Research Square

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Structuring the relationship between subjective well-being and psychological factors in Japan and the United States

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Abstract

Background

The purpose of this study was to clarify the structure of subjective well-being in post-COVID-19 and to provide baseline information for future studies. To this end, we clarified the structure of subjective well-being (SWB) based on psychological factors that affect SWB. The Japanese and English versions of the scale were developed, and the scale and the SWB were also used to determine the cultural characteristics of the Japanese and U.S. participants.

Methods and Results

In Study 1, we administered a questionnaire to 1721 participants in Japan (aged 20–79 years). A total of 107 psychological factors that were shown to influence SWB in previous studies were selected, and factor analysis was conducted on items that showed an association with SWB. The results revealed four relevant factors: 1) Accepting what is, 2) Grateful for connections, 3) *Ikigai*/Life fulfillment, and 4) Love for self. In Study 2, we developed Japanese and English versions of the four-factor well-being scale that was clarified in Study 1 and administered them to participants in Japan and the U.S. In Study 3, we identified comparative cultural trends in SWB and the four-factor well-being in Japan and the U.S. (Japan: n = 2628; U.S.: n = 2617).

Conclusions

This novel study is the first cohort study to capture the characteristics of contemporary SWB during the COVID-19 pandemic. Through this study, we provide a new perspective on the structural elements of SWB in people living today.

1 Introduction

The situation of our world is continuously evolving, as evidenced by the COVID-19 pandemic. These changes are providing opportunities for people to review their values and question their way of life. The pandemic has changed our traditional living and working environments, making it difficult to live the way we used to. It is important to determine what psychological factors constitute subjective well-being (SWB) represents to promote individuals' quality of life going forward.

1.1 Subjective well-being and psychological factors in different cultural backgrounds

SWB has long been referred to in Greek philosophy, such as by Aristotle and Plato, and in Eastern philosophy and religion, such as by Lao Tzu and Confucius. In ancient Greece, SWB was broadly divided into hedonia and eudaimonia. Hedonia comprises the pursuit of maximum pleasure and minimum pain, whereas eudaimonia is a way of life in which one pursues virtue and realizes one's own potential. Aristotle explored a truly happy way of life from the perspective of both eudaimonia and hedonia. In ancient Asia, as everything changes and is impermanent, people sought a way of life in which the mind is unmoved by all circumstances, where one cooperates with one's surroundings and lets nature take its course and finds fulfillment and gratitude in what is "now." Highlighting different cultural contexts, Oishi and Diener [1] noted that individuals in North America tend to emphasize the achievement of individual goals, whereas those in Japan tend to value relationships. In the Western cultural context, SWB is understood as a highly desirable positive emotion, and being individual-oriented, independent, and self-identified is associated with SWB, whereas personal SWB is predicted by personal goal achievement and self-esteem. In the East Asian cultural context, SWB is understood to be both positive and negative. It is changeable, inevitably involves impermanence, and is related to cooperation with self, others, and nature [2–4].

Psychological characteristics attributed to SWB tend to vary across cultures, and research on psychological factors attributed to SWB is being conducted worldwide: positive attitude toward the self, e.g., "self-acceptance" [5]; positive attitude toward one's own worth and abilities, e.g., "self-efficacy" [6]; how one perceives things, e.g., "optimism" [7]; relationships with others, e.g., "positive relationship with others" [5]; and a way of thinking about life, e.g., "meaning of life" [8]. The research focus has been on the Eastern perspective of SWB: the psychological characteristics of "mindfulness" [9]; a sense of "transcendence," and an awareness of the wholeness of life [10]; and "positive disengagement" [11], which is a positive sense of being nothing/less and free from all relationships. The psychological factors examined in this study are detailed in Section 2.1.2.

There are multiple psychological factors associated with SWB, and they tend to differ according to cultural values. Therefore, to grasp the whole picture of SWB, it is necessary to capture it structurally using multiple psychological factors and to compare these factors among participants from different cultural backgrounds.

1.2 The structure of well-being

To clarify the overall relationship between SWB and a group of related psychological factors, various SWB structuring studies have been conducted, and several models have been proposed. Ryff [5] proposed a six-factor model of psychological well-being, Seligman [12] proposed the five-factor PERMA model, and Maeno [13] proposed a four-factor structure of SWB. Each is described below.

Ryff [5] broadly categorized well-being into psychological well-being and SWB. Based on a review of previous research, Ryff defined psychological well-being as positive psychological functioning throughout life and identified six dimensions: "personal growth," "purpose in life," "autonomy," "environmental mastery," "self-acceptance," and "positive relationships with others." Seligman [12] showed that the PERMA model consisted of five basic areas that contribute to an individual's ability to "flourish," which is a sustained high state of SWB: "positive emotion," "engagement," "relationships," "meaning," and "achievement." The

PERMA model also explains that sustainable SWB is achieved by adding additional factors such as self-esteem and optimism to the five basic psychological factors. Maeno [13] selected 29 psychological factors related to SWB and categorized those psychological factors into four factors: “self-actualization and growth,” “connection and gratitude,” “forward-looking and optimism,” and “independence and self-pace.”

As in these studies, attempts have been made to structure the psychological factors that contribute to SWB in a similar way. However, the psychological factors extracted in analyzing these structural models were limited to those that were known at the time. Factors not included in these structural models continue to be identified, and few studies have considered the structuring of SWB in Eastern cultures, such as those of East Asia. Furthermore, the world is undergoing key social changes owing to the COVID-19 pandemic, and these major social changes affect people’s SWB. Consequently, there is room to reexamine the structure of SWB in the modern age using psychological factors based on different cultural contexts.

1.3 Study purpose

It is necessary to identify psychological factors that are correlated with SWB and to capture the latent structure using statistical analysis. We also believe that SWB needs to be monitored for changes over time and that an improved scale that can measure well-being is needed. Furthermore, comparative studies across different cultures are needed to clarify the cultural differences in SWB. In Study 1, we statistically clarified the structure of psychological factors affecting SWB. In Study 2, Japanese and English versions of the scale were developed through surveys in Japan and the U.S. In Study 3, the scale developed in Study 2 and SWB were used to capture the cultural characteristics of participants in Japan and the U.S. This study provides important baseline information for future follow-up studies in the post-COVID-19 world that wish to elucidate the concept of well-being.

2 Study 1

The purpose of Study 1 was to identify the structure of SWB and related psychological factors by examining previous research.

2.1 Method

2.1.1 Procedure and participants

We designed a questionnaire (detailed below) that included psychological factors associated with SWB and conducted a web-based survey from August 7–11, 2020. The survey was conducted by a random sampling of approximately 2.2 million active panel members of a research company (Rakuten Insight, Inc.). The survey was administered to 2000 individuals (aged 20–79 years) across six regions throughout Japan (Hokkaido/Tohoku, Kanto, Chubu, Kinki, Chugoku/Shikoku, and Kyushu/Okinawa). Valid responses were obtained from 1721 participants. Each age group was sampled evenly so that each group accounted for at least 15% of the total sample size (17.3% 20s, 17.1% 30s, 16.3% 40s, 15.9% 50s, 16.4% 60s, 16.9% 70s). The mean age was 49.1 ± 16.5 years. Women comprised 51.5% of the sample, whereas men comprised 48.5%. Conducting the survey online allowed us to adhere to various COVID-19-related restrictions and include participants from various regions, allowing us to equalize the impact of regional characteristics (20.3% Hokkaido/Tohoku, 20.2% Kanto, 18.8% Chubu, 20.6% Kinki, 10.2% Chugoku/Shikoku, 10.0% Kyushu/Okinawa).

2.1.2 Measures

The assessment of SWB comprised long-term cognitive and daily affective aspects. The Japanese version of the Satisfaction with Life Scale (SWLS) [14] was used to assess cognitive aspects. This five-item scale is scored using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The General Affect Scale [15] was used to assess daily emotional aspects, measuring the frequency of positive affect (PA), negative affect (NA), and calmness (CA). This 24-item scale (eight items each) was scored using a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*).

For psychological factors, items indicated in previous studies were selected. The factors were extracted through a literature review of PubMed, CiNii Articles, etc., of domestic and international psychological factors that were found to be related to well-being. The search years were set to 1985–2020. The reason for setting 1985 as the starting year was that this was the year when the SWLS [16] was published, and research on factors related to well-being has developed since then. From the 833 selected studies, 313 psychological factors were selected. After sorting out those with overlapping questions or definitions, and those with ethical biases such as discriminatory expressions, 137 psychological factors were extracted, and a draft questionnaire was prepared. Subsequently, three researchers with expertise in well-being research conducted the Delphi method review and finally agreed on 107 psychological factors to be used in the survey. Participants responded to these 107 factors using a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*). The mean score of each item was then used as the respective score. Reversed items in the questionnaire were inverted and calculated. Scales with sub-items were treated separately, with each sub-item considered a single item. For the Japanese version, we selected a scale that had been translated into Japanese. To offset the burden on respondents, we selected items from a shortened version or created our own. The following is a detailed description of the psychological factors used in this study (Table 1).

2.1.3 Data analysis

SWB-related items that had a Spearman correlation coefficient of 0.4 or higher ($p < .05$) with SWLS and a correlation of ± 0.2 or higher ($p < .05$) with at least one of the PA, NA, or CA items were selected and analyzed. SPSS.26 was used for data analysis.

Table 1
Correlation coefficients between subjective well-being and psychological factors

	M	SD	α	Correlation Coefficient				Measures
				SWLS	PA	NA	CA	
Subjective well-being								
Satisfaction with life	18.55	6.44	.91	1				Satisfaction with Life Scale [14]
Positive affect	4.03	1.23	.97	.62**	1			General Affect Scale [15]
Negative affect	3.19	1.16	.95	− .14**	− .18**	1		
Calmness	4.25	1.08	.95	.43**	.50**	− .18**	1	
Psychological factors								
Self-esteem	4.10	1.18	.70	.65**	.57**	− .16**	.46**	Two-item self-esteem scale [17]
Self-usefulness	3.97	0.99	.90	.53**	.54**	− .09**	.37**	Feeling of being necessary to someone scale [18]
Self-efficacy	3.92	0.88	.83	.52**	.55**	− .10**	.40**	Japanese translation of the general self-efficacy scale [19], and six items were selected. These six items corresponded to all items from the short form of the general self-efficacy scale [6]
Authenticity	4.10	0.90	.83	.54**	.56**	− .21**	.40**	Sense of authenticity scale [20]
Self-concept clarity	4.16	0.59	.73	− .001	− .004	− .35**	− .04	Japanese version of the self-concept clarity scale [21]
Sense of anxiety and unsettling (R)	4.14	1.02	.86	.27**	.21**	− .34**	.07**	Self-realization scale [22]
Self-realization	4.10	0.87	.85	.56**	.57**	− .10**	.43**	
Self-actualization	3.50	1.34	-	.63**	.47**	− .04	.30**	The four factors of well-being research [13] For self-actualization, only the one item (i.e., "I am the person I really want to be") was selected, excluding the two items that overlapped with the other items. Savoring was selected for two items (i.e., "I always try to enjoy the moment" and "I try to enjoy every given situation at all times"), excluding one that overlapped with the intent of the other items.
Hopes for the future	3.95	1.01	.77	.50**	.54**	− .08**	.34**	
Having no worries	3.81	0.93	.47	.30**	.30**	− .30**	.19**	
Switching feelings	3.94	1.03	.61	.39**	.44**	− .27**	.29**	
Goal clarity	4.04	0.88	.46	.52**	.47**	− .15**	.31**	
Making people happy	4.38	1.07	.77	.45**	.49**	− .09**	.39**	
Savoring	4.22	1.08	.66	.53**	.60**	− .14**	.43**	
External control	3.85	0.85	.69	.15**	.17**	.19**	.16**	Japanese version of the locus of control scale [23]
Internal control	4.28	0.97	.75	.42**	.43**	− .15**	.42**	
Self-acceptance	4.16	1.05	.86	.52**	.53**	− .19**	.42**	Original Japanese version of the brief psychological well-being scale [24]
Autonomy	4.25	0.96	.76	− .10**	− .10**	− .27**	− .11**	
Environmental mastery	4.25	1.00	.86	.50**	.54**	− .18**	.45**	
Personal growth	4.30	1.01	.88	.38**	.46**	− .13**	.35**	
Purpose in life	4.28	1.08	.81	.25**	.20**	− .30**	.04	
Positive relationship with others	4.17	0.93	.66	.52**	.53**	− .15**	.35**	
Acceptance of others	4.39	0.70	.40	.20**	.20**	− .22**	.23**	Acceptance of self and others scale, and the four items with the highest factor loadings were selected from a total of 13 items [25]
Forgiveness of others	3.81	0.84	.83	.32**	.29**	− .05*	.23**	Dispositional of forgiveness scale [26]
Negative forgiveness of self	4.07	0.86	.80	.30**	.28**	− .36**	.15**	

Note. Total N = 1721, (R) = Reverse scored, *$p < .05$, **$p < .01$, SWLS = Satisfaction with life scale, PA = Positive affect, NA = Negative affect, CA = Calmness.

	M	SD	α	Correlation Coefficient				Measures
				SWLS	PA	NA	CA	
Positive forgiveness of self	4.20	1.02	.87	.51**	.56**	− .17**	.44**	
Trust for others	4.16	0.96	.86	.53**	.53**	− .10**	.42**	Trust scale [27]
Trust for self	4.25	1.04	.86	.55**	.55**	− .19**	.47**	
Sense of acceptance	4.24	0.98	.91	.57**	.56**	− .16**	.45**	Sense-of-acceptance and sense-of-rejection measurement scales [28]
Sense of rejection (R)	4.61	0.96	.88	.17**	.16**	− .41**	.07**	
Meaning of past	4.46	1.12	.80	.51**	.51**	− .17**	.42**	*Ikigai* process scale [29]
Future goals	3.96	1.19	.84	.51**	.50**	− .07**	.33**	
Flow	4.20	1.14	.76	.53**	.59**	− .10**	.41**	
Dealing with negative situations	4.21	0.95	.78	.50**	.54**	− .15**	.45**	
Meaning of life	3.96	1.15	.84	.60**	.57**	− .11**	.41**	*Ikigai* state of being scale [29]
Sense of fulfillment	4.00	1.22	.89	.67**	.70**	− .18**	.46**	
Meaning of existence	4.08	1.11	.82	.62**	.59**	− .14**	.42**	
Active sense of *ikigai*	3.98	0.93	.72	.41**	.45**	− .004	.32**	*Ikigai* sense scale [29]
Passive sense of *ikigai*	3.91	1.02	.75	.57**	.53**	− .06**	.44**	
Optimism	4.02	0.62	.43	.46**	.40**	− .23**	.24**	Japanese version of the revised life orientation test [30]
Social comparison	3.78	0.70	.66	− .01	.04	.23**	− .04*	Japanese version of the social comparison orientation scale [31]
								(Table continues)

Table 1 (continued)

	M	SD	α	Correlation Coefficient				Measures
				SWLS	PA	NA	CA	
Temporal comparison	3.93	0.94	.77	.06**	.08**	.24**	.14**	Temporal comparison orientation scale short form [32]
Evaluation apprehension	3.97	1.16	.76	.02	.06*	.22**	.04	Revised scale for independent and interdependent construal of self [33]
Dependency on others	4.15	0.78	.64	.27**	.27**	.09**	.30**	
Dogmatism	4.15	1.01	.65	.30**	.33**	− .05*	.32**	
Individuality	3.94	1.08	.66	.42**	.50**	− .09**	.27**	
Cooperativeness	4.06	0.99	.72	.39**	.45**	− .03	.30**	Multifaceted cooperatives scale [34]
Harmoniousness	4.05	0.92	.80	.18**	.16**	.10**	.24**	
Other-oriented emotional reactivity	4.32	1.14	.77	.38**	.41**	− .07**	.35**	Multidimensional empathy scale [35]
Self-oriented emotional reactivity	4.05	0.98	.36	.04	.05*	.16**	.06**	
Emotional susceptibility	3.84	0.91	.14	− .01	− .04	.14**	− .06**	
Perspective thinking	4.23	0.80	− .06	.20**	.20**	− .17**	.19**	
Fantasy	4.08	0.89	− .17	.007	.05*	.04*	.04	
Eudaimonia	4.05	0.98	.80	.50**	.53**	− .07**	.35**	Japanese hedonic and eudaimonic motives for activities scale [36]
Pleasure	4.16	1.05	.81	.50**	.57**	− .08**	.39**	

Note. Total N = 1721, (R) = Reverse scored, *$p < .05$, **$p < .01$, SWLS = Satisfaction with life scale, PA = Positive affect, NA = Negative affect, CA = Calmness.

	M	SD	α	Correlation Coefficient				Measures
				SWLS	PA	NA	CA	
Relaxation	4.26	0.94	.78	.37**	.36**	− .06**	.44**	
Orientation to pleasure	4.21	0.95	.76	.39**	.46**	− .04*	.37**	Japanese version of the orientations to happiness scale [37]
Orientation to meaning	3.72	1.09	.77	.54**	.53**	.005	.33	
Orientation to engagement	4.03	0.88	.52	.38**	.44**	− .01	.31**	
Meaningfulness	4.09	0.78	.50	.45**	.46**	− .21**	.25**	Japanese version of the sense of coherence scale [38]
Comprehensibility	4.05	0.66	.43	.08**	.07**	− .33**	.01	
Manageability	4.02	0.90	.68	.02	− .01	− .24**	− .02	
Will to grow	4.42	0.93	.23	.21**	.24**	− .18**	.17**	Well-being circle scale [39]
Gratitude	4.26	0.99	.27	.36**	.34**	− .12**	.25**	
Creativity	4.18	1.02	.29	.28**	.33**	− .15**	.16**	
Vision	4.08	0.70	− .69	.12**	.10**	− .13**	.07**	
Challenge	3.99	0.96	.23	.26**	.37**	− .17**	.10**	Well-being circle scale [39]
Gratitude of being	4.36	1.18	.81	.62**	.58**	− .14**	.44**	Minimalist well-being scale [11]
Peaceful disengagement	4.28	0.89	.69	.26**	.23**	.02	.37**	
Resilience	3.99	0.82	.71	.43**	.44**	− .30**	.28**	Japanese version of the brief resilience scale [40]
Self-kindness	4.03	1.01	.69	.44**	.46**	− .05*	.37**	Japanese version of the self-compassion scale short form [41]
Self-judgement (R)	4.06	1.06	.64	.11**	.05*	− .23**	− .01	
Common humanity	3.97	0.96	.53	.37**	.43**	− .002	.32**	
Isolation (R)	4.06	1.01	.50	.06**	.003	− .26**	− .06**	
Mindfulness	4.03	0.97	.72	.39**	.44**	− .10**	.38**	
Over-identification (R)	4.03	1.15	.71	.12**	.11**	− .29**	.01	
Nonduality	3.98	0.91	.77	.38**	.40**	− .04*	.35**	Six-factor mindfulness scale [9]
Describing	3.87	1.11	.84	.43**	.46**	− .09**	.30**	
Acceptance and nonreactivity	3.95	0.77	.86	.48**	.49**	− .07**	.46**	
Objective observing	4.20	0.96	.77	.41**	.44**	− .11**	.42**	
Awareness	3.98	0.88	.86	.44**	.49**	− .01	.40**	
Being the moment	4.11	0.88	.84	.48**	.52**	− .14**	.43**	
Spiritual well-being	3.78	1.17	.59	.39**	.39**	.003	.34**	Japanese version of the valuation of life scale [42]
Feeling of awe regarding invisible existence	4.01	1.07	.88	.30**	.30**	.05*	.31**	Japanese youth spirituality rating scale [43]. Invisible beings refer to beings, powers, and worlds beyond human knowledge, such as Gods and supernatural spirits.
Self-transcendence	3.89	0.85	.91	.56**	.56**	.008	.42**	Tendency for self-transcendence scale [44]
Awareness of *arigatasa* and *okage*	4.38	1.06	.81	.41**	.40**	− .08**	.34**	Revised Japanese gerotranscendence scale [45] *Arigatasa* and *okage* are Japanese words that describe a way of being aware that one is kept alive by the value and help of others and being grateful for this.
Introversion	4.70	0.99	.60	− .02	− .01	− .10**	.15**	
Transcendence from dualism	3.65	0.99	.51	− .08**	− .06**	.35**	.02	

Note. Total N = 1721, (R) = Reverse scored, *$p < .05$, **$p < .01$, SWLS = Satisfaction with life scale, PA = Positive affect, NA = Negative affect, CA = Calmness.

	M	SD	α	Correlation Coefficient				Measures
				SWLS	PA	NA	CA	
Religious/Spiritual attitude	3.87	1.12	.78	.29**	.29**	.04	.25**	
Basic and innate affirmation	4.03	1.03	.76	.62**	.60**	− .12**	.44**	
Altruism	4.12	0.95	.70	.39**	.45**	− .06**	.37**	
Release from the social self	4.04	0.89	.63	− .06**	− .10**	− .21**	− .06**	
Let it go	3.95	0.96	.67	.42**	.47**	− .11**	.40**	
								(Table continues)

Table 1 (continued)

	M	SD	α	Correlation Coefficient				Measures
				SWLS	PA	NA	CA	
Love for self	4.10	0.79	.45	.48**	.40**	− .25**	.30**	Self-made with four items: I love and cherish myself; I love and value myself as I am, not pretending to ignore or cover up what I consider to be my weaknesses as well as my strengths; I sometimes feel hurt and empty because I put other people and other things before myself (R); and I feel I am not taking care of myself (R).
Love for others	4.06	0.99	.75	.45**	.47**	− .06**	.36**	Self-made with three items: I love and value others as they are, not pretending to ignore or cover up what I consider to be their weaknesses as well as their strengths; I watch over and support others; and I love and cherish others beyond the realm of family, friends, and acquaintances.
Curiosity	4.25	1.10	.74	.37**	.45**	− .09**	.31**	Self-made with two items: I am always curious and I tend to be interested in things that are unusual or unknown to me.
Courage	3.93	1.04	.64	.41**	.45**	− .09**	.32**	Self-made with two items: Even if I am criticized or accused, I can look at it with an upbeat attitude without losing my dignity; and I stand by my beliefs even when others feel fearful, anxious, hesitant, or embarrassed.
Perseverance	4.37	1.06	.60	.38**	.40**	− .15**	.35**	Self-made with two items: I always finish what I start and I do my part without blaming anyone else.
Honesty	4.11	1.07	.64	.37**	.41**	− .11**	.39**	Self-made with two items: I treat people and things with sincerity and I am unselfish and have no guilt.
Zest	4.23	0.94	.04	.31**	.40**	− .28**	.11**	Self-made with two items: I am a single-minded person when it comes to working on things and I am passive (R).
Kindness	4.38	1.12	.76	.36**	.43**	− .11**	.37**	Self-made with two items: I am the one who is compassionate and dedicated to others and I am kind.
Fairness	4.52	1.07	.58	.30**	.33**	− .10**	.37**	Self-made with two items: I treat people equally regardless of their social status and I do not like attitudes that do not respect the individuality that each one has.
Modesty	4.56	0.90	− .02	− .01	.03	− .09**	.18**	Self-made with two items: I am a greater person than others (R) and I am the modest one.
Prudence	4.38	1.08	.61	.31**	.32**	− .05*	.33**	Self-made with two items: I will be well prepared to deliver results well and I am a careful thinker.
Appreciation of beauty and excellence	4.11	1.04	.69	.44**	.49**	− .08**	.37**	Self-made with two items: I always find something or someone wonderful and beautiful and I discern the true beauty of things.
Humor	4.32	1.11	.64	.40**	.47**	− .09**	.29**	Self-made with two items: I relish the opportunity to make people laugh and be comforted and I have a good sense of humor.
Resignation/Release obsession	3.99	0.95	.64	.45**	.46**	− .08**	.42**	Self-made with three items: I am not attached to material possessions; I am comfortable with my sense of freedom, unencumbered by the ideas of those around me; and I stay out of situations that are uncomfortable for me and do not get attached to them.

Note. Total N = 1721, (R) = Reverse scored, *$p < .05$, **$p < .01$, SWLS = Satisfaction with life scale, PA = Positive affect, NA = Negative affect, CA = Calmness.

[Table 1 placement]

2.2 Result and discussion

To extract psychological factors for factor analysis, Pearson's product-rate correlation analysis of SWLS, PA, NA, CA, and 107 psychological factors was conducted (Table 1). Factor analysis (maximum likelihood method, Promax rotation) was conducted using 51 psychological factors that met the criteria described in the data analysis section for SWB. The results yielded four factors (Table 2). The determination of the factor number was based on the criterion that the eigenvalue was ≥ 1. The four factors accounted for 69.8% of the variance. Cronbach's α coefficients for factors 1–4 were .97, .97, .96, and .79, respectively.

The first factor was named "Accepting what is" because it is a way of leisurely accepting oneself and one's surroundings as they are, which coincides with Buddhism and Confucianism. It refers to perceiving things without criticizing them. The fact that "courage" and "self-efficacy" were categorized within the same factor indicates that "acceptance of things as they are" is a mentally active way of believing in courage and one's own abilities. "Self-acceptance" by Ryff [5] and "self-acceptance and optimism" by Maeno [13] are limited to the self; however, this factor is unique to this study because it is a broader acceptance that includes the self.

The second factor was named "Grateful for connections" because it is a way of being grateful for and cherishing connections with various things. This attitude toward relationships is generally consistent with "positive relationship with others" by Ryff [5], "relationships" by Seligman [12], and "connection and gratitude" by Maeno [13].

The third factor was named "*Ikigai*/life fulfillment." *Ikigai* is a Japanese word that describes a way of life in which one finds joy and value in one's own life and daily routine. We consider that the third factor, like *ikigai*, comes from affirming one's own life, realizing the value of life, and embracing one's existence. This factor corresponds to "purpose in life" by Ryff [5]; "engagement," "meaning," and "achievement" by Seligman [12]; and "self-actualization and growth" by Maeno [13]. However, we believe that the unique perspective of this study is not only a way of life in which people challenge and achieve as many goals as possible but also a way of finding joy in their daily lives.

The fourth factor was named "Love for self" because it is a way of loving oneself, forgiving oneself, recovering, and believing in one's own potential. It is not clarified in other well-being structures, and we believe it is original to this study. Good and painful things can happen in life, but in a situation where one does not believe in one's own potential and feels one's existence is based on the evaluation of others, self-evaluation changes relatively, and it is easy to lose sight of oneself because one cannot recognize oneself. Therefore, we believe "love for self" contributes to sustained well-being.

As described above, this study showed that various psychological factors influence SWB and that they are broadly classified into four categories. However, this study has some limitations. Owing to the simplified scales (considering the burden on respondents), some items had low Cronbach's α coefficients. As a baseline survey for future follow-up studies, we included these items to capture SWB in detail. Although, we believe that there is still room for further analysis using psychological items with high reliability and excluding items with low factor loadings to examine the factor structure. In addition, this study was conducted in August 2020; therefore, COVID-19-related measures (e.g., social distancing, work-from-home mandates, etc.) may have influenced the results. Longitudinal studies should be conducted to determine changes over time and to identify causal factors.

Table 2
Factor loadings for all items related to subjective well-being

		F1	F2	F3	F4
Factor 1	Acceptance and nonreactivity	.79			
Accepting what is	Objective observing	.77			
	Courage	.75			
	Self-efficacy	.74			
	Being the moment	.68			
	Resignation/Release obsession	.67			
	Individuality	.65			
	Awareness	.64			
	Describing	.61			
	Authenticity	.60			
	Let it go	.59			
	Dealing with negative situations	.57			
	Self-realization	.56			
	Internal control	.55			
	Self-acceptance	.52			
	Eudaimonia	.48			
	Self-kindness	.41			
	Savoring	.36			
Factor 2	Awareness of *arigatasa* and *okage*		1.05		
Grateful for connections	Making people happy		.88		
	Sense of acceptance		.84		
	Trust for others		.80		
	Positive relationship with others		.78		
	Humor		.73		
	Meaning of past		.71		
	Love for others		.61		
	Gratitude of being		.59		
	Environmental mastery		.50		
	Trust for self		.46		
	Positive forgiveness of self		.46		
	Appreciation of beauty and excellence		.41		
	Self-usefulness		.41		
	Meaning of existence		.37		
	Pleasure		.34		
Factor 3	Orientation to meaning			.89	
Ikigai/Life fulfillment	Future goals			.70	
	Meaningfulness			.69	
	Self-actualization			.64	
	Meaning of life			.64	
	Self-transcendence			.62	

Note. Total N=1721.

		F1	F2	F3	F4
	Goal clarity			.51	
	Passive sense of *ikigai*			.46	
	Sense of fulfillment			.45	
	Hopes for the future			.44	
	Active sense of *ikigai*			.41	
	Basic and innate affirmation			.41	
	Flow			.41	
Factor 4 Love for self	Love for self				.84
	Resilience				.79
	Optimism				.70
	Self-esteem				.33
Cronbach's α		.97	.97	.96	.79
Correlation coefficient	F2	.79	1		
	F3	.73	.75	1	
	F4	.64	.66	.66	1
Note. Total N=1721.					

3 Study 2

We created a four-factor well-being scale in both Japanese and English and examined its factor structure and internal consistency in Japan and the U.S. The Japanese version of the survey was conducted in Japanese, whereas the U.S. survey was conducted in English. First, as preliminary research, we created Japanese and English versions of the four-factor well-being scale proposed in Study 1. Second, we confirmed trends in the association between SWB and correlation patterns between the two groups in Japan and the U.S. Third, data from the main and preliminary surveys of participants in Japan and the U.S. were used to verify whether they showed sufficient internal consistency and followed the predicted four-factor structure.

3.1 Preliminary research

3.1.1 Method

With regard to *procedure and participants*, we conducted a web-based survey through Cross Marketing Inc. from September 24–29, 2021. Participants (aged 20–79 years) were recruited from six regions of Japan (Hokkaido/Tohoku, Kanto, Chubu, Kansai, Chugoku/Shikoku, and Kyushu/Okinawa) and four regions of the U.S. (Northeast, Midwest, West, and South), with each region and age range, equally assigned. Surveys were administered to 600 participants: 300 in Japan and 300 in the U.S. Valid responses were received from 481 individuals (246 in Japan and 235 in the U.S.). In Japan, the mean age was 51.6 ± 16.8 years (13.4% 20s, 16.7% 30s, 15.4% 40s, 14.6% 50s, 16.7% 60s, 23.2% 70s; 45.9% men, 54.1% women; 16.7% Hokkaido/Tohoku, 16.3% Kanto, 16.7% Chubu, 17.9% Kinki, 16.7% Chugoku/Shikoku, 15.4% Kyushu/Okinawa). In the U.S., the mean age was 49.9 ± 17.1 years (15.3% 20s, 16.6% 30s, 15.7% 40s, 17.4% 50s, 16.6% 60s, 18.3% 70s; 48.5% men, 51.1% women, 0.4% other; 23.0% Northeast, 23.4% Midwest, 26.4% West, 27.2% South).

With regard to *measures*, the proposed scale was designed based on the results of Study 1, with original item sentences indicating the concept of factors, and comprised three to four items for each factor (N = 13 items). The draft scale was first prepared in Japanese and then translated into English. An American translator and a Japanese translator simultaneously interpreted the questionnaire items, and three Japanese researchers checked and supplemented the items. Finally, the translated and original text was checked using an automatic machine translation tool (DeepL). The assessment of SWB comprised long-term cognitive and daily affective aspects. The cognitive aspect was assessed using the SWLS (Diener et al., 1985) for the U.S. sample. The Japanese translation of the SWLS was used for the Japanese survey [14]. Responses to all five items were obtained using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*), and the total score was used to evaluate the results. Internal consistency was α = .87 in Japan and α = .88 in the U.S. To evaluate daily affective aspects, we used the Positive and Negative Affect Schedule (PANAS) [17] for the U.S. sample and the Japanese translation of the PANAS for the Japanese sample [46]. PA and NA were scored using a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*) for each of the 10 items, and the mean of each was used as the score. The internal consistency of PA was α = .90 in Japan and α = .92 in the U.S. The internal consistency of NA was α = .93 in Japan and α = .93 in the U.S.

For *data analysis*, Spearman correlation coefficients were obtained for the 13-item scale and for SWLS, PA, and NA. SPSS.27 was used for data analysis.

3.1.2 Results

Regarding whether SWB was related to the sub-items of the new scale, all items were significantly positively correlated with SWLS and PA and 12 items were significantly negatively correlated with NA ($p < .05$). However, under the second factor (Grateful for connections), "I want to see people's happy faces" did not

show a significant positive correlation of more than 0.4 with SWLS in the Japan and U.S. samples, and it was not significantly correlated with NA in the U.S. The second-factor item, "I am grateful with people," also did not show a significant positive correlation of more than 0.4 with SWLS in the U.S. sample. In the third factor (*Ikigai*/Life fulfillment), "I have goals and plans for my life" did not show a significant positive correlation of more than 0.4 with SWLS in the Japan and U.S. samples. Although correlations for some items tended to be low, others showed some degree of correlation; therefore, no changes were made to the scale items.

3.2 Main research

3.2.1 Method

With regard to *procedure and participants*, the questionnaire survey that was used in the preliminary research was conducted on the web through Cross Marketing Inc. from November 4–18, 2021. Participants (aged 20–79 years) were recruited from six regions of Japan (Hokkaido/Tohoku, Kanto, Chubu, Kansai, Chugoku/Shikoku, and Kyushu/Okinawa) and four regions of the U.S. (Northeast, Midwest, West, and South), with each region and each age range, equally assigned. The survey was administered to 6000 individuals (3000 in Japan and 3000 in the U.S.), and valid responses were obtained from 5245 participants (2628 in Japan and 2617 in the U.S.). In Japan, the mean age was 49.7 ± 16.9 years (17.6% 20s, 15.7% 30s, 15.9% 40s, 15.7% 50s, 16.2% 60s, 18.9% 70s; 48.5% men, 51.0% women, 0.5% other; 16.2% Hokkaido/Tohoku, 16.4% Kanto, 17.0% Chubu, 17.0% Kinki, 16.8% Chugoku/Shikoku, 16.6% Kyushu/Okinawa). In the U.S., the mean age was 50.1 ± 17.3 (16.6% 20s, 15.7% 30s, 15.6% 40s, 16% 50s, 18.0% 60s, 18.1% 70s; 49.9% men, 49.8% women, 0.2% other; 24.7% Northeast, 25.6% Midwest, 25.3% West, 24.3% South).

With regard to *measures*, based on the preliminary results, we a proposed four-factor scale. Each subscale comprised three to four items (N = 13 items), and responses were obtained using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*), with the mean of each used as the score.

For *data analysis*, a confirmatory factor analysis (CFA) of the four-factor scale was conducted using data for the entire population and the U.S. and Japanese samples. Items that showed the Spearman correlation coefficient of 0.4 or higher ($p < .05$) with SWLS and a correlation of ± 0.2 or higher ($p < .05$) with at least one of the PA or NA or items that maintained a certain level of commonality with the factor loadings were selected (main factor method, Promax rotation). Subsequently, a CFA was conducted on the Japanese and English versions of the data to determine if they showed similar factor structures. As a reexamination of the scale's internal reliability, each factor structure of the Japanese and English versions of the scale was confirmed using data from the preliminary survey. SPSS.27 was used for data analysis.

3.2.2 Results and discussion

Using the overall data, a CFA of the four-factor 13-item scale showed the following goodness-of-fit: $\chi^2(59) = 1097.76$, CFI = .97, GFI = .97, AGFI = .95, RMSEA = .058. However, two items had weak correlations with SWB in the preliminary research results (Grateful for connections: "I want to see people's happy faces" and "I am grateful with people"), one item had commonality less than 0.4 (Accepting what is: "I never lose sight of myself"), and two items had factor loadings less than 0.4 and equal factor loadings in multiple factors (*Ikigai*/Life fulfillment: "I have goals and plans for my life", and Love for self: "More often than not, I find that more good things happen to me than bad"). Thus, these five items were excluded, and a CFA was conducted again with eight items and four factors (Table 3). The goodness-of-fit of the model was $\chi^2(14) = 170.24$, CFI = .99, GFI = .99, AGFI = .98, RMSEA = .046. Next, a CFA with eight items and a four-factor structure was conducted for each participant (2628 in Japan and 2617 in the U.S.). The goodness-of-fit of the model in Japan was $\chi^2(14) = 97.21$, CFI = .99, GFI = .99, AGFI = .98, RMSEA = .048. The goodness-of-fit of the model in the U.S. was $\chi^2(14) = 105.88$, CFI = .99, GFI = .99, AGFI = .97, RMSEA = .05. Based on the results of the above CFA, Cronbach's α coefficients were calculated for each of the four factors and eight scale items, with the mean, standard deviation, and internal consistency index for each subscale calculated for the overall population and separately for the Japan and U.S. samples. In the study population, Cronbach's αs of the four factors (Accepting what is, Grateful for connections, *Ikigai*/Life fulfillment, and Love for self) were .70, .65, .70, and .79, respectively; in the Japan sample, they were .67, .63, .61, and .77, respectively; and in the U.S. sample, they were .68, .56, .68, and .77, respectively.

A CFA was conducted again to reexamine the internal reliability of the scale. The goodness-of-fit of the model for the study population was $\chi^2(14) = 56.8$, CFI = .98, GFI = .97, AGFI = .93, RMSEA = .08. The goodness-of-fit of the model for the Japan sample was $\chi^2(14) = 47.11$, CFI = .96, GFI = .96, AGFI = .89, RMSEA = .09. The goodness-of-fit of the model for the U.S. sample was $\chi^2(14) = 37.13$, CFI = .97, GFI = .96, AGFI = .90, RMSEA = .08. The Cronbach's αs for the four factors were .77, .67, .75, and .77, respectively, for the study population; .79, .70, .68, and .75, respectively, for the Japan sample; and .73, .58, .72, and .76, respectively, for the U.S. sample.

These results indicate that the eight-item, the four-factor structure of both the Japanese and English versions of the scale tended to fit the model better both in the preliminary survey data and in the main survey data. Contrastingly, it cannot be determined that RMSEA scores were statistically significant in the preliminary survey results. The results included Cronbach's α coefficients for each subscale that was lower than the general standard: *Ikigai*/life fulfillment in the Japanese version, and Grateful for connections in the English version. Although the number of items in the overall scale was limited in this study to reduce the burden on respondents and for future research and utility, the number of items was even smaller than in the research design phase because items with low correlations with SWB and items with low commonality and factor loadings were excluded. Despite the broad and complex nature of the four-factor subscale, the item structure was designed so that a small number of items encompassed the entire concept, which may have contributed to the low internal consistency. For example, Grateful for connections has items based on the idea of feeling connected to other people and things and feeling a mutual connection and gratitude toward them. It is necessary to reexamine whether the items are based on the perception of interrelationships and/or one's mental state. Another possible reason for the low internal consistency is the fact that the responses tended to be inconsistent, even for the same item on the same factor. This may be because of cultural differences in participants' experiences. Consequently, in future studies, it is necessary to examine test-retest reliability by conducting surveys with the same respondents at different times of the year and reexamining the four-factor structure and creating a revised version of the survey.

Table 3
Factor loadings and items of four-factor well-being scale

Items	Main Survey												Preliminary Survey							
	Total (N = 5245)				Japan (n = 2628)				U.S. (n = 2617)				Total (N = 481)				Japan (n = 246)			
	FL	α	*M*	*SD*	FL	α	*M*	*SD*	FL	α	*M*	*SD*	FL	α	*M*	*SD*	FL	α	*M*	*SD*
Accepting what is																				
I accept my thoughts, whether positive or negative, without being self-judgmental.	.66	.70	4.56	1.19	.65	.67	4.24	0.95	.77	.68	4.88	1.31	.97	.77	4.61	1.26	.95	.79	4.30	1.11
I accept my experiences as they are, without being judgmental.	.60				.65				.40				.53				.39			
Grateful for connections																				
When I see people being happy and joyful, I am delighted as if these emotions are mine.	.69	.65	4.86	1.18	.68	.63	4.38	1.02	.69	.56	5.33	1.14	.66	.67	4.68	1.27	.52	.70	4.29	1.14
I am grateful for all the things in the world.	.63				.67				.51				.75				.97			
Ikigai/**Life fulfillment**																				
What I do brings me joy and fulfillment.	.65	.70	4.24	1.31	.54	.61	3.75	1.07	.74	.68	4.74	1.34	.39	.75	4.19	1.36	.88	.68	3.67	1.15
The person I am now is the person that I truly wanted to be.	.64				.64				.60				.97				.53			
Love for self																				

Note. FL = Factor loading.

Items	Main Survey												Preliminary Survey							
	Total (N = 5245)				Japan (n = 2628)				U.S. (n = 2617)				Total (N = 481)				Japan (n = 246)			
	FL	α	*M*	*SD*	FL	α	*M*	*SD*	FL	α	*M*	*SD*	FL	α	*M*	*SD*	FL	α	*M*	*SD*
I love and cherish myself.	.69	.79	4.65	1.3	.73	.77	4.29	1.12	.72	.77	5.02	1.37	.77	.77	4.51	1.30	.38	.75	4.22	1.17
I forgive and love myself even if I feel the urge to blame myself or find things that do not go as planned.	.76				.73				.75				.25				.95			

Note. FL = Factor loading.

[Table 3 placement]

4 Study 3

The purpose of this study was to examine cultural trends in Japan and the U.S. on the four-factor well-being scale. Japan tends to value relationships, whereas the U.S. tends to emphasize the achievement of individual goals [1]. Japan tends to have a smaller depth and frequency of self-disclosure than the U.S. [47]. For example, participants in the U.S. tend to provide answers on a distinct side of the spectrum (“agree” or “disagree”), whereas participants in Japan tend to select more moderate options (“neither agree nor disagree”). This trend makes a mere comparison of averages difficult. Furthermore, SWB has also been noted to differ by age and gender [48]. Therefore, we first examined the similarity of item structure in consideration of cultural differences. Then, we examined trends in the impact of the four factors on SWB in Japan and the U.S. using correlation and regression analyses to allow comparison after correcting for the effects of self-disclosure, gender, and age.

4.1 Method

Study 3 was conducted using data from the main survey in Study 2. The respondents and demographics are the same as in the main survey (detailed in 3.2. Main research).

4.1.1 Measures

The scale developed in Study 2 was used. Each subscale comprised two items, for a total of eight items, and responses were obtained using a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*), with the mean of each item used as the score. SWB was assessed using the five-item World Health Organization Well-Being Index (WHO-5) in addition to the SWLS, PA, and NA. We used SWLS [16] for the U.S. and the Japanese translation of SWLS [14] for Japan. Responses to the five items were obtained using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*), and the total score was used to evaluate the results. Internal consistency was α = .85 in Japan and α = .87 in the U.S. We used the PANAS [49] for the U.S. and the Japanese translation of the PANAS [46] for Japan. PA and NA were scored using a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*), and the mean of each was used as the score. The internal consistency of PA was α = .90 in Japan and α = .92 in the U.S. The internal consistency of NA was α = .93 in Japan and α = .94 in the U.S. The WHO-5 was added to the SWB assessment because of the mental impact of lifestyle changes owing to the pandemic and the impact of mental health on SWB. We used an English version of the WHO-5 for the U.S. [50] and a Japanese translation for the Japan [51]. Respondents were asked five questions about their mental health status in the past two weeks, and their responses were provided on a six-point Likert scale (0 = *not at all*, 5 = *always*), with the total score being the score. Internal consistency was α = .89 in the Japan and α = .90 in the U.S.

4.1.2 Data analysis

To ascertain cross-cultural characteristics between Japan and the U.S., Tucker’s agreement coefficients for Japan and the U.S. were obtained to confirm factorial similarities between the two countries. Correlations between subscale scores of the four-factor well-being scale and SWB were also determined. Next, regression analyses were conducted for SWB in each country after controlling for gender, age, and each subscale score of the four-factor well-being scale. Gender and age were entered as adjustment variables. As dependent variables, the sum of SWLS, PA, NA, and WHO-5 scores was subjected to principal component analysis to produce a single aggregate score for SWB. These analyses independently predicted SWB for both countries. SPSS.27 was used for data analysis.

4.2 Results and discussion

The Tucker agreement coefficients for Japan and the U.S. were $\varphi = .95$, .99, .98, and 1.0 for the four-factor well-being scale (Accepting what is, Grateful for connections, *Ikigai*/Life fulfillment, and Love for self), respectively. For SWLS, $\varphi = 1.0$; for PA, $\varphi = .98$; for NA, $\varphi = 1.0$; and for WHO-5, $\varphi = 1.0$. These results indicate that factorial similarities between the two countries were very high. In both countries, the scale items were significantly positively correlated with

SWLS, PA, and WHO-5 and significantly negatively correlated with NA (Table 4). We think that these consistent bilateral correlations indicate the validity of the U.S.–Japan four-factor construct.

Next, we discuss the relationship between the four-factor subscale and SWB. Focusing on the characteristics of each of the four subscale items in both countries, the associations between the four factors and SWLS, PA, and WHO-5 showed similar trends in both Japan and the U.S. However, the correlation between *Ikigai*/Fulfillment and NA showed differences between the two countries, with Japan showing a weak correlation and the U.S. showing a moderate to high correlation. This suggests a difference in SWB tendencies between the U.S. and Japan, as a state of not realizing the *Ikigai*/Fulfillment tends to increase NA in the U.S. but does not necessarily in Japan.

Table 4
Correlation coefficient between four-factor well-being scale and subjective well-being

Items	Japan (n = 2628)				U.S. (n = 2617)			
	AWI	GFC	I/LF	LFS	AWI	GFC	I/LF	LFS
Accepting what is	1				1			
Grateful for connections	.47**	1			.44**	1		
Ikigai/Life fulfillment	.50**	.44**	1		.45**	.46**	1	
Love for self	.58**	.46**	.58**	1	.63**	.45**	.60**	1
Satisfaction with life scale	.54**	.46**	.78**	.62**	.56**	.46**	.75**	.56**
Positive affect	.38**	.35**	.50**	.39**	.50**	.43**	.59**	.50**
Negative affect	− .26**	− .15**	− .20**	− .28**	− .38**	− .22**	− .43**	− .33**
WHO-5	.46**	.40**	.53**	.54**	.52**	.39**	.64**	.53**

Note. *$p < .05$, **$p < .01$, New measures: AWI = Accepting what is, GFC = Grateful for connections, I/LF = *Ikigai*/Life fulfillment, LFS = Love for self.

We also regressed SWB against gender, age, and the four subscales in each country (Japan: Accepting what is, $\beta = .15$, $p < .001$; Grateful for connections, $\beta = .10$, $p < .001$; *Ikigai*/Life fulfillment, $\beta = .45$, $p < .001$; Love for self, $\beta = .24$, $p < .001$; U.S.: Accepting what is, $\beta = .14$, $p < .001$; Grateful for connections, $\beta = .09$, $p < .001$; *Ikigai*/Life fulfillment, $\beta = .51$, $p < .001$; Love for self, $\beta = .15$, $p < .001$; Fig. 1). The total variance explained was $R^2 = .61$ in Japan and $R^2 = .62$ in the U.S. All four factors showed significant positive effect sizes for SWB. The item with the highest effect size was *Ikigai*/Life fulfillment in both Japan and the U.S. Given that prior studies have shown that personal achievement in the U.S. is an important factor in SWB and that this study also revealed a strong correlation with SWB, we think that it is likely that the perception of what one can accomplish in life is strongly related to SWB in the U.S. In Japan, “Love for self” had the next highest effect size. While Japan tended to value relationships, as indicated in previous studies, it also tended to put the aspect of valuing oneself on the back burner. Today, however, Japan has become socially aware of the importance of valuing the self as much as others. We think that the Japanese “Love for self” we revealed in this study highlights the characteristics of contemporary Japan. In summary, this study showed that the four-factor well-being scale can be utilized in Japan and the U.S. and that there are trends in contemporary well-being values in Japan and the U.S.

5 Conclusion

In this study, we structured the relationship between SWB and the psychological factors of two different cultural backgrounds, created Japanese and English versions of a scale that considers this structure, and ascertained the characteristics of SWB in Japan and the U.S. Through these studies, we believe we structured an overall picture of SWB that includes several cultural values with respect to psychological factors.

A limitation of this study is that we utilized a cross-sectional design during the COVID-19 pandemic; thus, causality cannot be inferred. Future work is needed to clarify the overall picture of SWB, including other factors. SWB is influenced by physical conditions, social conditions, and cultural values. SWB cannot be easily discussed using binary terms (e.g., high or low scores). We believe that SWB is not about judging “good or bad” in comparison with others but rather about confronting oneself. Therefore, we believe it is necessary to continue research on structuring SWB, including physical and social factors; to continue surveying participants from various cultural backgrounds; and to promote research on structuring the whole picture of SWB from multiple perspectives, such as referring to spiritual maturity.

Above all, this study provides baseline data for understanding how the SWB of people today may be changing in the face of the COVID-19 pandemic. People’s values change over time. In this context, only the truth exists with universality. To find this universality and promote enhanced SWB worldwide, we intend to apply the results of this study to future surveys and continue our research.

Declarations

Ethical considerations & Consent to participant: This study was approved by the Ethical Review Committee of the Graduate School of System Design and Management, Keio University (Ethics approval number: SDM-2020-E016, SDM-2021-E018). All methods were carried out conforming to the ethical standards of the declaration of Helsinki. The participants received written information and provided written informed consent before participating in the study.

Consent for publication: Not applicable.

Availability of data: The data set used in this study was collected only for this study. Permission to use this data was granted by the respondents for academic research purposes only. The data does not contain any personally identifiable information and is stored on a computer that is not connected to the Internet and kept under lock and key. The data that support the findings of this study are available from the corresponding author, Kitashima C, upon reasonable request.

Competing interests: The authors declare that they have no competing interests.

Author contributions: Kitashima C contributed to the study conception and design. Material preparation and data collection were performed by Kitashima C and Kunitomo T. Analysis was performed by Kitashima C. The first draft of the manuscript was written by Kitashima C and all authors commented on

previous versions of the manuscript. All authors read and approved the final manuscript.

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Founding: Not applicable.

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Figures

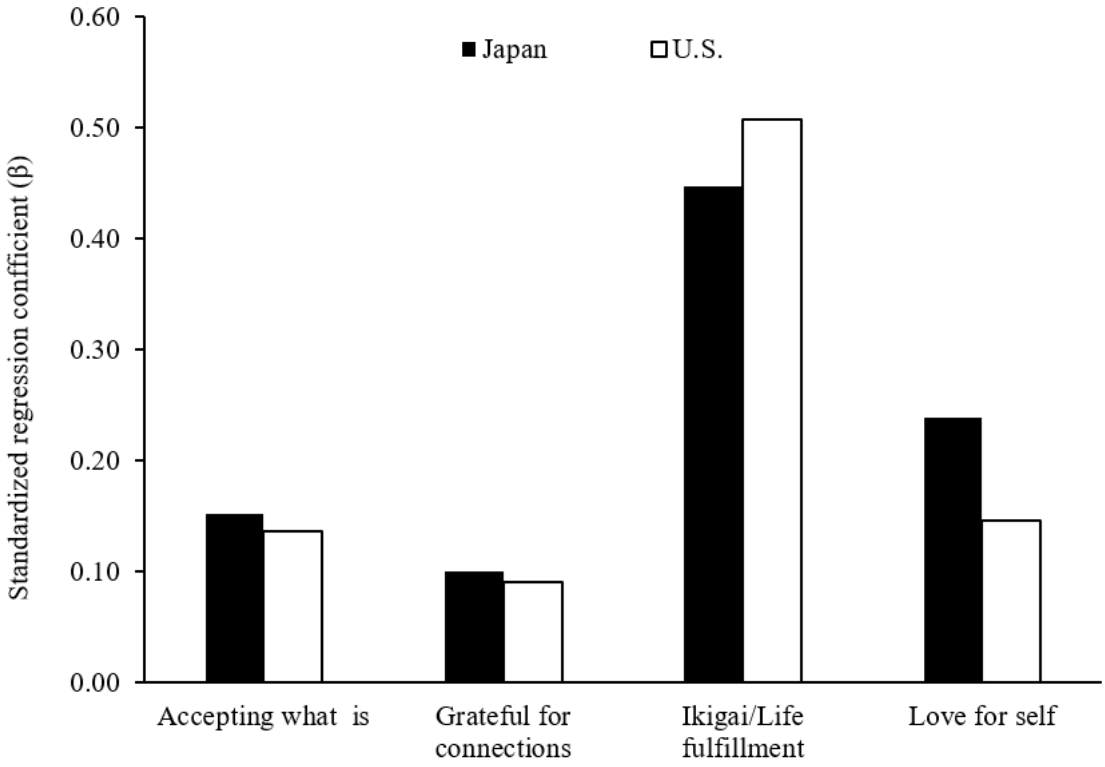


Figure 1

Study 3: Standardized regression coefficient (*β*) of the four-factor model predicting subjective well-being in Japan and the United States