker's accident compensation insurance, housing allowance (up to 40%), educational allowance (60%–85% of education fee per child per year), family allowance, etc.

- ☐ I strongly want to take the post.  
☐ I weakly want to take the post.  
☐ I weakly don't want to take the post.  
☐ I strongly don't want to take the post.

groups. The questionnaires were pilot-tested by nine volunteers belonging to one of the three groups, after which certain formatting and wordings were amended for easier understanding and response.

Given the lack of exact sample-size calculations for choice experiments and practical limitations during the recruitment, we asked each respondent the full set of 18 questions while also aiming to obtain a minimum sample size of 30 respondents per subgroup, which is recommended based on econometric criteria.<sup>17</sup>

Questionnaires were sent out to more than 12,669 members of the following mailing lists from May to June 2021. The numbers in the brackets are the membership numbers of these mailing lists as of May 2021: Human Resource Registration and Search System managed by the Human Resource Strategy Center for Global Health (HRCGH)<sup>22</sup> (621), HRCGH (637), UN Forum (8,630), Japanese Alumni of London School of Hygiene & Tropical Medicine (181), School of Public Health Japanese Community (950), Japan Association for International Health Student Subcommittee (1,650), and Japanese Staff Association of International Organizations in Geneva (number of members unknown). These media were selected considering that they included Japanese members interested in global health and belonged to one of the three target groups.

We received 154, 33, and 32 responses from *Seekers*, *Workers*, and *Resignees* respectively. After carefully scrutinizing the data, we retained responses that suited one of the three categories and had no inconsistencies in personal information. We excluded duplicate data, those with incorrect categorical input, and those with inconsistencies in personal information. The final sample sizes were 150, 31, and 31, respectively.

**DCE DATA ANALYSIS**

The model presented here is a binary logit main effects model with the accept/not accept threshold. (The four response options were classified as “accept” or “not accept”. While an ordered logit model was run on the full strength of preference responses, these were consistent with the binary results presented here. The binary logit model also allows for predicted uptake rates to be presented with these same estimations).

Changes in salary were included as a continuous variable whereas others as dummy coded variables, with the most typical value as the reference level for ease of interpretation.

The underlying utility function for respondent  $i$  choosing alternative  $j$  is as follows:

$$u_{ij} = \beta_i x_{ij} + \varepsilon_{ij} \quad (1)$$

such that the presented role is “accepted” if the respondent had a positive expected utility from accepting this. The term  $x_j$  is the observable vector of attribute levels in the DCE forming the deterministic portion of the utility, whereas  $\varepsilon_j$  is an unobservable error independently and identically distributed over alternatives.

The three sample categories were separately analyzed, with the results being presented sequentially. All statistical analyses were conducted in Stata 16.

**ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

This study was approved by Tokyo Women's Medical University (Reference no. 5185). The participants of the qualitative interviews were informed of the research and provided written informed consent. Participants of the DCE



survey were informed, in writing, about the research and that replying to the questionnaire indicated their consent to participate.

## RESULTS

### DEMOGRAPHIC CHARACTERISTICS

Demographic characteristics (age, social status, possession of medical qualifications, etc.) widely varied within and between subgroups (Table 3). Of the *Seekers*, 92 (61.3%) respondents held medical qualifications, out of which 38 (41.3%) were nurses, 26 (28.3%) were doctors, and 12 (13.0%) were pharmacists. Of the *Workers*, 14 (45.2%) respondents held medical qualifications with majority being doctors (10, 71.4%). Of the *Resignees*, 19 (61.3%) respondents held medical qualifications, out of which 9 (47.4%) were doctors and 6 (31.6%) were nurses.

### MOTIVATION FOR EMPLOYMENT AND REASON FOR RESIGNATION

In the questionnaire, we requested the respondents to write freely about their motivation for working at international organizations (Table 4) and their reasons for resignation (Table 5) for the *Resignees*. The responses from the *Seekers*, *Workers*, and *Resignees* were classified into categories and presented in order from most to least frequent through content analysis.

For *Seekers*, “to solve problems in larger/international/multilateral environment” was the most cited motivation, followed by “to solve global health issues” and “to utilize one’s experience and expertise.” For *Workers*, “better labor condition” and “high evaluation of international organization/staff” were the most cited motivations, followed by “to solve global health issues.” For *Resignees*, “to solve global health issues,” “to solve problems in larger/international/multilateral environment,” and “aspiration from young age” were the top three most cited motivations.

Regarding reasons for resignation, “termination of contract” was most cited, followed by “family matter,” including elderly care, child education, and non-accompaniment of family members due to COVID-19, followed by “disillusionment with the organization.”

### RELATIVE IMPORTANCE OF JOB ATTRIBUTES

The results of the binary logit main effects model are presented in Table 6 and Figure 2.

For *Seekers*, aversion to the possibility of a non-family duty station had the biggest negative impact on job preference ( $\beta = -1.634$ ,  $P < 0.001$ ). The next biggest factor was the impact of salary ( $\beta = 1.268$ ,  $P < 0.001$ ). WLB was considered important, with participants preferring WLB with minimum overtime ( $\beta = 0.8128$ ,  $P < 0.001$ ) more than WLB with moderate overtime ( $\beta = 0.5624$ ,  $P < 0.001$ ). Aversion to a post where employers did not contribute to welfare benefits also had a significantly negative impact ( $\beta = -0.7732$ ,  $P < 0.001$ ); however, the participants did not significantly prefer the generous welfare schemes of international orga-

nizations over the baseline welfare benefits typically provided in Japan ( $\beta = 0.1456$ ,  $P < 0.252$ ). Having a guaranteed return post in Japan was also highly preferred ( $\beta = 0.7389$ ,  $P < 0.001$ ). The specific job satisfaction levels were also valued, with “strengthening capacity and skills” ( $\beta = 0.6281$ ,  $P < 0.001$ ) being more preferred than “utilizing one’s expertise, capacity and experiences” ( $\beta = 0.4626$ ,  $P < 0.001$ ).

For *Workers*, salary had the biggest impact on job preference ( $\beta = 1.435$ ,  $P < 0.001$ ), followed by aversion to non-family duty stations ( $\beta = -1.183$ ,  $P < 0.001$ ). WLB with moderate overtime ( $\beta = 1.071$ ,  $P < 0.001$ ) and minimum overtime ( $\beta = 0.916$ ,  $P < 0.001$ ) were also both statistically significant factors in decision-making. The options for job satisfaction were valued, with “strengthening capacity and skills” ( $\beta = 0.6308$ ,  $P < 0.011$ ) and “utilizing one’s expertise, capacity and experiences” ( $\beta = 0.5951$ ,  $P < 0.019$ ) showing similar preference patterns. Unlike for *Seekers* and *Resignees*, guaranteed return post in Japan had the least impact among all attribute levels for *Workers*.

For *Resignees*, salary had the biggest impact ( $\beta = 1.274$ ,  $P < 0.001$ ), followed by aversion to non-family duty stations ( $\beta = -1.265$ ,  $P < 0.001$ ). WLB also had a significant impact, with minimum overtime ( $\beta = 0.8392$ ,  $P < 0.001$ ) being slightly more preferred over moderate overtime ( $\beta = 0.7851$ ,  $P < 0.001$ ). Job satisfaction was also important, with the specific option for “strengthening capacity and skills” ( $\beta = 0.7891$ ,  $P < 0.001$ ) and “utilizing one’s expertise, capacity and experiences” ( $\beta = 0.7624$ ,  $P < 0.001$ ) having similar positive impact. Aversion to a post where employers did not contribute to welfare benefits also had a negative impact ( $\beta = -0.7642$ ,  $P < 0.002$ ); however, the generous welfare schemes of international organizations had no significant impact ( $\beta = 0.3505$ ,  $P < 0.145$ ). For this group, a guaranteed return post in Japan also had a significant impact ( $\beta = 0.6467$ ,  $P < 0.001$ ).

Given that the DCE estimated coefficients are not directly interpretable, the results for each sample are also presented as Willingness to Pay (WtP) in Table 6. Apart from having more inherent meaning, the WtP can also be compared more meaningfully across the sample groups.

### PREDICTED UPTAKE OF DIFFERENT JOB PROFILES

Estimates for the expected uptake of various posts can be calculated using the part-worth coefficients from the binary logit model for each group. Hence, several important or interesting post profiles were chosen to estimate the expected uptake, with significant differences across the posts.

With all job attribute levels set to the baseline of what is considered typical for international organizations, 86%, 85%, and 76% of *Seekers*, *Workers*, and *Resignees* would accept the offered post. These uptake rates increased to 98%, 97%, and 94% when all the attribute levels were set to what are considered the most preferred jobs for these groups and decreased to 5%, 5%, and 2% for the worst possible post descriptions for each group, respectively. Other selected posts of comparative interest along with post attribute descriptions are presented in Table 7.

Included in this are the attribute values from typical Japanese posts, enabling us to estimate the uptake of such

**Table 3. Demographic characteristics**

Demographic characteristics		Those who wish to work for international organizations: <i>Seekers</i> n=150	Those who are currently working: <i>Workers</i> n=31	Those who resigned: <i>Resignees</i> n=31
Sex	Male	47 (31.3)	14 (45.2)	6 (19.4)
	Female	103 (68.7)	17 (54.8)	25 (80.6)
Age	10s	1 (0.7)	0 (0.0)	0 (0.0)
	20s	31 (20.7)	2 (6.5)	0 (0.0)
	30s	66 (44.0)	21 (67.7)	9 (29.0)
	40s	36 (24.0)	5 (16.1)	11 (35.5)
	50s	15 (10.0)	2 (6.5)	6 (19.4)
	60s and above	1 (0.7)	1 (3.2)	5 (16.1)
Final education	Currently in bachelor's course	10 (6.7)	0 (0.0)	0 (0.0)
	Bachelor's degree	31 (20.7)	1 (3.2)	1 (3.2)
	Graduate diploma	2 (1.3)	0 (0.0)	0 (0.0)
	Non-degree student in search of master's degree	1 (0.7)	0 (0.0)	0 (0.0)
	Currently in master's course	4 (2.7)	0 (0.0)	1 (3.2)
	Master's degree	76 (50.7)	19 (61.3)	14 (45.2)
	Completed PhD coursework	1 (0.7)	2 (6.5)	2 (6.5)
	PhD	25 (16.7)	8 (25.8)	13 (41.9)
	Others	0 (0.0)	1 (3.2)	0 (0.0)
Possession of medical qualification	Yes	92 (61.3)	14 (45.2)	19 (61.3)
	No	58 (38.7)	17 (54.8)	12 (38.7)
Type of medical qualification	Doctor	26 (28.3)	10 (71.4)	9 (47.4)
	Nurse (holds one, two or three of nurse, public health nurse, midwife qualification(s))	38 (41.3)	1 (7.1)	6 (31.6)
	Pharmacist	12 (13.0)	0 (0.0)	2 (10.5)
	Clinical Laboratory Technician	7 (7.6)	0 (0.0)	0 (0.0)
	Dentist	1 (1.1)	0 (0.0)	0 (0.0)
	Certified Psychologist	1 (1.1)	0 (0.0)	0 (0.0)
	Occupational Therapist	1 (1.1)	1 (7.1)	1 (5.3)
	Social Worker (Mental Health)	1 (1.1)	1 (7.1)	0 (0.0)
	Acupuncture and Moxibustion Massager	1 (1.1)	0 (0.0)	0 (0.0)
	Speech-language Pathologist	1 (1.1)	0 (0.0)	0 (0.0)
	Veterinarian	1 (1.1)	0 (0.0)	0 (0.0)
	Nata Certified Athletic Trainer	1 (1.1)	0 (0.0)	0 (0.0)
	Registered Dietitian	1 (1.1)	0 (0.0)	1 (5.3)
	No indication	0 (0.0)	1 (7.1)	0 (0.0)
Current status	Working	103 (68.7)	31 (100.0)	25 (80.6)
	Working/student	10 (6.7)	0 (0.0)	0 (0.0)
	Student	31 (20.7)	0 (0.0)	3 (9.7)



	On childcare leave	1 (0.7)	0 (0.0)	0 (0.0)
	Unemployed	4 (2.7)	0 (0.0)	0 (0.0)
	Retired	1 (0.7)	0 (0.0)	3 (9.7)
Current workplace	Consultant company	9 (8.0)	NA	NA
	Corporation	22 (19.5)		
	Foundation	3 (2.7)		
	Government/local government	16 (14.2)		
	Japanese aid organization	1 (0.9)		
	Medical organization	28 (24.8)		
	NGO	11 (9.7)		
	Research organization	17 (15.0)		
	Self-employed	1 (0.9)		
	University	3 (2.7)		
	Others	2 (1.8)		
Current or past workplace (international organizations) *multiple selections possible	B & MGF	NA	1 (3.2)	0 (0.0)
	GFATM		3 (9.7)	1 (3.2)
	IAEA		1 (3.2)	0 (0.0)
	ICRC		1 (3.2)	1 (3.2)
	IFRC		0 (0.0)	1 (3.2)
	IOM		1 (3.2)	1 (3.2)
	MINUSCA		1 (3.2)	0 (0.0)
	MSF		0 (0.0)	2 (6.5)
	OECD		0 (0.0)	1 (3.2)
	UN		1 (3.2)	0 (0.0)
	UNAIDS		1 (3.2)	2 (6.5)
	UNDP		0 (0.0)	1 (3.2)
	UNESCO		0 (0.0)	1 (3.2)
	UNFPA		2 (6.5)	3 (9.7)
	UNHCR		1 (3.2)	0 (0.0)
	UNICEF		3 (9.7)	4 (12.9)
	UN Office at Geneva		0 (0.0)	1 (3.2)
	UNOPS		1 (3.2)	0 (0.0)
	UNRWA		0 (0.0)	1 (3.2)
	UNV		0 (0.0)	1 (3.2)
	WB		1 (3.2)	1 (3.2)
	WFP		2 (6.5)	2 (6.5)
	WHO		11 (35.5)	16 (51.6)
	International NGO		0 (0.0)	1 (3.2)
*Preferred ( <i>Seekers</i> ) or actual working yrs. ( <i>Workers, Resignees</i> ) at international organization	0 - 2 yrs.	2 (1.3)	8 (25.8)	7 (22.6)
	2 - 5 yrs.	38 (25.3)	12 (38.7)	13 (41.9)
	5 - 10 yrs.	43 (28.7)	5 (16.1)	7 (22.6)
	Over 10 yrs.	35 (23.3)	6 (19.4)	4 (12.9)
	Until retirement	28 (18.7)	0 (0.0)	0 (0.0)
	Undecided	4 (2.7)	0 (0.0)	0 (0.0)
Current ( <i>Workers</i> ) or final status ( <i>Resignees</i> ) at international organization	General service and other categories staff	NA	0 (0.0)	3 (9.7)

	Consultant		6 (19.4)	6 (19.4)
	International professional staff at P (Professional) level or equivalent		21 (67.7)	13 (41.9)
	International professional staff at D (Director) level or equivalent		1 (3.2)	3 (9.7)
	United Nations Volunteer		2 (6.5)	3 (9.7)
	Intern		1 (3.2)	3 (9.7)
Currently married or have a partner	Yes	86 (57.3)	22 (71.0)	16 (51.6)
	No	64 (42.7)	9 (29.0)	15 (48.4)
Is your spouse or partner working or have a will to work	Yes	76 (88.4)	19 (86.4)	12 (75.0)
	No	9 (10.5)	3 (13.6)	4 (25.0)
	Others	1 (1.2)	0 (0.0)	0 (0.0)
No. of children under 25 yrs. old enrolled in school	0	100 (66.7)	20 (64.5)	20 (64.5)
	1	26 (17.3)	8 (25.8)	3 (9.7)
	2	18 (12.0)	3 (9.7)	6 (19.4)
	3	6 (4.0)	0 (0.0)	2 (6.5)

\*Answers to “preferred (*Seekers*) or actual working yrs. (*Workers, Resignees*) at international organization” are approximate references, as some options are overlapping in years which might have caused inaccuracies in data collected.

a post if it were at a health-related international organization. For the closest match to a typical Japanese post description, the uptake would need to be 55%, 38%, and 26% across the three groups, respectively.

## DISCUSSION

The DCE has been used in various studies to examine the job preferences of health professionals, particularly in low- and middle-income countries (LMICs) where human resource shortages are imminent, especially in rural, underserved areas.<sup>23–26</sup> However, this has been the first study to address the issue of health-related staff shortage at the international organizations by examining the job preferences of global health personnel using a DCE. By adopting the DCE method, we hoped to focus on the in-depth preferences and needs of the respondents to complement the previous research mainly focusing on the analysis of the required skills and competencies.

One general trend across all three groups, which supports the psychology and behavioral economics literature, is the generally stronger impact of a loss compared with a gain across the levels within any attribute. Respondent choices support the loss aversion literature.<sup>27</sup> They also suggest that the positive impacts of other attributes can compensate for the negative impacts, although negative impacts were more significant and more consistent among the respondents, as indicated by the statistical significance of the results.

In relation to this, another trend was the appearance of strong “uncertainty-avoidance” characteristics in certain groups. The characteristics of “uncertainty avoidance” is defined by Hofstede as “the extent to which a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations by providing greater career sta-

bility, establishing more formal rules, not tolerating deviant ideas and behaviors, and believing in absolute truths and the attainment of expertise”.<sup>28</sup> Hofstede and other literature on organizational behavior highlighted the “uncertainty-avoidance” characteristics of Japanese employees where security needs excel over other needs, such as self-actualization, esteem, and social needs.<sup>28,29</sup> The fact that attribute levels such as aversion to non-family duty stations, aversion to a post where employers do not contribute to welfare benefits, and a guaranteed return post in Japan had high impact for the *Seekers* and *Resignees* groups supports this presumption. However, interestingly for *Workers*, although aversion to non-family duty stations had high impact, the other two attributes did not. In fact, the guaranteed return post had the least preference among all attribute levels for *Workers*, which provides interesting insights into what makes a successful candidate.

The respondents in all three groups exhibited a strong inclination to reject posts at non-family duty stations. This result closely reflects the findings of the qualitative interview, in which “duty station” was considerably important for all groups in terms of safe and secure working and living conditions.<sup>16</sup>

One approach to alleviating the uncertainty and motivating them is to provide correct information on duty stations as one element in an incentive information package and disseminate it at career development seminars. Unlike most Japanese workplaces where the assignment place is prearranged by the management, duty stations at international organizations can be selected at one’s discretion by passing the competitive examination test for the post. Thus, duty stations can be decided depending on one’s preference, objective, family, and lifestyle. At the career development seminar, the fact that there are various organizations with different missions, specialized fields, activi-

**Table 4. Motivation for working at international organizations**

No.	Those who wish to work at international organizations: <i>Seekers</i>	n=150	Those who are currently working at international organizations: <i>Workers</i>	n=31	Those who resigned from international organizations: <i>Resignees</i>	n=31
1	To solve problems in a larger/international/multilateral environment.	29	<ul style="list-style-type: none"> <li>Better labor conditions (diversity, freedom, work permit, salary, and WLB).</li> <li>High evaluation of international organization/staff.</li> </ul>	7	To solve global health issues.	10
2	To solve global health issues.	28	To solve global health issues.	6	To solve problems in a larger/international/multilateral environment.	6
3	To utilize one's experience and expertise.	22	<ul style="list-style-type: none"> <li>To utilize one's experience and expertise.</li> <li>Interest in certain area.</li> </ul>	4	Aspiration from young age.	4
4	To solve world disparity.	13	<ul style="list-style-type: none"> <li>Interest in the job.</li> <li>To work in a multicultural environment.</li> <li>To contribute to world peace.</li> <li>Interest in international cooperation.</li> <li>To solve problems in a larger/international/multilateral environment.</li> </ul>	2	<ul style="list-style-type: none"> <li>To utilize one's experience and expertise.</li> <li>To gain experience.</li> <li>To solve world disparity.</li> <li>Because international organizations have a large influence.</li> </ul>	3
5	Interest in international cooperation.	11	<ul style="list-style-type: none"> <li>To be involved in decision making process of global health policy.</li> <li>Working at international organization suits me.</li> <li>Aspiration from young age.</li> <li>To develop one's career in global health field.</li> <li>Do not fit in to Japanese workplace.</li> <li>Because international organizations have a large influence.</li> <li>Continuation of career.</li> </ul>	1	To contribute to world peace.	2
6	To gain experience.	10	NA		<ul style="list-style-type: none"> <li>To improve capacity</li> <li>To learn about aid by international organization.</li> <li>Personal recommendation.</li> <li>To contribute to public welfare.</li> <li>Interest in international cooperation.</li> <li>For career improvement.</li> <li>Continuation in career.</li> </ul>	1
7	<ul style="list-style-type: none"> <li>Interest in certain area.</li> <li>Aspiration from young age.</li> </ul>	9	NA		NA	
8	<ul style="list-style-type: none"> <li>Better labor conditions.</li> <li>To work in a multicultural environment.</li> <li>To improve/change existing systems.</li> </ul>	8	NA		NA	

9	For career improvement.	7	NA		NA	
10	<ul style="list-style-type: none"> <li>To be involved in decision making process of global health policy.</li> <li>To learn about aid from international organization.</li> </ul>	6	NA		NA	
11	<ul style="list-style-type: none"> <li>Because international organizations have a large influence.</li> <li>To improve capacity.</li> </ul>	5	NA		NA	
12	<ul style="list-style-type: none"> <li>To contribute to world peace.</li> <li>Importance of international organization in achieving universal health coverage.</li> <li>High evaluation of international organization/staff.</li> <li>To contribute to public welfare.</li> <li>Working at international organization suits me.</li> </ul>	3	NA		NA	
13	<ul style="list-style-type: none"> <li>To develop one's career in global health field.</li> <li>To widen personal network.</li> <li>Convenient to live abroad for non-Japanese partner.</li> <li>To work in the field.</li> <li>Contribute to Japan.</li> <li>Limitation of career development in Japan/do not fit in to Japanese workplace.</li> </ul>	2	NA		NA	
14	<ul style="list-style-type: none"> <li>To reconfirm Japan's good points by living abroad.</li> <li>To widen recruitment opportunity for certain health profession.</li> <li>To be involved in benchmark activities.</li> </ul>	1	NA		NA	

\*Multiple answers were possible.

**Table 5. Reasons for resignation of those who resigned from international organizations**

No.	Reasons	n =
1	Termination of contract.	11
2	Family matter (elderly care, child education, family could not be accompanied due to COVID-19).	7
3	Disillusionment with the organization.	6
4	Job change.	3
5	<ul style="list-style-type: none"> <li>• Proceeding with higher education.</li> <li>• Difference in views (senior management, organizational approach).</li> <li>• No prospect for skills development.</li> <li>• Other</li> </ul>	2
6	<ul style="list-style-type: none"> <li>• Work-life balance.</li> <li>• Difficulty in surviving within the organization.</li> <li>• Personnel change at the original workplace.</li> <li>• Poor labor condition (salary, working environment) compared to Japan.</li> <li>• Poor living conditions compared to Japan.</li> <li>• No prospect for career improvement.</li> </ul>	1

\*Multiple answers were possible.

ties, etc., and that one need not be assigned to places where one feels uncomfortable can be emphasized.

The existence of a guaranteed post in Japan where one can return to after leaving the international organization was considered important by *Seekers* and *Resignees*. Surprisingly, however, it had the least impact among all attribute levels for *Workers*. This attribute was included in the DCE based on the hypothesis that a guaranteed post in Japan becomes a safeguard and motivates more people to apply for overseas posts and that it would be highly preferred by the *Workers* currently working on fixed term (therefore, precarious) contract basis. On the other hand, as the current norm is to not have a guaranteed post, *Workers* have still been willing to take this post without a return post, thereby possibly reflecting a self-selection and survivorship bias in the sample population of *Workers*. Indeed, the DCE findings indicated that those who are decisive enough to participate in global health activities without anxiety of not having return posts are currently surviving and playing active roles in international organizations. This finding is consistent with those of the qualitative interviews, from which mixed opinions were obtained; while some were anxious about the lack of Japanese hospitals and organizations that would deservedly appreciate the experiences gained overseas and accept returnees, others were quite optimistic about job hunting upon returning to Japan and assumed things will work out somehow.<sup>16</sup>

The “uncertainty-avoidance” characteristics mainly perceived in *Seekers* and *Resignees* suggest two different strategic policy approaches. One is an approach to “support a few selected ones” by focusing on supporting those who have international experiences/achievements and are firm

and ready to work overseas. This approach has already been adopted by various stakeholders, such as the Junior Professional Officer System run jointly by the UN organizations and the Ministry of Foreign Affairs,<sup>30</sup> Global Health Volunteer Initiative by the United Nations Volunteers Program,<sup>31</sup> and the annual recruitment mission targeting Japanese nationals by the World Bank.<sup>32</sup> The common factor among these recruitment systems is that successful candidates are selected after a highly competitive and narrow selection process. This approach has also been adopted by HRCGH by focusing on nurturing a few global health leaders. Another approach is to “enhance the overall international experience of Japanese health experts” by supporting the majority who are interested but remain uncertain and indecisive in working overseas. For this approach, the following measures are suggested: (i) creation of subsidy system for short-term studying/internship abroad for health personnel by the government and private corporations similar to “To-bitate! (Leap for Tomorrow) Study Abroad Initiative” supported by the Ministry of Education, Culture, Sports Science and Technologies and various private corporations<sup>33</sup>; (ii) creation/expansion of secondment/personnel exchange systems by the government, private corporations, universities, etc., for overseas health cooperation; and (iii) introduction of sabbatical leaves or reemployment systems of returnees by hospitals, universities, research institutions, etc. The common factor of these approaches is that they provide learning opportunities and job securities for the majority of candidates who are interested but still remain uncertain to risk their entire career by launching on a full-scale overseas dispatch. It is assumed that not all will decide to work at international organizations after these provisional overseas learning/job experiences; however, there is evidence that even short-term work abroad improves personal capacity development, particularly in cultural competence and sensitivity.<sup>4</sup> These participants become champions of global health within their home institutions encouraging others for global health work involvement.<sup>4</sup> This positive effect of overseas dispatch would be beneficial to Japanese health facilities where the number of foreign staff and inbound patients is increasing due to health globalization.

Another trend common for all three groups were that they preferred a combination of financial and non-financial incentives. In various other DCE studies, this tendency had also been identified, although in a different context of health workers’ job preferences in LMICs.<sup>34–39</sup>

The DCE covered the realistic salary range (i.e., from 90% to 180% of the expected salary in Japan), with higher salaries being highly preferred by all three groups while acting as a significant factor in decisions. Surprisingly, this result contradicts the findings of the qualitative interview, where the participants mainly expressed modest interest in salary that can be summarized as expectations for “minimum amount to support daily subsistence” or “amount to support family”.<sup>16</sup> One reason for such discrepancy may be that the qualitative interview did not indicate concrete salary figures as attribute levels, and such attribute levels were left to interviewees’ preconceptions, whereas the DCE

**Table 6. Results of a binary logit main effects model of DCE data**

	Seekers n=150		Workers n=31		Resignees n=31	
	Coefficient (S.E.)	WtP (% of salary)	Coefficient (S.E.)	WtP (% of salary)	Coefficient (S.E.)	WtP (% of salary)
Return Role	0.7389 *** (0.102)	-58%	0.1202 (0.58)	-8%	0.6467** (3.22)	-51%
Job Satisfaction: Strengthen	0.6281 *** (0.122)	-50%	0.6309* (2.55)	-44%	0.7891** (3.21)	-62%
Job Satisfaction: Utilize	0.4626 *** (0.116)	-36%	0.5951* (2.34)	-41%	0.7624** (3.09)	-60%
Career Development: Lower	-0.5268 *** (0.125)	42%	-0.6402* (-2.54)	45%	-0.8805*** (-3.49)	69%
Career Development: Higher	-0.1272 (0.126)	10%	-0.1728 (-0.66)	12%	0.05471 (0.23)	-4%
Dutystation: No Family	-1.634 *** (0.118)	129%	-1.183*** (-5.15)	82%	-1.265*** (-5.30)	99%
Dutystation: HQ	-0.0504 (0.137)	4%	0.4119 (1.48)	-29%	0.05269 (0.21)	-4%
WLB: Min overtime	0.8128 *** (0.129)	-64%	0.9157*** (3.63)	-64%	0.8392*** (3.30)	-66%
WLB: Mod overtime	0.5624 *** (0.114)	-44%	1.071*** (4.33)	-75%	0.7851** (3.27)	-62%
Contract: 5 to 10 yrs	0.2038 * (0.122)	-16%	0.2408 (0.98)	-17%	-0.01925 (-0.08)	2%
Contract: 10 yrs or over	0.0357 (0.117)	-3%	0.2634 (1.06)	-18%	-0.04353 (-0.17)	3%
Welfare: None	-0.7732 *** (0.119)	61%	-0.4026 (-1.62)	28%	-0.7642** (-3.12)	60%
Welfare: High International	0.1456 (0.127)	-11%	0.2220 (0.88)	-15%	0.3505 (1.46)	-28%
Salary (% increase)	1.268 *** (0.149)		1.435*** (4.99)		1.274*** (4.60)	
Constant	-1.060 *** (0.246)		-1.939*** (-3.59)		-2.310*** (-4.56)	

questionnaire clearly indicated the attribute levels, thereby leading to difference in interests. Another reason may be that, as mentioned in other studies,<sup>25,39</sup> discussing openly about salary expectation may be culturally sensitive, thereby leading to the expression of modest expectation. This may be related to the significant effects of social desirability bias in face-to-face interviews, such that respondents become less willing to directly mention their prioritization of salary and material benefits of the post.<sup>40</sup> The presentation of salary-related questions requires careful consideration in future qualitative studies.

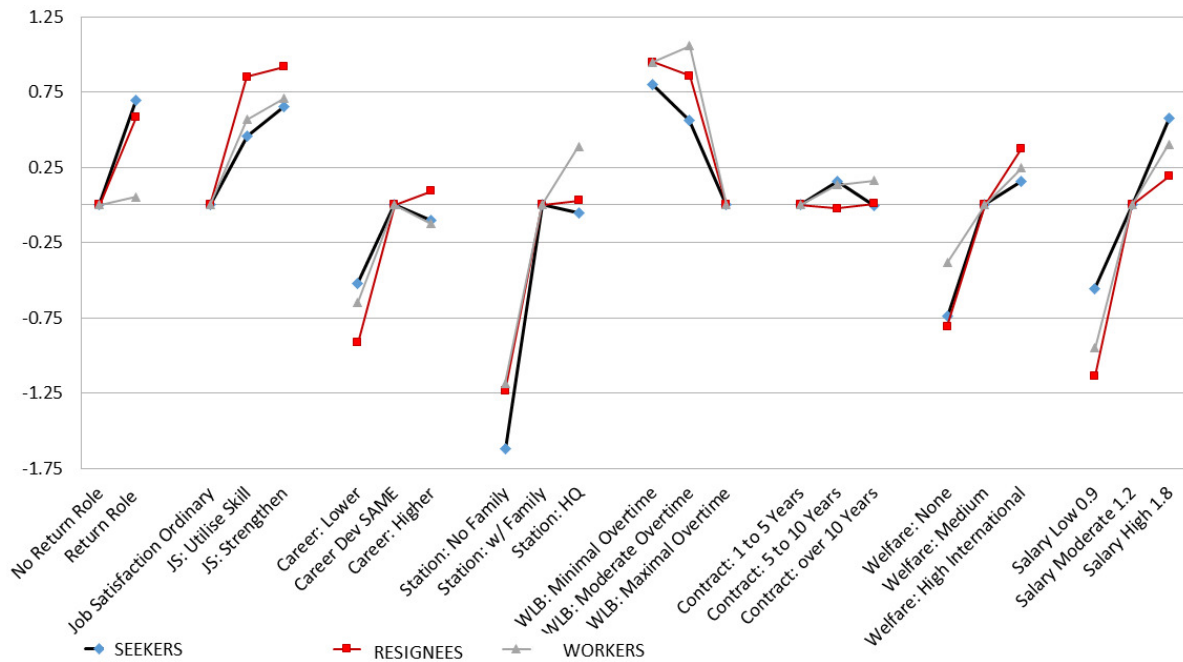
WLB with minimum and moderate overtime were both highly valued by all three groups. This result is also consistent with the findings of qualitative interview where WLB was valued mainly due to past regrettable experiences where WLB could not be obtained due to the poor working environment.<sup>16</sup> UN staff are entitled to various paid leaves,<sup>41</sup> with a survey demonstrating that 80% of targeted Japanese staff working at UN organizations considered UN working hours shorter or the same compared with Japanese organizations.<sup>15</sup>

**Table 7. Predicted uptake of specified job profiles**

<i>Pro- file</i>	<i>Profile Label</i>	Return Role	Job Satisfaction	Career Develop- ment	Duty Station	Work-Life Balance	Salary	Contract	Welfare Package		<i>Prob Seekers</i>	<i>Prob Workers</i>	<i>Prob Resignees</i>
1	Best for Seekers	Yes	Strengthen	Same	w/ Family	Min*	1.8	5 to 10 yrs.	High International		98%	94%	93%
2	Best for Workers	Yes	Strengthen	Same	HQ	Moderate*	1.8	over 10 yrs.	High International		96%	97%	93%
3	Best for Resignees	Yes	Strengthen	Higher	HQ	Min	1.8	1 to 5 yrs.	High International		97%	94%	94%
4	Worst for Seekers & Workers	No	Ordinary	Lower	No Family	Max*	0.9	1 to 5 yrs.	None		5%	5%	2%
5	Worst for Resignees	No	Ordinary	Lower	No Family	Max	0.9	Over 10 yrs.	None		6%	7%	2%
6	Intl typical with family	No	Strengthen	Same	w/ Family	Moderate	1.2	1 to 5 yrs.	High International		86%	85%	76%
7	Intl typical HQ	No	Strengthen	Same	HQ	Moderate	1.8	1 to 5 yrs.	High International		92%	95%	88%
8	Japan closest	No	Ordinary	Same	w/ Family	Max	1.0	1 to 5 yrs.	Standard Japan		55%	38%	26%

\*"Min", "Moderate" and "Max" in the "Work-Life Balance" column refer to "minimal overtime", "moderate overtime" and "maximal overtime" respectively.





**Figure 2. Plots of marginal preferences**

Given that the attribute levels of salary and WLB were based on actual salary levels and working conditions of UN organizations, it would be reasonable to include them in an incentive information package, together with information on duty station, to be publicized during career development seminars.

Attribute levels regarding job satisfaction (i.e., opportunity to strengthen capacity and skills and opportunity to fully utilize one's expertise, capacity, and experiences) were moderately important for all groups, with negligible difference in preference between the two levels. As shown in [Table 1](#), we wanted to avoid the use of generic descriptions, such as high, ordinary, and low job satisfaction, as these would have become subjective to each individual and provide only little policy relevance. Thus, we used the two identified and highly preferred descriptive levels during the qualitative interviews. The reason for the relatively moderate preference may be that people's motivation for working at an international organization widely differs, as presented in [Table 4](#), and that these two levels could not capture all the needs of the respondents. Another reason maybe that, as mentioned earlier, due to the "uncertainty-avoidance" characteristics of the respondents, the security needs actually exceed over other needs, such as self-actualization, esteem, and social needs, as suggested by other research.<sup>29</sup> This remains to be investigated, but in any case, reflection is needed on how to present job satisfaction in both DCE and policy owing to its subjective and ambivalent nature.

## LIMITATIONS

The DCE analysis presented in this paper was based on significant previous qualitative research for the selection of attributes and levels but remains a stated preference ap-

proach. Hence, the expressed choices regarding posts may not match the actual decisions respondents would make in an actual career choice. In such a study, the specifics of particular posts, organizations, family discussions, and alternative options within Japan cannot be included. The results are relatively consistent within subgroups and are significant, although further insights derived from more specific modeling of social demographic variables or latent class might be useful. Furthermore, owing to our small sample size, we could not conduct further subgroup analyses within each group and thus could not determine whether different sociodemographic characteristics, such as occupation, sex, and life stage, influence job preferences. It would be interesting for future studies to involve subgroup analysis for different age groups to examine how respondents' selections change according to life stage, or for different occupational groups such as doctors, nurses, and non-medicals. The latter may be particularly important, as those who possess medical qualifications may be in a better position to find jobs upon their return and may have a different sense of job security or "uncertainty-avoidance" compared with those who do not. Lastly, this study does not cover the issue of competencies and skills required to work in international organizations, such as educational qualifications, professional/international experiences, and language skills, which are highly relevant to the issue of underrepresentation. The gap between the actual qualifications of Japanese global health personnel and international standards is discussed in a separate paper.<sup>12</sup>

## CONCLUSIONS

The present study used the DCE to identify the preferences of global health personnel when applying for health-related international organizations. The binary logit main effects

model emphasized the significance of duty station, salary, WLB, and job satisfaction for all groups and of a guaranteed return post and employer's contribution to welfare benefits for *Seekers* and *Resignees* but not for *Workers*. The “uncertainty avoidance” characteristics mainly perceived in *Seekers* and *Resignees* proposes two separate approaches, which entails supporting (i) the few selected ones, and (ii) the majority who are interested but remain uncertain and indecisive to work overseas. The social structural challenge related to the lack of national organizations and hospitals that value experiences gained at international organizations should be addressed by introducing systems such as sabbatical leaves or reemployment systems for returnees. Furthermore, an incentive information package combining both financial and non-financial incentives focusing on favorable conditions relating to duty station, salary, WLB, and job satisfaction, which could actually be achieved at international organizations, could be actively publicized at career development seminars.

We believe that this DCE study will also provide insight for other states whose personnel are underrepresented and hence aim to increase them to reflect geographical diversity to the policies and activities of international organizations. This, in turn, will be beneficial to the international organizations themselves in realizing their individual mandates and the Sustainable Development Goals, which cannot be accomplished by leaving certain regions and countries underrepresented and, therefore, underserved. This DCE study can also be applied to a wider variety of research to understand job preferences and develop support measures of other unevenly distributed or underserved job professions in need of personnel augmentation. These professions include health professionals in remote/marginalized areas and islands within high-income countries and elderly care workers in increasingly ageing societies.

#### ACKNOWLEDGEMENTS

The authors would like to acknowledge all the participants who provided valuable inputs by participating in the qualitative interview and DCE survey.

#### DISCLAIMERS

The views expressed in the article are those of the authors and do not reflect the official policies or positions of their institutions.

#### ETHICS STATEMENT

This study was approved by Tokyo Women's Medical University (Reference no. 5185).

#### FUNDING

This study did not receive external funding.

#### AUTHORSHIP CONTRIBUTIONS

EJ, TB, and TS conceptualized this study. EJ conducted the implementation of qualitative interviews and DCE survey. EJ, and TS analyzed the qualitative interview data. TB analyzed the quantitative DCE data. EJ, TB, and TS interpreted the analysis results of the interviews and DCE data. EJ and TB prepared the first draft of the manuscript. TB and TS supervised this study and contributed to the revision of the manuscript. All authors have read the final manuscript and approved the submission of the article.

#### DISCLOSURE OF INTEREST

The authors completed the ICMJE Disclosure of Interest Form (available upon request from the corresponding author) and disclose no relevant interests.

#### ADDITIONAL FILE

Discrete choice experiment questionnaires were added as Online Supplementary Document.

#### CORRESPONDING AUTHOR:

Eriko Jibiki

Section of Global Health, Division of Public Health, Department of Hygiene and Public Health, Tokyo Women's Medical University, Tokyo, Japan

Tel: 0081-090-9248-9401

E-mail: [ejibiki@hosp.ncgm.go.jp](mailto:ejibiki@hosp.ncgm.go.jp)

Submitted: March 21, 2023 GMT, Accepted: May 11, 2023 GMT



This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CCBY-4.0). View this license's legal deed at <http://creativecommons.org/licenses/by/4.0> and legal code at <http://creativecommons.org/licenses/by/4.0/legalcode> for more information.

## REFERENCES

1. Reardon C, George G, Enigbokan O. The benefits of working abroad for British General Practice trainee doctors: the London Deanery out of programme experience in South Africa. *BMC Med Educ*. 2015;15(1):174. doi:10.1186/s12909-015-0447-6
2. Improving Health at Home and Abroad How Overseas Volunteering from the NHS Benefits the UK and the World Report a Report on Overseas Volunteering and International Partnerships by the All-Party Parliamentary Group on Global Health Volunteers. Accessed March 19, 2023. <https://www.thet.org/wp-content/uploads/2017/08/APPG-Report.pdf>
3. Engaging in global health the framework for voluntary engagement in global health by the UK health sector. Published 2014. Accessed March 19, 2023. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/352928/Engaging\\_in\\_Global\\_Health\\_1\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/352928/Engaging_in_Global_Health_1_.pdf)
4. Carbone S, Wigle J, Akseer N, Barac R, Barwick M, Zlotkin S. Perceived reciprocal value of health professionals' participation in global child health-related work. *Global Health*. 2017;13(1):27. doi:10.1186/s12992-017-0250-8
5. United Nations. Chapter XV. The secretariat (articles 97-101). United Nations. Accessed March 19, 2023. <https://www.un.org/en/about-us/un-charter/chapter-15>
6. *Geographical Diversity Strategy*. Office of human. Resources; 2021.
7. Round table on global health. *Report by the Working Group on Human Resources Development for Global Health Policy*. Ministry of Health, Labor and Welfare; 2016. Accessed March 19, 2023. <https://www.mhlw.go.jp/file/04-Houdouhappyou-10501000-Daijinkanboukokusaika-Kokusaika/0000125002.pdf>
8. *Annual Report*. Human resource strategy Center for Global Health; 2017–2021. Accessed March 19, 2023. [https://hrc-gh.ncgm.go.jp/document/Annual\\_Report](https://hrc-gh.ncgm.go.jp/document/Annual_Report)
9. WHO western Pacific region. *Overview WHO Our Recruit Process [Preprint]*; 2021.
10. Keralis JM, Riggin-Pathak BL, Majeski T, et al. Mapping the global health employment market: an analysis of global health jobs. *BMC Public Health*. 2018;18(1):293. doi:10.1186/s12889-018-5195-1
11. Machida M, Osawa E, Nomura M, Sone T. A survey on desirable career path and support for prospective human resources in the global health field. *Jpn J Public Health*. 2020;67(7).
12. Jibiki E, Imai Y, Iwata J. Research on gaps between qualification of Japan's global health personnel and international standard. *Int Health*. 2021;36(3):123-133.
13. Lancaster KJ. A new approach to consumer theory. *J Pol Econ*. 1966;74(2):132-157. doi:10.1086/259131
14. Maslow AH. A theory of human motivation. *Psychol Rev*. 1943;50(4):370-396. doi:10.1037/h0054346
15. Yokoyama K. *Career Design of International Civil Servants*. 1st ed. Hakutou Shobou; 2011.
16. Jibiki E, Sugishita T. Preference of global health personnel—lessons learned from a qualitative study. *Int Health*. 2021;36(4):153-168.
17. USAID, CapacityPlus, World Health Organization, The World Bank. *User Guide with Case Studies: How to Conduct a Discrete Choice Experiment for Health Workforce Recruitment and Retention in Remote and Rural Areas*. World Health Organization; 2012.
18. Mobility & hardship. International Civil Service Commission. Accessed March 19, 2023. <https://icsc.un.org/Home/DataMobility>
19. Salary scale for the Professional and higher categories. International Civil Service Commission. Accessed March 19, 2023. <https://icsc.un.org/Home/GetDataFile/6635>
20. *Salary of Government Officials*. Cabinet Secretariat; 2020. Accessed March 19, 2023. [https://www.cas.go.jp/jp/gaiyou/jimu/jinjikyoku/pdf/r02\\_kyuyo.pdf](https://www.cas.go.jp/jp/gaiyou/jimu/jinjikyoku/pdf/r02_kyuyo.pdf)
21. *Consolidated Post Adjustment Circular ICSC/CIRC/PAC/556*. International Civil Service Commission; 2021. Accessed March 19, 2023. <https://icsc.un.org/Home/GetDataFile/6770>

22. UN contracts types—FTA (Fixed term), CA (Continuing appointments), TA (Temporary appointments). United Nations Development Program Jobs Foundation. Accessed March 19, 2023. <https://undpjobs.net/map/page/view?alias=UN+contracts+-+FTA+%28Fixed+term%29%2C+CA+%28Continuing+appointments%29%2C+TA+%28Temporary+appointments%29>
23. Human Resource Strategy Center for Global Health. Accessed March 19, 2023. <https://hrc-gh.ncg.m.go.jp/>
24. Prust ML, Kamanga A, Ngosa L, et al. Assessment of interventions to attract and retain health workers in rural Zambia: a discrete choice experiment. *Hum Resour Health*. 2019;17(1):26. doi:10.1186/s12960-019-0359-3
25. Honda A, Krucien N, Ryan M, et al. For more than money: willingness of health professionals to stay in remote Senegal. *Hum Resour Health*. 2019;17(1):28. doi:10.1186/s12960-019-0363-7
26. Bao M, Huang C. Job preferences of medical and nursing students seeking employment in rural China: a discrete choice experiment. *BMC Med Educ*. 2021;21(1):146. doi:10.1186/s12909-021-02573-3
27. Tversky A, Kahneman D. Loss aversion in riskless choice: A reference-dependent model. *Q J Econ*. 1991;106(4):1039-1061. doi:10.2307/2937956
28. Hofstede G. Motivation, leadership, and organization: Do American theories apply abroad? *Organ Dyn*. 1980;9(1):42-63. doi:10.1016/0090-2616(80)90013-3
29. Robbins SP. *Essentials of Organizational Behavior*. 4th ed. Prentice Hall; 1994.
30. JPO dispatch system. Recruitment Center for International Organizations. Ministry of Foreign Affairs. Accessed March 19, 2023. <https://www.mofa-ir.go.jp/jpo/seido.html>
31. UNV partnering with Japan. UN Volunteers. World Bank: March 19. Vol. 33. p. 2023.
32. World Bank Group recruitment mission. Published 2021. Accessed March 19, 2023. <https://www.unv.org/Partners/unv-partnering-japan>
33. Tobitate! Ryugaku Japan (Fly! Study Abroad Japan). Ministry of Education, Culture, Sports, Science, and Technology. Accessed March 19, 2023. <https://tobitate.mext.go.jp/>
34. Huicho L, Miranda JJ, Diez-Canseco F, et al. Job preferences of nurses and midwives for taking up a rural job in Peru: A discrete choice experiment. *PLOS ONE*. 2012;7(12):e50315. doi:10.1371/journal.pone.0050315
35. Honda A, Vio F. Incentives for non-physician health professionals to work in the rural and remote areas of Mozambique—a discrete choice experiment for eliciting job preferences. *Hum Resour Health*. 2015;13(1):23. doi:10.1186/s12960-015-0015-5
36. Kok M, Abdella D, Mwangi R, et al. Getting more than “claps”: incentive preferences of voluntary community-based mobilizers in Tanzania. *Hum Resour Health*. 2019;17(1):101. doi:10.1186/s12960-019-0438-5
37. Gautam B, Sapkota VP, Wagle RR. Employment preferences of obstetricians and gynecologists to work in the district hospitals: evidence from a discrete choice experiment in Nepal. *Hum Resour Health*. 2019;17(1):96. doi:10.1186/s12960-019-0427-8
38. Agarwal S, Abuya T, Kintu R, et al. Understanding community health worker incentive preferences in Uganda using a discrete choice experiment. *J Glob Health*. 2021;11:07005. doi:10.7189/jogh.11.07005
39. Smits MF, Witter S, Lemiere C, et al. Understanding health workers’ job preferences to improve rural retention in Timor-Leste: findings from a discrete choice experiment. *PLOS ONE*. 2016;11(11):e0165940. doi:10.1371/journal.pone.0165940
40. Horiuchi Y, Markovich Z, Yamamoto T. Does conjoint analysis mitigate social desirability bias? Political analysis. Published online September 15, 2021:1-15.
41. Leave and working hours. United Nations System Chief Executive Board for Coordination. Accessed March 19, 2023. <https://unsceb.org/leave-and-working-hours>

## SUPPLEMENTARY MATERIALS

### Online Supplementary Document

Download: <https://www.joghr.org/article/75463-job-preferences-of-japanese-global-health-personnel-results-from-a-discrete-choice-experiment/attachment/161752.pdf>

---