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Preference-Based Assessments

Developing a New Region-Specific Preference-Based Measure in East and Southeast Asia

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ABSTRACT

Objectives: Almost all preference-based measures (PBMs) have been developed in Western countries, with none having been formulated in Asian countries. In this study, we construct a new generic PBM based on concept elicitation using interview surveys in East and Southeast Asian countries and qualitative analysis.

Methods: This cross-sectional study included 225 adults recruited from 9 East and Southeast Asian countries or regions (Indonesia, Japan, Korea, mainland China, Malaysia, the Philippines, Singapore, Taiwan, and Thailand). Trained interviewers conducted semistructured interviews with 25 participants from the general population of each country/region. Qualitative data were analyzed using a content analysis approach. The selection of items was determined based on interview surveys and team member discussions. The description of items was considered based on a detailed qualitative analysis of the interview survey.

Results: A new region-specific PBM—the Asia PBM 7 dimensions instrument—was designed. It reflects East and Southeast Asian values and comprises 7 items: pain, mental health, energy, mobility, work/school, interpersonal interactions, and burden to others.

Conclusions: The new region-specific instrument is one of the first PBMs developed in the context of non-Western countries. The Asia PBM 7 dimensions contains 7 items that address the core concepts of health-related quality of life that are deemed important based on East and Southeast Asian health concepts.

Keywords: East and Southeast Asia, preference-based measure, qualitative study, quality-adjusted life years.

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Introduction

Preference-based measures (PBMs) are generally used to calculate quality-adjusted life-years (QALYs) and evaluate health states. A QALY is a life-year weighted by values measured through PBMs, which are anchored to 0 (death) and 1 (full health); it is widely used for the economic evaluation of health interventions, and its use is recommended by many health technology assessment (HTA) agencies.[1] As examples of generic PBM,[2] the following instruments are frequently used: 3-level version of EQ-5D[3] and 5-level version of EQ-5D,[4] Health Utilities Index (HUI) Mark 2 and 3,[5] Short Form-6 Dimensions (SF-6D[6]), 15D, Assessment of Quality of Life 8-Dimension,[7] and the Quality of Well-Being self-administered[8] scale. Additionally, disease- or respondent-specific PBMs can be used, such as for pediatrics (eg, EQ-5D-Y[9] and CHU-9D[10]), specific diseases (eg, EORTC QLU C-10D[11] and FACT-8D[12]), and care users or caregivers (ASCOT[13] and CarerQol[14]).

It is important to note that these PBMs have been originally developed in Western countries. For example, the EQ-5D was developed in Europe; HUI in Canada; 15D in northern Europe; Assessment of Quality of Life in Australia; and SF-6D, ASCOT, and CHU-9D in the United Kingdom. EORTC is a European organization, and Facit.org, which manages FACT, is an organization based in the United States. Naturally, translated versions of these PBMs were established in several non-Western countries. The psychometric properties of some PBMs were confirmed, and valuation surveys were performed to convert response to utility. For example, construct validity is established for some instruments in East and Southeast Asian countries.[15] Utilities measured using existing PBMs based on Western concepts may not reflect the true preference of those living in other regions, thereby rendering these scores less meaningful.

Nevertheless, East and Southeast Asian researchers have become more active in the HTA field, and economic evaluation has officially been introduced in the drug policies[16] of some Asian

countries or regions,[17,18] including Korea,[19] Taiwan,[20] Thailand,[21,22] and Japan.[23] HTAsiaLink,[24] a collaborative network of Asian HTA agencies, has also been established in Asia. Therefore, we need to develop a new region-specific PBM that can appropriately represent the health concepts of East and Southeast Asians. This study aims to construct a region-specific PBM through concept elicitation using an interview survey and qualitative analysis.

Methods

Interview Method and Protocol

Local, trained interviewers were recruited in each country by the same research company, and interviews were conducted using a semistructured guide. The questions were open ended to gain insight into the notions the subjects used to describe their health and health problems and how these problems affected their daily lives. Interviewers modified specific questions or probes to maintain the natural topic flow during the 60-minute session (Appendix).

The study materials included an interview guide translated from American English to the following 10 local languages: Tagalog and Cebuano (the Philippines), Bahasa (Indonesia), Japanese, Korean, Malay (Malaysia), simplified Chinese (mainland China), Tamil (Singapore), traditional Chinese (Taiwan), and Thai (Thailand). Furthermore, 6 language adaptations including English (Malaysia, the Philippines, and Singapore), Malay (Singapore), and simplified Chinese (Malaysia and Singapore) were formulated.

The participants were asked to complete a sociodemographic form that helped them to describe themselves and capture their health comorbidities. Subsequently, the first part of the interview focused on understanding the general health of participants, rating their health, and identifying health problems. This interview was used only to understand the patients' background in more detail.

In the next section, "health domain," interviewers used the discussion item that comprised a list of general conditions organized by 10 health domains, each comprising 4 to 9 individual conditions or ailments. The interviewer read the list to the participants and asked them to indicate their experience with each condition/ailment, as well as how it affected their daily life. ("I'm going to read a list of health-related items that have been brought up by other people. Can you tell me if you remember experiencing any of these? If you have, can you tell me how it affects your daily life?")

For the third section, "health impact on daily life," interviewers asked participants questions about how their current health status affected their lives, including their relationships with others. The participants could discuss these impacts spontaneously before the interviewer asked about specific topics, using a predefined list of 13 areas that a negative health condition may affect. ("What areas of your life are affected by your health problems?")

In the last section, "declining health," interviewers asked participants to list the areas of their daily life that they would not want a decline in their health to impact. ("If your health became worse, what areas of your life would you NOT like to see become impacted, and why?")

Study Design of the Interview Survey

This cross-sectional study involved 225 adults (aged $\geq$ 18 years) recruited from the general population of 9 Asian countries or regions (ie, Indonesia, Japan, Korea, mainland China, Malaysia, the Philippines, Singapore, Taiwan, and Thailand). A sample of 25 participants from the general population of each country or region was interviewed. This was not determined by rigid statistical consideration, but we assumed that saturation may be achieved in each country if 25 samples were collected. The samples were collected by quota sampling according to sex and age. We collected interview data from the general public. We think PBM needs to be constructed based on a general public health concept because this is used for resource allocation. It is similar to the idea that a valuation study is normally performed by collecting the general public's preferences.

The participants were recruited from a panel prepared by a Japanese research company (INTAGE Research Inc, Tokyo) and engaged in one-on-one, semistructured concept elicitation interviews. The inclusion criteria of the study included that the participant must (1) be an adult according to local laws at the time of signing the informed consent form; (2) sufficiently understand, read, and speak at least 1 dialect selected for this study to complete the interview; (3) be willing and able to attend an in-person interview session; and (4) provide a written informed consent. The participants received some financial compensation from the research company. Given the outbreak of COVID-19 in the region, online or telephonic interviews were organized.

Analysis of Qualitative Data

The interviewers recorded written notes during the interviews, which were reviewed during and after data collection to ensure consistency in data quality. The interviews were audio recorded for subsequent transcription by a company. Interviews conducted in the participants' native language (other than English) were transcribed directly into English. We reviewed the interview transcripts for content and removed any participant-identifying information. We also corrected any obvious transcription errors.

For sociodemographic and health characteristics, descriptive statistics (mean, SD, and frequency) were calculated to characterize the participants. Qualitative data from the interview records were analyzed using content analysis. Transcripts were loaded onto the ATLAS.ti (Scientific Software Development GmbH, Berlin) qualitative analysis software (version 8.0 or higher) to organize the data and identify the major concepts.[25]

The analysis involved developing a coding dictionary based on the structure of the interview guide. Two members independently coded the transcripts, and the coding was reviewed by another member until the coding was consistent between coders. Participant quotes were grouped and summarized using thematic codes from the coding dictionary.

Constructing the New Region-Specific PBM

The development team, involving representative members of HTAsiaLink (a network of HTA agencies and experts in Asia), reviewed and agreed upon the concepts identified in the interview survey, in addition to using published literature, existing instruments, and qualitative data from the concept elicitation interviews, to determine the items to be included in the new PBM. The frequency with which items were mentioned in the interviews was considered for item selection. Transcripts of the concept elicitation interviews are available upon request. The number of items was determined based on team member discussions, considering the content validity of the instrument and the ease of response for users and other PBMs (EQ-5D, SF-6D, and HUI). A heat map was used to confirm whether the selected items were important for any country. We considered the homogeneity or heterogeneity of the results using the heat map. Once the included items were decided, the description of each item was based on the interview survey. The number of the scale of the instruments was determined to be 4 ("not at all," "a little," "quite a

bit," and "very much") based on our discussion referring to other instruments.

Confirming the Structure of the Instrument

After draft instruments were constructed, we had to consider the face validity of the instrument. Therefore, we collected responses to Asia PBM 7 dimensions (AP-7D) data from people in the general population in Japan. These data were collected separately from the first interview data. Using these data, we performed exploratory and confirmatory factorial analyses to confirm face validity.

Responses to the new PBM were collected in Japan from February 2021 through a face-to-face survey. The inclusion criteria for respondents were as follows: (1) be between the ages of 20 and 65 years, (2) have current Japanese residency, (3) be able to visit the survey room, (4) provide a informed consent, and (5) complete the instrument in Japanese. A research company recruited participants based on nonrandom quota sampling by sex and age, which sampled 500 respondents. The sample size was not based on rigid statistical considerations. All participants were asked to complete the new PBM and provide demographic information.

Collected data were used for exploratory and confirmatory factor analysis. First, we performed exploratory factorial analysis using promax rotation to detect a structure in the items. If factor loading > 0.4, we considered that the item belonged to the factor. Based on the results of the exploratory factorial analysis, a hypothetical model, which shows the relationship between domains and items, was constructed for confirmatory factorial analysis. The goodness of fit was considered by confirmatory factorial analysis. We applied the following goodness-of-fit criteria for a constructed model based on Braizer et al[26]: (1) root mean square error of approximation (RMSEA) < 0.08, (2) standardized root mean square residual < 0.05, (3) comparative fit index > 0.90, and (4) Tucker and Lewis index > 0.95. Both factorial analyses were performed using Stata 17 software (StataCorp LLC, College Station).

Results

The overall participant demographics are presented in Table 1. Among the 225 participants, approximately half were male (n = 113, 50.2%) and the mean age was 48.9 years (SD 16.5) (range 20-80). Almost two-thirds of the participants reported being married (n = 148, 65.8%). The most common employment status was company employee (n = 96, 42.7%), followed by self-employed (n = 34, 15.1%) and unemployed (n = 31, 13.8%). Approximately half of the participants reported receiving their highest level of education at a 4-year university (n = 115, 51.1%), followed by a vocational/short-term degree program (n = 50, 22%).

Results of Qualitative Analysis

Health domain

The list of conditions or ailments experienced by participants is presented in Table 2. The health domains with the highest frequency of conditions/ailments experienced by all participants were energy-related signs and symptoms (tiredness [n = 107, 47.6%]), pain symptoms (back pain [n = 104, 46.2%]), cognition-related signs and symptoms (difficulty remembering things [n = 86, 38.2%]), sleep problems (difficulty falling asleep [n = 77, 34.2%]), gastrointestinal (GI) signs and symptoms (indigestion/heartburn [n = 71, 31.6%]), and mental health (anxiety or nervousness and irritability [n = 69, 30.7%]).

Table 1. Characteristics of 225 interview participants.

Background factor	Total (N = 225)
Sex	
Male	113 (50.2%)
Female	112 (49.8%)
Age (years)	
Mean (SD)	48.9 (16.5)
Median [range]	48 [20-80]
Marital status	
Not married	54 (24.0%)
Married	148 (65.8%)
Living separately/widowed	22 (9.8%)
Occupation	
Company worker	96 (42.7%)
Public employee	8 (3.6%)
Self-employed	34 (15.1%)
Part-time worker	12 (5.3%)
Homemaker	18 (8.0%)
Student	8 (3.6%)
Unemployed	31 (13.8%)
Other	17 (7.6%)
Final level of education	
Middle school	8 (3.6%)
High school	32 (14.2%)
Vocational/short-term degree program	50 (22.2%)
Four-year university	115 (51.1%)
Graduate school	19 (8.4%)

Health impact on daily life

The list of areas affected by negative health as experienced by all participants is presented in Table 3. The areas of daily life participants mentioned most often (threshold of $\geq 40\%$) as being affected by negative health were work or school (n = 142, 63.1%), daily activities (inside the home) (n = 119, 52.9%), the need to rest/stay home/sleep to recover (n = 118, 52.4%), and interpersonal interactions: close relationships (family, friends, and relatives) (n = 110, 48.9%), mobility (n = 90, 40.0%), and physical activities (being active) (n = 86, 38.2%).

Table 2. Results of qualitative analysis based on interview data: list of health domains.

Item	n	All, %
Energy-related signs and symptoms	107	47.6
Pain symptoms	104	46.2
Cognitive signs and symptoms	86	38.2
Sleep problems	77	34.2
Other signs and symptoms	72	32.0
Gastrointestinal signs and symptoms	71	31.6
Mental health	69	30.7
Social wellbeing	48	21.3
Mobility	45	20.0
Issues with self-esteem	38	16.9
Usual activities/ADLs	9	4.0

ADL indicates activity of daily living.

Table 3. Results of qualitative analysis based on interview data: list of health-related impacts experienced by participants.

Health impact	Total (N = 225)	Total, %
Preventative care to stay healthy/ treatment/medicine	155	68.9
Work or school	142	63.1
Daily activities (inside the home) (chores)	119	52.9
Needs to rest/stay home/sleep to recover	118	52.4
Interpersonal interactions: close (family, friends, and relatives)	110	48.9
Mobility	90	40.0
Physical activities (being active)	86	38.2
Emotions	84	37.3
Daily activities (outside the home)	73	32.4
Social activities	72	32.0
General pain (short-term)	63	28.0
Personal care (hygiene or seeing doctor)	59	26.2
Work causes health issues	57	25.3
Interpersonal interactions: others (coworkers, strangers, and others)	50	22.2
Not being a bother to others (family, friends, and less familiar persons)	43	19.1
Overall quality of life	42	18.7
Eating/drinking more to relax/ comfort	27	12.0
Spirituality or religious observance	23	10.2
Driving	14	6.2
Leisure activities	12	5.3
Does burden of household chores and/or childcare	4	1.8

Table 4. Results of qualitative analysis based on interview data: list of areas of daily life participants felt most concerned with worsening health.

Areas of daily life	Total (n = 203)	Total, %
Interpersonal interactions: close (family, friends, and relatives)	122	60.1
Mobility	115	56.7
Not being a bother to others (family, friends, and less familiar persons)	114	56.2
Work or school	110	54.2
Physical activities (being active)	86	42.4
Emotions	86	42.4
Personal care (hygiene or seeing doctor)	84	41.4
Daily activities (inside the home) (chores)	83	40.9
Overall quality of life	80	39.4
Social activities	76	37.4
Daily activities (outside the home)	66	32.5
Spirituality or religious observance	44	21.7
Interpersonal interactions: others (coworkers, strangers, and others)	40	19.7
Lack of daily routine	10	4.9
Leisure activities	9	4.4
Financial	8	3.9
Other: menopause issues	2	1.0
Other: dementia	1	0.5
Other: diet	1	0.5
Other: reduce medications	1	0.5

Declining health

The areas of daily life that participants did not want affected by declining health are presented in Table 4. Most participants (threshold of ≥ 50%) indicated the following areas: interpersonal interactions (close relationships [family, friends, and relatives] [n = 122 of 203, 60.1%]), mobility (n = 115 of 203, 56.7%), not being a bother to others (family, friends, and less familiar people) (n = 114 of 203, 56.2%), and work or school (n = 110 of 203, 54.2%). Not all participants were asked this question; therefore, the denominator (n = 203) for this item is less than the overall sample size of 225.

Item selection

Based on the results of the frequency that items were mentioned in the (1) health domain, (2) health impact on daily life, and (3) declining health, qualitative analysis, team member discussion, and literature, 7 concepts were included in constructing the new region-specific PBM: pain, mental health, energy, mobility, work or school, interpersonal interactions, and burden to others. These concepts are more frequently mentioned in the interviews than almost all other items. Some symptoms that were frequently mentioned in the interview, including sleep, cognition, and GI, were excluded based on discussions with the development team members. Sleep is related to mental health and energy. Cognition and GI are considered too specific to be included in the new instrument.

Figure 1 is a heat map illustrating the concepts by country or region and how frequently they were discussed during the interviews in the second and last sections. The heat map shifts from green (nonprevalent topic) to orange (highly prevalent topic), demonstrating that energy (> 48%) and pain (> 40%) were the health areas most highly endorsed across each region. Furthermore, interpersonal interactions (> 44% in all regions), mobility (> 56% in 6 regions), not being a bother to others (> 48% in 6 regions), and work or school (> 44% in 6 regions) often appeared when discussing the areas of life that people did not want affected if they were to experience health deterioration.

Detailed qualitative analysis for the description of items

The description of items is based on detailed results analyzing each item of the interview survey. Based on the following results, we determined the description of each item of the new region-specific PBMs. The descriptions are listed in Table 5. We named this new region-specific PBM the AP-7D.

Figure 1. Heat map of AP-7D items based on country or region and interview data.

Concept	Singapore	Malaysia	China	Thailand	Japan	Taiwan	Korea	Indonesia	Philippines
Pain	44%	48%	52%	60%	56%	40%	52%	92%	48%
Energy	48%	48%	80%	64%	60%	52%	56%	68%	72%
Mental health	24%	20%	32%	28%	52%	60%	28%	68%	64%
Mobility	96%	56%	72%	80%	Too few people participated in this part of the interview	60%	24%	56%	13%
Interpersonal interactions	76%	64%	64%	68%		44%	64%	44%	66%
Work/school	96%	68%	64%	52%		72%	48%	16%	38%
burden to others	68%	44%	44%	80%		32%	56%	68%	50%

AP-7D indicates Asia PBM 7 dimensions.

Item 1: pain. According to the second discussion, pain-related symptoms, including back pain (n = 104, 46.2%), headache or migraine (n = 98, 43.6%), and muscle pain/aches (n = 91, 40.4%), were some of the most prevalent conditions experienced by participants. Symptoms of pain, such as headaches or migraines (n = 27, 12.0%), muscle and joint pain or aches (n = 26, 11.6%), back pain (n = 25, 11.1%), and abdominal pain (n = 23, 10.2%), were also identified as being some of the most bothersome.

"In my daily life, back pain makes it difficult for me to sit for a long time at a computer desk. Also, my neck and back hurt if I use my cell phone for more than 30 minutes. So, I don't use it that much." (Korea)

Item 2: mental health. The second interview indicated that mental health-related symptoms and their impact were prevalent among participants who stated that they experienced anxiety or nervousness (n = 69, 30.7%), irritability (n = 69, 30.7%), and depression (n = 31, 13.8%).

"Sometimes when I am busy or have some problems, I feel anxious. When I am anxious, I go to the riverbank and go for a walk or run. When I am in a bad mood, or when my parents passed away, I felt depressed." (Taiwan)

Table 5. Description of AP-7D.

No	Item
1.	I was in pain or discomfort and it prevented me from doing what I wanted to do.
2.	I was anxious or depressed.
3.	I lacked the energy to do things.
4.	I had difficulty walking (or moving with the support of a wheelchair).
5.	My health affected my ability to work (outside or inside the home) or go to school
6.	Because of my health, I had less interaction with family, close friends, and such.
7.	Because of my health, I felt I was a burden to others.

AP-7D indicates Asia PBM 7 dimensions.

Item 3: energy. When discussing energy-related signs and symptoms with participants in the second discussion section, the 2 most prevalent symptoms mentioned were "tiredness" (n = 107, 47.6%) and "fatigue" (n = 105, 46.7%); within the energy domain, "low energy" was mentioned by 29.8% of participants (n = 67).

"When I was fatigued, I did not want to do anything and go anywhere; I just wanted to stay home. I feel tired after doing stuff, and all I want to do after that is just get some rest." (Thailand)

Item 4: mobility. When participants were asked about their issues with mobility, some respondents mentioned that they currently have trouble climbing stairs (n = 45, 20.0%) and walking (n = 26, 11.6%). When asked about the impact on their daily lives, 40% of participants (n = 90) identified mobility as a concern in the third section. Nevertheless, when asked about mobility as a worsening impact in the last discussion, most participants (n = 115 of 203, 56.7%) identified mobility as a concern.

"Achy lumbar muscle. I feel pain while walking. So, I cannot walk for a long distance, but only in nearby areas." (Mainland China)

Item 5: work or school. In the third discussion section, most participants (n = 142, 63.1%) identified their ability to work (outside or inside the home) or travel to school as a health-related impact. Most respondents (n = 110 of 203, 54.2%) reported that they would not want their ability to travel to work or school to be affected by a declining health condition.

"First, of course, my work. When I feel something, my performance would be affected." (The Philippines)

Item 6: interpersonal interactions. Regardless of the health condition/ailment, in the third interview section, nearly half of all participants (n = 110, 48.9%) identified the concept of spending less time with close friends and family as affecting their health. According to the last interview, many participants (n = 122 of 203, 60.1%) identified the loss of time spent with close friends or family as the worsening impact about which they were most concerned.

"Yes, I mean relationship with my kids. What is important is that my family was not affected. When we are sad, it affects ourselves." (Malaysia)

Item 7: burden to others. A relatively low number of participants (n = 43, 19.1%) identified their current health as

Table 6. Results of explanatory factorial analysis using data collected in Japan.

Variable	Factor 1	Factor 2	Factor 3
Pain	0.5773*	0.0481	0.1517
Mental	0.0242	−0.0047	0.6789*
Energy	0.0636	0.0072	0.6923*
Mobility	0.6135*	0.0172	−0.0574
Work/school	0.4779*	0.2897	0.1339
Interpersonal relations	−0.0487	0.5893*	0.0942
Burden to others	0.2783	0.5863*	−0.0748

*Factor loading > 0.4.

negatively affecting others. Nevertheless, most respondents (n = 114, 56.2%) identified becoming a bother to others because of declining health as a chief concern.

"I think, in a way, you will be, because you do not want to be a burden, you want to cut it less, you want to have less interaction with them." (Singapore)

Confirmatory Factorial Analysis

We collected 528 respondents' responses to AP-7D in Japan. Males were 265 (50.2%) and females were 263 (40.8%). A total of 106 respondents belonged to the following age categories: 20 to 29, 30 to 39, 60 to 69, and 105 respondents belonged to the 40 to 49 and 50 to 59 age groups. The results of the explanatory factorial analysis are presented in Table 6. Pain, mobility, and work/school items in factor 1, interpersonal and burden to others in factor 2, and mental health and energy in factor 3 exceeded 0.4 factor loading. Factor 1, factor 2, and factor 3 could be interpreted as physical, emotional, and social domains, respectively. The hypothetical model based on explanatory factorial analysis is shown in Figure 2. The goodness of fit of this 3-component model was as follows: RMSEA of 0.084, standardized root mean square residual of 0.040, comparative fit index of 0.967, and Tucker and Lewis index of 0.930. All statistics showed good fitness and met the criteria described in the method section, except RMSEA (the cutoff value was less than 0.08).

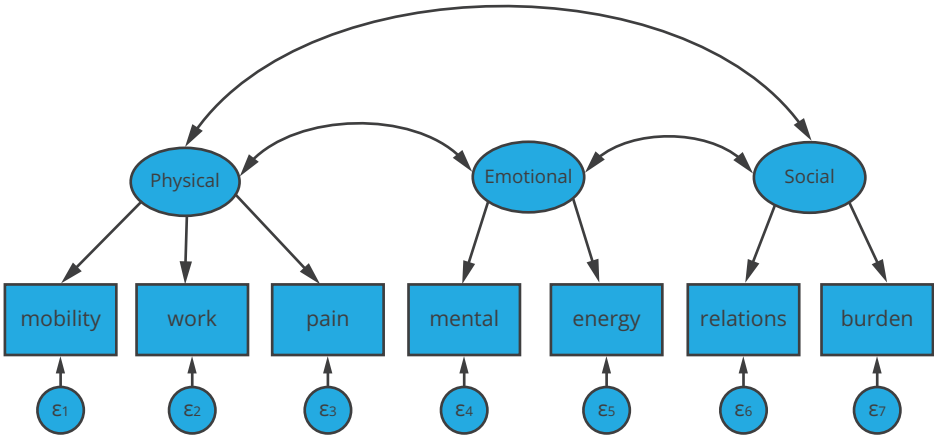
Discussion

In our study, we developed a new instrument for measuring utility scores in non-Western countries. We believe that such region-specific PBMs will become more important as the structure of health concepts differs from that of Western countries. When comparing items from the AP-7D with items from other existing instruments (the EQ-5D, SF-6D, and HUI Mark 3), all instruments have pain and mental health (anxiety/depression in the EQ-5D and emotion in the HUI Mark 3) items in common, although only the SF-6D has energy (vitality in the SF-6D) as an item. Some instruments refer to interpersonal interactions (social activities in the SF-6D) and work/school (daily activities in the EQ-5D and role limitation in the SF-6D), although specific items are not included. All the 3 instruments do not have the burden to others item. We think some items overlap with existing PBMs that are constructed in Western countries, but the 7 items are based on the East and Southeast Asian people's interview survey. The combination of items is also original. These differences between existing PBMs and the region-specific AP-7D may reflect cultural differences between Asian and Western countries. In contrast, referring to the heat map, the health concept may be a little different among East and Southeast Asian countries, although this survey does not have enough power to detect the difference. Of course, there are large cultural differences among these 9 countries. It is our future task to consider such a difference.

According to the results of our explanatory and confirmatory factorial analyses, the AP-7D contains 7 items, each of which consists of 3 components. We labeled the components as the physical, mental, and social health domains. These domains include 3 (physical), 2 (mental), and 2 (social) items, respectively. When we consider the face validity of the 7 items, this analysis supports the validity of the AP-7D, which ensures that the instrument has the potential to capture these health-related quality of life concerns.

A key strength of our study is the interview survey covering the major East and Southeast Asian countries. This has enabled us to capture the varied health concepts of Asian people. Our hypothesized conceptual framework was supported by our confirmatory factorial analysis. A major limitation is that our interview survey was not face-to-face owing to the outbreak of COVID-19. The COVID-19 pandemic and the differences in interview modes

Figure 2. Results of the confirmatory factorial analysis using data collected in Japan.



may also influence the interview results. Additionally, to analyze the results of the multicountry surveys, the interview scripts were translated into English, and the English text (not the local text) was analyzed. When the scripts were translated into different languages, subtle meanings or nuances may have changed. The translators were well trained, but no qualification was required. The development team members, who are fluent in English and local languages, provided quality assurance by carefully reviewing the translated versions. Finally, our target for the interview survey was people in the general population rather than patients or government or HTA agency decision makers. If patients or decision makers had been included in the survey, other concepts might have been elicited. Patients may experience a response shift compared with their previous states. In addition, regarding the representativeness of the samples, it is possible that the education level is higher. This is another limitation.

The next steps in the development process for the AP-7D measure comprise evaluating the psychometric properties (validity and reliability) by including the measure in a large, general population study to assess its scoring. The AP-7D measure is intended to be used in health economic evaluations to calculate QALYs and comprises a descriptive set that patients can use to describe various aspects of their health. These patient-reported values can then be converted into utility scores using a scoring algorithm. These algorithms may be country specific and based on surveys of the preferences of the general public for different combinations of health states. This would be the focus of our future research.

Conclusion

We designed the new region-specific instrument, AP-7D, which is one of the first PBMs developed in the context of non-Western countries. The scores measured using the AP-7D based on East and Southeast Asian people's concepts may reflect the truer preference of East and Southeast Asians. If the AP-7D can succeed in capturing such preferences, decision making by HTA, especially cost-effectiveness analysis, may be more acceptable by the general public. In contrast, decision makers can rely more on the information from PBM. For the response to the AP-7D to utilities, we need to perform a valuation survey in each country and region. More research is needed for practical use.

Supplemental Material

Supplementary data associated with this article can be found in the online version at https://doi.org/10.1016/j.vhri.2022.07.002.

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