

**Original****Work Engagement Scale: Validating the Japanese UWES-9 Standard in a Nurse Sample**Katsunori Adachi<sup>1)</sup> and Ryoichi Inaba<sup>2)</sup><sup>1)</sup>Shubun University Shubun University, Department of Nursing, Psychiatric Nursing Field<sup>2)</sup>Gifu University Graduate School of Medicine, Department of Occupational Health

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**Abstract**

**Purpose:** The Utrecht Work Engagement Scale (UWES) is a widely used psychometric assessment scale that measures work engagement in relative terms. UWES-9 is the abridged version of the UWES, retaining only the most distinctive items. Developing standard values to allow absolute evaluation would make it more useful. Adachi et al., proposed to create cutoff values for the total points of UWES-9 at approximately 21 points. However, the scope of the survey is limited.

**Subject:** This study examines the criteria for the absolute evaluation of the Japanese version of UWES-9 in a population different from those that had been examined previously study and creates a database to evaluate work engagement.

**Methods:** To examine the evaluation criteria for the total points UWES-9 points among 327 nursing workers, responses were validated via a one-way analysis of variance and receiver-operating characteristics analysis, using the scale for level of job satisfaction in the Brief Job Stress Questionnaire, which exhibits similar work engagement concepts.

**Results:** The value for the cutoff between high work engagement and low work engagement was set at 22.

**Conclusions:** The standard for high work engagement was identified at a score of around 22 points, and the results of previous study were supported.

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**—Key words—**

Utrecht Work Engagement Scale, level of job satisfaction, evaluation criterion

**1. Introduction**

Work engagement is the characteristic of having pride in your work, devoting significant energy to it, and feeling refreshed or obtaining energy from it; it is not a negative emotion. Because it enables a person to focus on their strengths and draw them out, it can support the health of the mind and body and vitalize the organization. Work engagement indicates workers' mental health as assessed in terms of vigor, dedication, and absorption<sup>1)–3)</sup>. Positive emotions help reduce stress and can predict good mental health and physical well-being. When the range of thoughts and actions is expanded, the performance of duties can be more independent, thereby making it possible to predict organizational behavior and job performance<sup>4)–7)</sup>.

The Utrecht Work Engagement Scale (UWES)<sup>8)</sup>, developed by Schaufeli et al., is the most widely used instrument in the world for measuring work engagement. UWES-9 is the short version of the UWES and retains only the most distinctive items. Shimazu developed the Japanese version and confirmed its reliability and validity as satisfactory<sup>8)</sup>. The UWES grasps work engagement using relative evaluation, which is based on the average values provided by the survey group<sup>9)</sup>. Currently, no standard absolute exists for this scale. In recent years, the UWES-9 has been used to test absolute evaluation criteria, and using 21 points as the threshold for high work engagement, with values less than 21 points indicating low work engagement, has been proposed<sup>10)</sup>.

However, so far, verification work in Japan has been done in the automobile industry, so it is necessary to carry out data sampling in other industries. In the verification conducted in previous studies, the comparison with job satisfaction, investigated using a scale similar to that of work engagement included in Brief Job Stress Questionnaire (BJSQ)<sup>11)</sup>, is used as the method of analysis. Job satisfaction is defined as “the workers exhibiting, and imbibing, a happy or positive feeling that results from evaluating one’s own work”<sup>12)</sup>. This scale recognizes a positive attitude toward and awareness of work. From previous studies, it can be inferred that job satisfaction is similar to work engagement because it shows positive feelings for work, and it is a valid scale for comparison when verifying the absolute evaluation of the UWES-9<sup>10,13)</sup>. Many reports have identified a correlation between the level of job satisfaction included in the BJSQ and work engagement<sup>8,13)–19)</sup>. The BJSQ evaluates job satisfaction on a 4-point scale. The reliability and validity of this scale have been confirmed<sup>11,20)</sup>. Similar in concept and composition to work engagement, comparisons using the level of job satisfaction scale included in the BJSQ identify criteria for the absolute evaluation of the UWES-9. The merit of absolute evaluation is its ability to offer an objective evaluation to personnel, regardless of their status in the organization. If absolute evaluation criteria are established, the usefulness of the UWES will increase. The method of analysis used in previous studies for the automobile industry makes it easy to reproduce it in other industries, and it will be important to expand the scope of the survey and accumulate data in the future.

The criteria used to evaluate the job satisfaction scale in the UWES-9 were examined. Furthermore, a database to enable the effective evaluation of work engagement was created. The Japanese version of the BJSQ was administered to nurses at a single hospital, and their responses regarding job satisfaction were compared. Because only nurses were observed, the results were unaffected by other occupational factors. This pilot study will ultimately contribute to the development of mental health measures targeted at nurses and methods of work evaluation for the work engagement of Japanese workers.

## 2. Materials and Methods

### 2.1. Survey Methods

A total of 395 nurses at a private Japanese general hospital were observed. Valid responses were obtained from 327 employees (24 men [7.3%] and 303 women [92.7%]). Informed consent was obtained from all participants, which allowed their responses to be analyzed and published in aggregate. The survey was administered in the form of a paper questionnaire and conducted from August 1 to August 31, 2018. All participants provided their gender, age, job position, and years of work experience. The survey used the Japanese versions of the BJSQ and UWES-9. The BJSQ includes 57 items on a 4-point scale with 4 factors, namely, the main factors of stress (9 scales/17 items); stress response (6 scales/29 items); main factors of relief (3 scales/9 items); and level of satisfaction (2 scales/2 items), that is, 20 scales in all<sup>20)</sup>. The value for job satisfaction is accounted for in the value for satisfaction. Because this is a pilot study, it is necessary to identify the state of occupational stress in the group being studied and collate it with the average value among Japanese workers. Therefore, all 57 items included in the BJSQ were used in our survey. Following the Manual for Carrying Out Stress Checks<sup>11)</sup>, an ordinal scale with 4 points is used to identify employees with high stress, where 4 indicates high stress and 1 indicates low stress for each question item. The higher the total point value, the less healthy the employee. Employees with 77 points or more for the stress responses (29 items) category, 76 points or more in the categories of main factors of stress (17 items) and main factors of relief (9 items), and 63 points or more in the stress response category are identified as high-stress employees. For the level of satisfaction, total points are neither calculated nor used for selection of high-stress employees. The UWES-9 is a measurement scale used for work engagement; it is made up of nine items on a seven-point scale that comprises three factors (vigor, dedication, and absorption). Each factor contains three items<sup>9,21)</sup>. Greater point values indicate better employee states. The total points (three items) of each factor (vigor, dedication, and absorption) ranged from 0 to 18. The total points (combining all nine items) of the UWES-9 ranged from 0 to 54<sup>21)</sup>. No cutoff point was set at the evaluation standard.

### 2.2. Method of Analysis

A gender comparison was conducted with a t-test and chi-square test. The BJSQ provided the points for

each scale with a percentage of employees selected as high-stress employees on the basis of the high-stress employee-selection standards and with a gender comparison conducted through a chi-square test. The UWES-9 provided the total points (three items) for each factor and total points of the UWES-9. Next, Pearson's significance test was used to examine the correlation between each scale of the BJSQ and the total points of the UWES-9 to verify similarity. Subsequently, the scale for the level of job satisfaction, which is conceptually similar to work engagement from the BJSQ, was selected. Pearson's correlation coefficient was obtained for attributes and the total points of the UWES-9 for the level of job satisfaction. The total points for the UWES-9 and total points (three items) for each factor, separate from the responses (level of job satisfaction), were comparison-tested using one-way analysis of variance. To determine the evaluation criterion for the total points of the UWES-9, the scale for the level of job satisfaction was used as the state variable and total points for the UWES-9 was taken as the independent variable for comparison. Next, a receiver-operating characteristics (ROC) analysis was conducted at every separation point in the total range of 0–54 for the UWES-9. Next, prediction ability was evaluated by comparing the area under the curves (AUC). The ROC curve at the cutoff point where the AUC had the highest value is shown. The state variable scale was classified into 2 points, with the 4-point scale as the center. The level of job satisfaction scale was grouped such that responses of Satisfied and Somewhat Satisfied were considered Satisfied and responses of Somewhat Dissatisfied and Dissatisfied were considered Dissatisfied. IBM SPSS version 25 was used for the analysis, with a statistical significance of 5%.

### 2.3. Ethical Consideration

The research subjects were informed that participation was voluntary and answering questions would be optional. There would be no repercussions for denying or withdrawing consent. The results of the survey would not be shared with workplace personnel, and anonymity would be guaranteed when the research was made public. The authors received written consent from the research subjects and the research facilities that they were affiliated with for research work. The survey was conducted after obtaining approval from the Ethics Committee of Gifu University Graduate School of Medicine (Authorization Number 30-049).

## 3. Results

Table 1 presents the attributes of the analyzed subjects. The average age was 34.5 years (SD: 11.0). Older age groups had fewer workers. In the entire group, 16% had a managerial position. The work experience averaged 10.1 (SD: 8.8) years. There were no gender differences in terms of age, job position, or years of experience.

Overall, 89 employees (27.2%) were identified as high-stress employees (Table 2). No gender distinctions were observed. Table 3 presents a summary of the survey results. The average total UWES-9 point value was 20.87 (SD: 11.10). The average point value of the level of job satisfaction scale was 2.46 (SD: 0.71).

Table 4 presents the correlation between each scale of the BJSQ and total points of the UWES. The level of job satisfaction had the strongest correlation with the total points for the UWES-9.

Table 5 presents the Pearson's correlation coefficient obtained between the attributes of gender, age, job position, and years of experience on the one hand and the total points for the UWES-9 and level of job satisfaction on the other. The total UWES-9 score and attributes of age and years of experience showed a correlation ( $p < 0.05$  or  $p < 0.01$ ). The level of job satisfaction was not correlated with any attributes.

Table 6 presents the results comparing the UWES-9 as seen separately from the responses for the level of job satisfaction. The total UWES-9 score and scores for each individual factor were significantly higher for employees who felt job satisfaction than for those who did not ( $p < 0.001$ ).

Table 7 presents the results of the ROC analysis using the level of job satisfaction as a state variable. A significant difference was observed in the points range of 8–34 for each separation point regarding the total UWES-9 points ( $p < 0.05$  or  $p < 0.01$  or  $p < 0.001$ ). The worthwhileness of work was assessed at 22 points and had the highest AUC value. Fig. 1 shows the ROC curve at 22 cutoff points where the AUC showed the highest value.

## 4. Discussion

This study examined the criteria for the absolute evaluation of the Japanese version of the UWES-9 for

**Table 1** Participant Characteristics

			All (N = 327)
Gender	Number	Men	24
		Women	303
Age	Years	Mean	34.5
		Standard Deviation	11
		Max	69
		Min	21
	Groups	20–29 Years	147
		30–39 Years	76
40–49 Years		57	
50–59 Years		39	
60 Years and Above		8	
Job Position	Number	Department Chief or Above	24
		Middle Management	21
		General Employee	282
Years of Experience	Years	Mean	10.1
		Standard Deviation	8.8
		Max	42
		Min	0.4

**Table 2** Number and Percentage of Employees Identified as Having High Stress

		All (N = 327)	Men (n = 24)	Women (n = 303)	<i>p</i>
Selected High Stress (Number/%)	High Stress	89 (27.2%)	4	85	n.s.
	Nonstressed	238 (72.8%)	20	218	

chi-square test (n.s.: not significant)

**Table 3** Survey Results

			All (N = 327)			
Questionnaire	Factor	Scale	Mean	Standard Deviation	Max	Min
Brief Job Stress Questionnaire	Level of Satisfaction	Level of Job Satisfaction	2.46	0.71	4	1
Japanese Version of UWES-9	Vigor	Total Points (3 items)	6.35	4.00	17	0
	Dedication	Total Points (3 items)	8.2	3.65	18	0
	Absorption	Total Points (3 items)	6.32	4.18	18	0
	Total Points (9 items)			20.87	11.1	53

nurses in a private general hospital and created a database for the evaluation of work engagement. Nursing has a high percentage of female workers. Because many in this field leave their jobs due to marriage and childbirth, the number of workers decreases after peaking in their 20s. The target of analysis is a group that includes managers and has a certain number of years of experience. The Ministry of Health, Labor and Welfare considers those in the top 10% of this group to be high-stress employees<sup>11)</sup>, but given that 27.2% are considered high-stress employees from the research analysis, the percentage selected was very high. This shows that stress is unusual for the nursing staff. No gender differences were seen in the basic attributes and variables used for verification and percentage of high-stress employees, and the analysis results were shown to include men and women. Our analysis results showed that the average point value for the level of job satisfaction was 2.40 (converted)<sup>22)</sup>, which is consistent with the average level of job satisfaction in Japan (2.3). In a survey of 2,520 Japanese workers, the average value per question item for the UWES-9 was 2.8 points (vigor 2.6 points, dedication 3.1 points, and absorption 2.7 points)<sup>23)</sup>. In this study, the average value per question item for the UWES-9 was 2.32 points (vigor 2.12 points, dedication 2.73 points, and absorption 2.11 points). The analyzed

**Table 4** Each Scale of the Brief Job Stress Questionnaire and the Correlation with the Total Points of the UWES (Short Version) ( $N = 327$ )

Factor	Scale	「Vigor」 Total Points (3 entries)		「Dedication」 Total Points (3 entries)		「Absorption」 Total Points (3 entries)		UWES (Short Version) Total Points (9 entries)	
		Correlation Coefficient	<i>p</i> Value	Correlation Coefficient	<i>p</i> Value	Correlation Coefficient	<i>p</i> Value	Correlation Coefficient	<i>p</i> Value
Main Factors of Stress	Burden of Work (Quantity)	-0.119	<0.05	-0.080	0.149	-0.099	0.073	-0.107	0.054
	Burden of Work (Quality)	-0.008	0.885	0.081	0.146	-0.034	0.537	0.011	0.847
	Level of Burden on the Body	-0.125	<0.05	-0.093	0.092	-0.150	<0.01	-0.132	<0.05
	Level of Control Over Work	-0.254	<0.001	-0.247	<0.001	-0.229	<0.001	-0.259	<0.001
	Level of Utilization of Skills	-0.050	0.363	-0.110	<0.05	-0.018	0.743	-0.061	0.270
	Relationship with Others in the Workplace	-0.088	0.113	-0.120	<0.05	-0.010	0.858	-0.075	0.178
	Workplace Environment	-0.057	0.300	-0.153	<0.01	-0.023	0.677	-0.080	0.151
	Level of Aptitude for Work	-0.299	<0.001	-0.350	<0.001	-0.257	<0.001	-0.319	<0.001
Worthwhileness of Work	-0.372	<0.001	-0.445	<0.001	-0.373	<0.001	-0.421	<0.001	
Stress Responses	Vitality	-0.455	<0.001	-0.411	<0.001	-0.337	<0.001	-0.426	<0.001
	Feelings of Irritation	-0.300	<0.001	-0.288	<0.001	-0.233	<0.001	-0.290	<0.001
	Feelings of Tiredness	-0.315	<0.001	-0.266	<0.001	-0.201	<0.001	-0.277	<0.001
	Feelings of Unease	-0.233	<0.001	-0.210	<0.001	-0.140	<0.05	-0.206	<0.001
	Feelings of Depression	-0.308	<0.001	-0.352	<0.001	-0.195	<0.001	-0.300	<0.001
	Physical Complaints	-0.238	<0.001	-0.241	<0.001	-0.165	<0.01	-0.228	<0.001
Main Factors of Relief	Support from Superiors	-0.336	<0.001	-0.341	<0.001	-0.279	<0.001	-0.338	<0.001
	Support from Co-Workers in the Workplace	-0.275	<0.001	-0.316	<0.001	-0.182	<0.01	-0.272	<0.001
	Support from Spouse, Fam- ily, Relatives, Etc.	-0.064	0.252	-0.090	0.102	0.016	0.777	-0.047	0.400
Level of Satisfaction	Level of Job Satisfaction	-0.446	<0.001	-0.457	<0.001	-0.366	<0.001	-0.449	<0.001
	Level of Satisfaction at Home	-0.041	0.461	-0.088	0.112	-0.024	0.670	-0.053	0.343

Rank Correlation Coefficient (Pearson's Significance Test)

**Table 5** Correlation Between the UWES-9 and Similar Scales and Attributes ( $N = 327$ )

	Japanese Version of UWES-9 Total Points (9 items)		Level of Job Satisfaction	
	Correlation Coefficient	<i>p</i>	Correlation Coefficient	<i>p</i>
Gender	-0.036	n.s.	-0.011	n.s.
Age	0.158	<0.01	-0.068	n.s.
Job Position	-0.062	n.s.	-0.004	n.s.
Years of Experience	0.111	<0.05	-0.008	n.s.

Rank Correlation Coefficient; Pearson's Significance Test; n.s.: not significant

subjects tended to have slightly lower UWES-9 points than other groups. These results suggest that the analyzed subjects' status levels were lower than the average levels of the Japanese population. The status levels were slightly lower in this study than in a previous one that attempted to produce an absolute evaluation of the UWES-9 for the automobile industry<sup>10</sup>. However, the status levels of the analyzed subjects did not deviate significantly from the Japanese average. In Table 4 "level of job satisfaction" had the strongest correlation with the total points for the UWES-9, thereby confirming that it is a suitable scale for comparison. Moreover, "worthwhileness of work" and "vitality" can be useful scales for comparison. The level of job satisfaction indicates the emotions or awareness regarding or toward work and emphasizes cognitive factors<sup>6</sup>. Therefore, work engagement has higher activity levels than the level of job satisfaction level, but both scales recognize positive attitude and awareness toward work as affirmative factors. Due to their similarities, a fixed evaluation of their validity as scales is possible<sup>10,13</sup>. The higher the age, job position, and years of experience are, the greater the independence, feelings of self-efficacy (confidence toward work), and feelings of growth through

**Table 6** Total Points of the UWES-9 for Job Satisfaction Separate from the Responses

		All (N = 327)				<i>p</i>
		Satisfied Group (n = 203)		Dissatisfied Group (n = 124)		
		Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Dissatisfied	
	Number	8	195	91	33	
Vigor Total Points (3 items)	Mean	8.63	7.57	5.03	2.21	<0.001
	Standard Deviation	2.67	3.86	3.40	2.33	
	Max	13	17	15	8	
	Min	5	0	0	0	
Dedication Total Points (3 items)	Mean	10.75	9.28	7.14	4.15	<0.001
	Standard Deviation	2.38	3.3	3.31	2.95	
	Max	15	18	15	13	
	Min	7	0	0	0	
Absorption Total Points (3 items)	Mean	9.25	7.35	5.00	3.15	<0.001
	Standard Deviation	4.74	4.05	3.64	3.55	
	Max	15	18	15	14	
	Min	1	0	0	0	
Japanese Version of UWES-9 Total Points (9 items)	Mean	28.63	24.21	17.18	9.52	<0.001
	Standard Deviation	7.6	10.51	9.49	8.01	
	Max	43	53	40	35	
	Min	18	0	0	0	

One-Way Analysis of Variance

work are. Subsequently, work engagement increases as managerial opportunities and work challenges increase<sup>24)-27)</sup>. This tendency is confirmed in Table 5. However, the level of job satisfaction does not correlate with the basic attributes, and there may be slight differences in scale characteristics.

Table 6 suggests similarities between scale (“level of job satisfaction”) and work engagement. When verifying the evaluation criteria for the UWES-9, the validity of the scale used for comparison was confirmed. When the worker status is evaluated on a 4-point scale with the level of job satisfaction, the total points of the UWES-9 are made equivalent to the four steps shown in Table 6. The range can also be predicted to some extent. To verify the absolute evaluation using “level of job satisfaction” as a comparative measure, using the average equivalent of Satisfied, a total of 28 points corresponds to employees with high work engagement. Using the average equivalent for Dissatisfied, a total of 9 points corresponds to low work engagement. In a previous study of the automobile industry, the average equivalent for the Satisfied Group showed a total of 37 points and that for the Dissatisfied Group showed a total of 14 points<sup>10)</sup>. The reason is that the average figure for the total points of the UWES-9 population in the previous study was 24.20, whereas the average of the population in this study was low. The state level of the population was low. In addition, in the evaluation using a four-point scale with the level of job satisfaction, the total points of the UWES-9 reached the upper threshold at 28 points, and it is possible that the lower threshold was reached at 14 points. The cutoff value that separates high work engagement and low work engagement was the same as that in the previous study at around 20 points for the total points of the UWES-9. This suggests that the cutoff value for the total points of the UWES-9 could be divided into two groups, namely, high work engagement and low work engagement groups, at approximately 20 points. As shown in Table 6, from the average of the first quartile, as a measure for health promotion in the workplace, it is possible to set numerical targets, such as setting the achievement target for work engagement, using the total points of the UWES-9 to around 24 points. Because this is an absolute evaluation, 28 points can be taken to indicate an employee with high work engagement, whereas 9 points can be interpreted to represent an employee with low work engagement.

For the ROC analysis, to examine the cutoff point, which fluctuates depending on the aim, that is, decreasing false positives or false negatives, it was decided that AUCs would be considered valid for grasping the characteristics of the scale and verifying the initial evaluation criterion. However, the point with the highest AUC was not the best, so it needed to be used as a reference. As seen in Table 7, when the level of job satisfac-

**Table 7** ROC Analysis Using the Level of Job Satisfaction as a State Variable

Japanese Version of the UWES-9 Total Points (9 items)	All (N = 327)			
	AUC	95% CI		p
		Lower Limit	Upper Limit	
≥0	0.500	0.435	0.565	n.s.
≥1	0.527	0.462	0.593	n.s.
≥2	0.529	0.464	0.594	n.s.
≥3	0.541	0.476	0.606	n.s.
≥4	0.548	0.483	0.614	n.s.
≥5	0.554	0.488	0.619	n.s.
≥6	0.554	0.489	0.620	n.s.
≥7	0.545	0.480	0.611	n.s.
≥8	0.565	0.500	0.631	<0.05
≥9	0.571	0.506	0.636	<0.05
≥10	0.620	0.555	0.685	<0.001
≥11	0.627	0.563	0.692	<0.001
≥12	0.667	0.603	0.730	<0.001
≥13	0.670	0.607	0.733	<0.001
≥14	0.681	0.619	0.743	<0.001
≥15	0.673	0.611	0.736	<0.001
≥16	0.689	0.627	0.750	<0.001
≥17	0.683	0.621	0.744	<0.001
≥18	0.690	0.629	0.750	<0.001
≥19	0.674	0.613	0.735	<0.001
≥20	0.674	0.613	0.734	<0.001
≥21	0.696	0.637	0.755	<0.001
≥22	<b>0.697</b>	<b>0.638</b>	<b>0.755</b>	<b>&lt;0.001</b>
≥23	0.692	0.633	0.750	<0.001
≥24	0.682	0.624	0.741	<0.001
≥25	0.683	0.625	0.742	<0.001
≥26	0.681	0.623	0.740	<0.001
≥27	0.661	0.601	0.720	<0.001
≥28	0.627	0.567	0.688	<0.001
≥29	0.610	0.549	0.671	<0.01
≥30	0.601	0.540	0.662	<0.01
≥31	0.593	0.532	0.655	<0.01
≥32	0.596	0.535	0.658	<0.01
≥33	0.579	0.517	0.641	<0.05
≥34	0.567	0.505	0.629	<0.05
≥35	0.552	0.489	0.615	n.s.
≥36	0.539	0.476	0.602	n.s.
≥37	0.526	0.462	0.590	n.s.
≥38	0.523	0.459	0.587	n.s.
≥39	0.529	0.465	0.593	n.s.
≥40	0.528	0.464	0.592	n.s.
≥41	0.527	0.463	0.591	n.s.
≥42	0.525	0.461	0.588	n.s.
≥43	0.525	0.461	0.588	n.s.
≥44	0.522	0.458	0.586	n.s.
≥45	0.522	0.458	0.586	n.s.
≥46	0.515	0.451	0.579	n.s.
≥47	0.512	0.448	0.577	n.s.
≥48	0.512	0.448	0.577	n.s.
≥49	0.505	0.440	0.569	n.s.
≥50	0.502	0.438	0.567	n.s.
≥51	0.502	0.438	0.567	n.s.
≥52	0.502	0.438	0.567	n.s.
≥53	0.502	0.438	0.567	n.s.
≥54	0.500	0.435	0.565	n.s.

Receiver operating characteristic (ROC) analysis (n.s.: not significant)

tion was used as the state variable, the total point for the UWES-9 at its highest was 22 points. Even with a cut-off of 21 points, the same level AUC is obtained. This matches the results of the previous study on the automo-

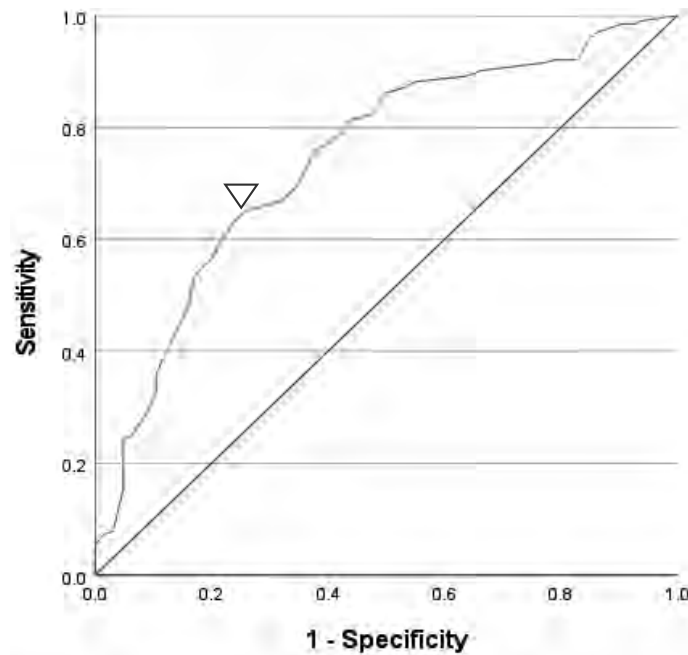


Fig. 1 ROC curve at 22 cutoff points of the UWES-9 where the AUC showed the highest value

bile industry<sup>10</sup>. Regardless of the state level of the organization, even if the target population is highly stressed and work engagement is low, the AUC may be the highest at 21 or 22 points. Around 22 points are characterized by a relatively high AUC. Even if you consider this together with Table 6, cutoff points are likely to be set around here. These results indicate the possibility of a reference standard for work engagement if the total points of the UWES-9 are 22 or more (i.e., the high work engagement group). In the relative evaluation, 20.87 points from the average of the total points of the UWES-9 is the standard. In the case of the target population of this study, in absolute evaluation, it may be close to the standard value in the relative evaluation. As shown in Table 6, 7 and Fig. 1, as a whole, the provisional reference point shown in the previous study is considered to be supported in this study, which is conducted with a different target population. Cutoff points can be preserved regardless of the status level in an organization.

However, the results do not show a particularly high value for AUCs attained through ROC analysis. They were slightly lower than the AUC obtained in the previous study. Examining whether it is possible to clearly distinguish the presence of work engagement from its hindrances is a subject for future study. With a total sample of 12,631 from 9 countries shown in the UWES Preliminary Manual, the average value per item of the UWES-9 was 4.05 points (vigor 4.18 points, dedication 4.28 points, and absorption 3.68 points)<sup>9</sup>. Furthermore, in an international epidemiological study, when comparing UWES-9 across 16 countries, the Japanese point values were lower than the 15 other countries. The average per item of the UWES-9 in each country was around 4 points, whereas for Japan, it was less than 3 points<sup>28</sup>. The level of job satisfaction and feeling of self-efficacy are low as well in Japan when compared with the corresponding numbers in the other 15 countries<sup>29,30</sup>. Regional and social structure differences may account for these results. Furthermore, these surveys are greatly impacted by a subject's sensitivity toward the question content<sup>28</sup>. The level of job satisfaction emphasizes cognitive factors<sup>9</sup>. Work engagement has higher activity levels than job satisfaction. For example, if the subject responds that they are satisfied with the work due to the stability of their status and salary, even though there is no positive feeling when they are working, there is a difference in interpretation. A 2019 survey of Japanese companies and workers reported no difference in work engagement depending on the size of residence and place of employment<sup>24,31</sup>. There is a common sensibility among Japanese people. Therefore, the use of the verification results of this research may be limited to Japan<sup>10</sup>.

This study had certain limitations. For instance, it was conducted in a single private general hospital in



one country. Analysis in Japan, including the previous study, was still limited. Therefore, the results may not be representative of the Japanese workplace as a whole. This study's population features more women than men. There may be differences in susceptibility by gender. A peculiarity of work and constitution is apparent that differs from that in the automobile industry as identified in previous research. Future studies should more extensively examine the evaluation criteria of the UWES-9 when compared with the sample data of populations over a wide area. The structure of occupational stress may have changed under the influence of the COVID-19 pandemic. As times change, data acquisition and the strengthening of the ability to predict confirmation should be continued. This study was a fixed-point examination of workplaces wherein the scales have concepts similar to work engagement, and care should be taken when interpreting the results. It is necessary to aim for higher precision and examine the evaluation method of the UWES while progressing with the accumulation and analysis of future data by focusing on the single evaluation criterion of around 22 points within the total points of the UWES-9 that this research study and previous research have indicated as a reference.

## 5. Conclusion

This single-survey study examined an absolute value for high work engagement in the Japanese version of the UWES-9 using the scales of the level of job satisfaction in the Japanese version of the BJSQ. The standard for high work engagement was identified at a score of around 22 points. The results of previous study were supported. This study was completed in one country at a single private general hospital.

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# Work Engagement Scale : 日本語版 UWES-9 看護師サンプルにおける評価基準の検証

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## キーワード

ユトレヒトワーク・エンゲイジメントスケール, 仕事の満足度, 評価基準

ユトレヒト・ワーク・エンゲイジメントスケール (UWES) は, ワーク・エンゲイジメントを相対的に測定する心理測定評価尺度である。UWES-9 は UWES の短縮版であり, 最も特徴的な項目のみが抜粋されている。絶対的な評価ができる基準値を整備すれば, より有用になるとされている。足立らは, UWES-9 の合計点のカットオフ値を, 約 21 点に設定することを提案した。ただし, 調査対象の範囲は限られていた。本研究は, 以前に調査された対象とは異なる母集団において, UWES-9 日本語版の絶対評価の基準を調査し, ワーク・エンゲイジメントを評価するデータベースを作成することを目的としている。327 人の看護師が調査対象であり, UWES-9 合計点の評価基準を検証するため, 職業性ストレス簡易調査票に含まれ, ワーク・エンゲイジメントの概念と類似する尺度「仕事の満足度」を使用し, 一元配置分散分析および ROC 解析を行った。高ワーク・エンゲイジメントと低ワーク・エンゲイジメントを分割するカットオフの値は, 22 点に設定された。高ワーク・エンゲイジメントの絶対評価の基準は, 約 22 点で特定され, 以前の研究の結果が支持された。

[COI 開示] 本論文に関して開示すべき COI 状態はない

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