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Development and validation of Nurse Managers' Empowering Behavioral Scale for staff nurses

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Abstract

Aim: In this study, we developed and verified the Nurse Managers' Empowering Behavioral Scale for Staff Nurses (NMEB-SN).

Design: A cross-sectional survey.

Methods: The NMEB-SN was developed based on the staff nurses' perspectives. Nurses working in 10 hospitals in Japan were surveyed using a questionnaire to test the scale's validity using construct and criterion-related validity and reliability using internal consistency and test–retest method. There were 1,146 eligible participants included in the process.

Results: The scale items resulted in five subscales comprising of 48 items altogether. The goodness-of-fit indices for confirmatory factor analysis were CFI = 0.903 and RMSEA = 0.076. The correlation with external criteria for criterion-related validity was near the expected standard. Further, Cronbach's α coefficient was 0.95–0.97 for each subscale and 0.99 for the overall scale. The reliability and validity of the developed NMEB-SN were verified for staff nurses in Japan.

KEYWORDS
behaviour rating scale, empowerment, nurse managers, nursing, reliability, validity

1 | INTRODUCTION

Today, a shortage in the nursing workforce is rapidly becoming a healthcare challenge worldwide (World Health Organization, 2006). In addition to the problems posed by the nation's rapidly ageing population, which is increasing at a speed much higher than other countries, Japan is also facing issues associated with declining birth rates (Ministry of Health, Labour and Welfare, 2016). Hence, efforts to secure the labour of nurses are essential. Research has associated the enhancement of nurses' psychological empowerment with higher job satisfaction and lower burnout rate (Laschinger, Finegan, Shamian, & Wilk, 2003; Li et al., 2018; Meng

et al., 2015). Consequently, these effects reduce nurses' turnover intention (Hayes et al., 2012).

The factors that are related to employees' psychological empowerment are not individual characteristics alone; rather, they are linked to other related antecedents such as leadership (Seibert, Wang, & Courtright, 2011). Conger and Kanungo (1988) developed psychological empowerment as a motivational construct. Later, based on the concept of empowerment as an "intrinsic task motivation," as defined by Thomas and Velthouse (1990, p. 668), Spreitzer (1995, p. 1444) defined psychological empowerment as a "motivational construct" that comprises the following cognitions: (1) meaning; (2) competence; (3) self-determination; and (4) impact.

Earlier studies on psychological empowerment have measured various concepts on the leadership of nurse managers such as empowering leadership (EL) and leader–member exchange (LMX) (Brunetto, Shacklock, Teo, Farr-Wharton, & Nelson, 2015; Kim, Kim, Jung, Kim, & You, 2017; Laschinger, Finegan, & Wilk, 2009). EL refers to either one of two approaches: by external context (such as the sharing of power and delegation by one's leader) and by employees' perception as a multidimensional psychological state (including Spreitzer's "motivational construct" as stated above) (Lee, Willis, & Tian, 2018). EL has particularly focused on employees' psychological empowerment. LMX refers to the "dyadic relationship quality between leaders and followers" and is based on the LMX theory (Bauer & Erdogan, 2016, p. 3). EL and LMX are similar as both mention the leader–member relationship. Although LMX does not necessarily imply the sharing of power among leaders and members, EL demonstrates behaviours that share power among them (Kim, Beehr, & Prewett, 2018; Lee et al., 2018; Sharma & Kirkman, 2015).

2 | BACKGROUND

To measure EL, some studies on nursing (Bobbio, Bellan, & Manganelli, 2012; Bortoluzzi, Caporale, & Palese, 2014; Cziraki & Laschinger, 2015; Greco, Laschinger, & Wong, 2006; Kim et al., 2017) used the Empowering Leadership Questionnaire (ELQ) (Arnold, Arad, Rhoades, & Drasgow, 2000) and Leader Empowering Behaviour Scale (Hui, 1994), despite the two scales having not been developed for nurses. To measure LMX, some studies on nursing (Brunetto et al., 2015; Laschinger et al., 2009) used the LMX-7 (Graen & Uhl-Bien, 1995) and multidimensional measure of leader–member exchange (LMX-MDM) (Liden & Maslyn, 1998), even though the two scales were not developed for nurses. These scales for measuring EL and LMX did not reflect the nursing profession and the work environment generally attributed to nurses. Additionally, they did not represent the concrete behaviours of nurse managers as leaders. To date, research has not clarified the concrete behaviours of nurse managers that psychologically empower and motivate staff nurses, and currently, there is no tool to measure such behaviours.
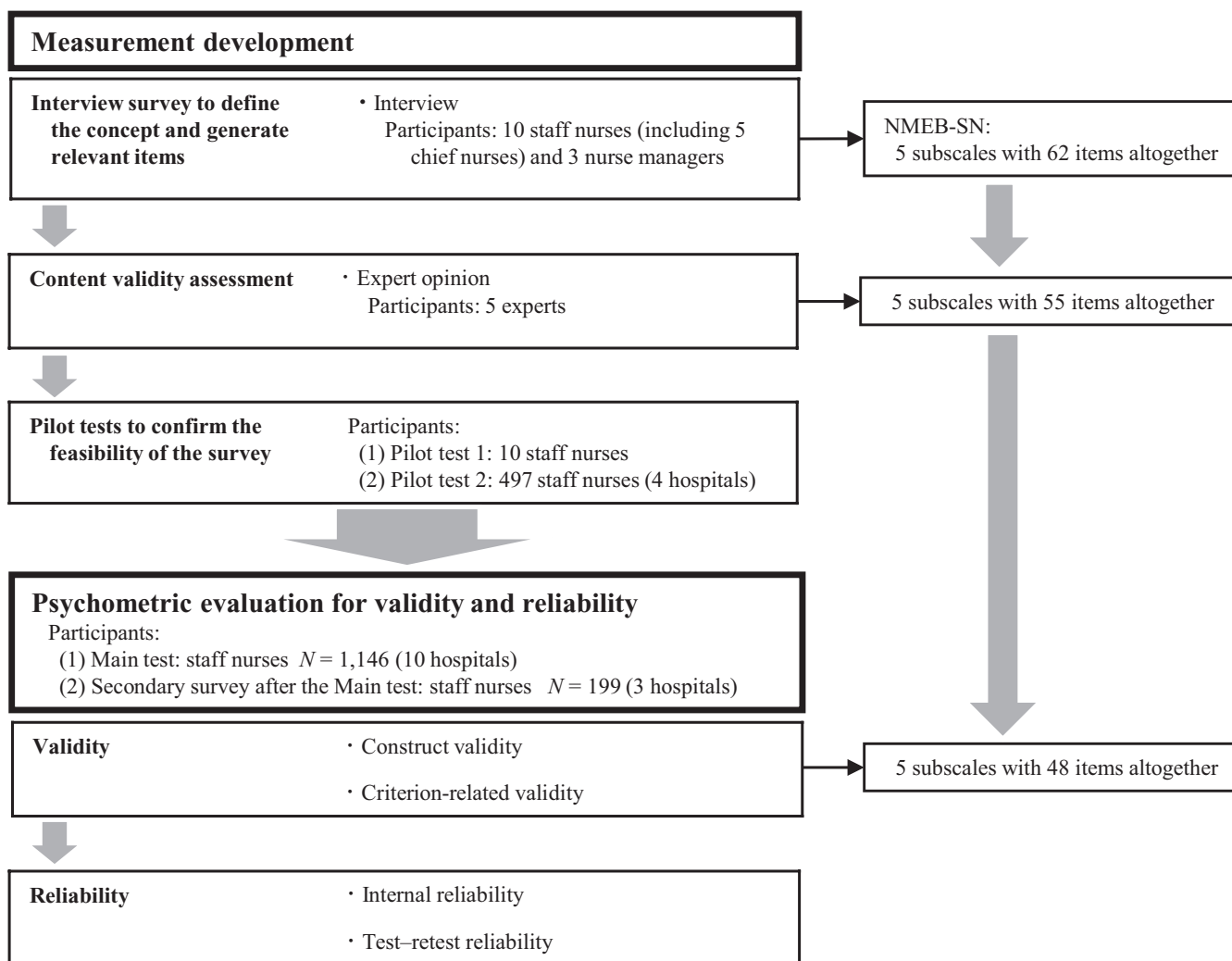

FIGURE 1 Process of development and validation of Nurse Managers' Empowering Behavioral Scale for Staff Nurses (NMEB-SN)

Therefore, this study aims to develop and validate a measurement tool named Nurse Managers' Empowering Behavioral Scale for Staff Nurses (NMEB-SN).

3 | METHODS

3.1 | Design

A cross-sectional survey was designed for this study. We developed the NMEB-SN and validated the scale by conducting a psychometric evaluation of the scale's validity and reliability as these tests determine NMEB-SN's functionality as a measurement tool (Figure 1).

3.2 | Measurement development

3.2.1 | Interview survey for concept definition and item generation

In the interview survey, 10 staff nurses (including 5 chief nurses) and 3 nurse managers working in four different hospitals participated. They were asked about the behaviours of nurse managers that psychologically empowered and motivated them while working as staff nurses. The interview contents were coded, and the codes were categorized based on their similarities by three investigators. Categorization was performed by increasing the level of abstraction, and the 62 extracted categories were designated as the NMEB-SN's preliminary items. The final extracted categories were used as the components of NMEB-SN and defined nurse managers' behaviours towards staff nurses as follows: (a) "providing meaning to work" refers to helping staff nurses find their job meaningful and helping them understand the purpose of their work; (b) "supporting autonomy to make me have self-confidence" implies placing trust in the nurses leaving the work up to staff nurses, encouraging self-determination and autonomy and respecting their opinions; (c) "providing support to overcome obstacles at work" is related to supporting staff nurses in overcoming their work-related problems by themselves; (d) "recognizing work" refers to evaluating their work and encouraging the use of results; and (e) "respecting me as a staff member" is associated with interactions with staff nurses and respecting them as staff members.

3.2.2 | Content validity

A panel of five experts who are not involved in the study examined the content validity of the preliminary items. The experts were experienced nurse managers and are master's degree holders. Based on their opinions, we reduced our initial 62 items to 55 by integrating seven items with the others. In addition, the expression of several items was modified to be actionable behaviours of nurse managers. Subsequently, the experts confirmed the items' content validity through a postal mail survey and calculated the content validity index (CVI) (Polit, Beck, & Owen, 2007). The item CVI (I-CVI) excluding

six items was ≥0.8 and the scale-level CVI was 0.91. Among the six items with I-CVI < 0.8, the expressions of four were modified and two were used without modification, based on expert opinions.

3.2.3 | Pilot tests

Two pilot tests were conducted to confirm the survey's feasibility. In pilot test 1, 10 staff nurses of varying ages were interviewed about 55 preliminary items of the NMEB-SN on a 5-point Likert scale. Based on their opinion, we modified the expressions of several items.

In pilot test 2, psychometric evaluation was conducted on 870 staff nurses in four hospitals using anonymous self-administered questionnaires on the NMEB-SN. Each item of the NMEB-SN was rated on the 5-point Likert scale, ranging from 1 (disagree)–5 (agree). In total, we received 497 responses and the number of deficits in each item was five or less; further, none of the items required correction or deletion based on the respondents' feedback in the form of free description. Therefore, the NMEB-SN (Table 1) was tested for the reliability and validity in the psychometric evaluation without any revisions.

3.3 | Psychometric evaluation of validity and reliability

We conducted two surveys to test the NMEB-SN's validity and reliability. The first survey was the main test, where item analysis, construct validity, criterion-related validity and internal consistency were tested. In the criterion-related validity, we referred to correlations with EL due to its similarity with the NMEB-SN as it focuses on nurse managers' psychological empowerment of staff nurses and their motivational effects for the latter. The external criteria were the following: LMX, psychological empowerment, affective commitment, work engagement, job satisfaction and turnover intention (Kim et al., 2018; Sharma & Kirkman, 2015). A secondary survey was conducted after the main test (Figure 1). We then tested the test–retest reliability between the main test and the secondary survey.

3.3.1 | Design, participants and data collection

As the main test, a self-administered questionnaire survey was conducted on staff nurses in 10 hospitals with more than 200 beds in the Kanto area, including Tokyo and Fukushima Prefecture, in Japan. The hospitals included private, public and university hospitals. The questionnaires were sent by post to the nursing directors, who distributed them among staff nurses. Participation was voluntary in nature. Data were collected between December 2018–January 2019. Among the 2,325 distributed questionnaires, 1,516 were returned and 1,146 included valid responses satisfying the following inclusion criteria: respondents should (a) not be working in wards with open floors, such as intensive care units, emergency wards, outpatient units and operating rooms; (b) be qualified as registered nurses; and (c) not have missed providing values for any variable. The secondary

TABLE 1 Question items included in the NMEB-SN

Question item number	Contents of each question item
1	My nurse manager talks in a way that enables we, the staff nurses and her/him, the nurse manager, to understand each other
2	My nurse manager provides advice when I become unsure of how I should do my work
3	My nurse manager creates opportunities for me to draw closer to the ideal image of the nurse I aim to be
4	When my nurse manager resolves problems involving various types of occupations, s/he takes into consideration our position and skillfully coordinates
5	My nurse manager tells hospital staff about results of my work that can be utilized
6	My nurse manager watches my day-to-day work in order to support it in line with her/his position
7	My nurse manager creates work shifts taking into consideration the health of each of us
8	My nurse manager plans work shifts having given thought to staff combination based on our various characteristics
9	My nurse manager relies on me
10	My nurse manager becomes involved on the basis of recognizing the things I can not do
11	My nurse manager trusts my capabilities and leaves work up to me
12	My nurse manager praises me for what I have done well in my daily work
13	My nurse manager shows me hints towards solutions in order that I can complete my work
14	My nurse manager expects me to grow as a nurse and leaves work up to me
15	My nurse manager tells me about praise I have received from other hospital personnel regarding the way I perform my work
16	My nurse manager shares an understanding of the state of the ward and tells us about future prospects
17	My nurse manager works to ensure that, when a problem arises, we realize the way in which it should be approached so that the same problem will not occur again
18	My nurse manager leaves me to make decisions about work that has been left up to me
19	My nurse manager reflects our suggestions in work
20	My nurse manager asks each of us about our wishes and creates work shifts in a fair way
21	When there is a difficulty that I cannot solve alone from my position, my nurse manager uses her position of superiority to respond in order that I can complete my work
22	When my nurse manager is giving individual guidance s/he does so in a way that does not hurt our dignity
23	When necessary, my nurse manager tells the (head of) the nursing department about our suggestions
24	My nurse manager notices each of us and speaks to us on a daily basis
25	My nurse manager works to provide me with a sense of the meaning of my work
26	My nurse manager realizes when we are in an extremely difficult situation and shows empathy
27	My nurse manager tells me that s/he understands my position
28	My nurse manager works to make me realize things about issues in my approach to work
29	My nurse manager shows me new perspectives so that my work will go well
30	My nurse manager creates an environment in which it is easy to discuss difficulties with her/him
31	My nurse manager creates opportunities for me to think about the ideal image of the nurse I aim to be
32	My nurse manager explains things clearly and in a manner suited to my experience in order that I will understand
33	My nurse manager shows empathy towards my feelings about the work I have done so far
34	My nurse manager notices when I come across trouble at work, judges the right time and provides opportunities to discuss matters
35	My nurse manager does not blame us individually but instead provides guidance focusing on the event
36	My nurse manager works to gain the understanding of those around me so I can perform my role at work
37	My nurse manager looks at the way I perform my daily work from an accurate perspective
38	My nurse manager listens to our opinions and thoughts about work
39	My nurse manager provides me with the requisite information in order to do my work
40	My nurse manager tells us about the contribution that our ward makes to the hospital as a whole
41	My nurse manager carefully scrutinizes the state of each of our work

TABLE 1 (Continued)

Question item number	Contents of each question item
42	My nurse manager supports my efforts to reflect upon issues in my approach my work
43	My nurse manager tells me that I have matured regarding the way I perform my daily work
44	When my nurse manager leaves work up to me, s/he always tells me the reason
45	My nurse manager creates opportunities for me to put into practice the results of education including training I have undergone
46	My nurse manager talks to me at regular interviews in order to clarify the following issues in my work
47	My nurse manager asks me to perform work in a way that makes me act positively
48	My nurse manager creates opportunities for me to think about what sort of nursing I should aim to achieve
49	My nurse manager praises the results of my work
50	My nurse manager leaves self-determination in my work up to me, but takes final responsibility
51	My nurse manager lets me know when patients have praised me
52	My nurse manager leaves work that will utilize my capabilities up to me
53	My nurse manager notices when there is any trouble I want to discuss and responds in a timely manner so that I can complete my work
54	My nurse manager utilizes the results of the work I have done
55	My nurse manager works to make me perceive nursing from the patients' perspectives

Abbreviation: NMEB-SN, Nurse Managers' Empowering Behavioral Scale for Staff Nurses.

survey was requested to be conducted in three of the hospitals that had consented to participate in both the main test and the secondary survey. Data were collected 2–3 weeks after the main test. Among the 708 distributed questionnaires, 296 were returned and 199 were valid responses to the secondary survey and satisfied the following inclusion criteria: the secondary survey participants: (a) participated in the main test as well; (b) answered "My nurse manager did not change during the period of this survey"; and (c) had no missing values in the completed NMEB-SN.

3.3.2 | Measures

Sociodemographic status

The participants' sociodemographic statuses were determined from the following details: gender, age, nursing qualification, position, employment status, nursing educational level, years of nursing experience and years of work under the current nurse manager.

NMEB-SN used the 55 preliminary items (Table 1) developed. The scale consists of five subscales and the items were scored using a 5-point Likert scale, ranging from 1 (disagree)–5 (agree).

Leader–member exchange was assessed using LMX-MDM (Liden & Maslyn, 1998), which consists of 12 items divided into four subscales: (1) affect; (2) loyalty; (3) contribution; and (4) respect. We used 11 of the 12 items translated into Japanese by Matsuura (2008). Since one item was modified by Liden (Bauer & Erdogan, 2016), we conducted an initial translation into Japanese and then a back-translation into English, to ensure it is consistent with the original intent of the author. The items were scored using a 7-point Likert scale, ranging from 1 (strongly disagree)–7 (strongly agree). The higher the score, the higher the quality of the relationship between the staff

nurse and nurse manager. For the overall scale, Cronbach's α coefficient was 0.97.

Psychological empowerment was assessed using psychological empowerment instruments (Spreitzer, 1995), which consists of 12 items divided into four subscales: (1) meaning; (2) competence; (3) self-determination; and (4) impact. We used the items translated into Japanese by Katsuyama (2000). Further, only the expressions of the question introduction sentence and the answer selections were re-translated. Items were scored using a 7-point Likert scale, ranging from 1 (very strongly disagree)–7 (very strongly agree). The higher the score, the higher the staff nurse's psychological empowerment. For the overall scale, Cronbach's α coefficient was 0.93.

Affective commitment was assessed using the affective organizational commitment scale (Japan Institute for Labour Policy & Training, 2003), which comprises three items. Items were scored using a 5-point Likert scale, ranging from 1 (No)–5 (Yes). The higher the score, the stronger the staff nurses' affective commitment to their organization. For the overall scale, Cronbach's α coefficient was 0.77.

Work engagement was assessed using the Japanese version of the Utrecht Work Engagement Scale (Shimazu et al., 2008), which consists of nine items divided into three dimensions: (a) vigour; (b) dedication; and (c) absorption. Items were scored using a 7-point Likert scale, ranging from 0 (never)–6 (always). The higher the score, the higher the work engagement of staff nurses. For the overall scale, Cronbach's α coefficient was 0.94.

Job satisfaction was assessed using the following original item created by us for this study: "I am satisfied with this workplace." The item was scored using a 7-point Likert scale, ranging from 1 (strongly disagree)–7 (strongly agree). The higher the score, the higher the degree of satisfaction.

Turnover intention was assessed using the following original item created by us for this study: "I want to quit this hospital." The item was scored using a 7-point Likert scale, ranging from 1 (strongly disagree)–7 (strongly agree). The higher the score, the higher the turnover intention.

3.3.3 | Statistical analysis

For all analyses, significance levels were based on $p < .05$. We used SPSS ver. 25 and Amos ver. 25 (IBM) as the statistical software.

Item analysis

For good–poor (G-P) analysis, we divided the data into two groups (high-score and low-score groups) based on the median of the composite score, conducted the Mann–Whitney *U* test for each item and retained only significantly different items.

Validity

A confirmatory factor analysis (CFA) was performed to conduct construct validity assessment to test the a priori structure. The model fit was assessed using the following: a comparative fit index (CFI) value of ≥0.90 and root mean square error of approximation (RMSEA) < 0.08 (Brown & Little, 2015). Criterion-related validity was performed using Pearson's correlation analysis.

Reliability

Internal reliability was assessed by examining Cronbach's α coefficient estimates for the subscales and the overall scale. To examine the test–retest reliability, an intra-class correlation coefficient (ICC) of the NMEB-SN was calculated based on a single measurement, absolute agreement and a two-way mixed-effects model. Their values of ≥0.70 show acceptable consistency (Terwee et al., 2007).

3.4 | Ethical considerations

This study was conducted with the approval of the Medical Research Ethics Committee of Tokyo Medical and Dental University (approval numbers: M2016–119 and M2017–197). The responses of only those participants who gave a signed informed consent form with their completed survey were considered in this study.

4 | RESULTS

The results of the psychometric evaluation of validity and reliability are shown in this section.

4.1 | Characteristics of participants

Of the 1,516 participants (return rate: 65.2%), 1,146 participants were eligible (valid return rate: 49.3%). Most of the 1,146 nurses were female (91.1%). Their mean age was 31.9 years (standard

TABLE 2 Demographic characteristics, including mean and standard deviation values (N = 1,146)

Demographic details	Frequency (N)	Percentage
Gender		
Female	1,044	91.1
Male	102	8.9
Position		
Unspecified job title	1,031	90.0
Deputy nurse manager/chief/ deputy chief	110	9.6
Other (unknown)/no response	5	0.4
Employment status		
Full-time employment	1,117	97.5
Part-time employment	28	2.4
No response	1	0.1
Level of nursing education		
Vocational school	826	72.1
Junior college	74	6.5
University	229	20.0
Graduate school	8	0.7
Other (unknown)/no response	9	0.8
	Mean	**Standard deviation**
Age	31.9	8.97
Years of nursing experience[a]	8.6	7.96
Years of working under the current nurse manager[a] (N = 1,123[b])	1.8	1.58

[a]Number of years, excluding maternity leave, childcare leave, sick leave and turnover period.
[b]Number of people, excluding non-responders.

deviation, *SD*: 8.97), and employment status was full time (97.5%) (Table 2).

4.2 | Item analysis

In the G-P analysis, all the items were significantly different ($p < .001$). Following item analysis, no items were deleted.

4.3 | Validity

4.3.1 | Construct validity

The initial CFA resulted in a marginally acceptable model fit. Specifically, the CFI was 0.885, which is <0.90. The RMSEA was 0.077, which met the criteria of less than 0.08. To enhance the model fit, the five-factor model was modified using conceptual (e.g. item content) criteria. In addition, we referred to the experts' opinions on testing the content validity, as well as the modification indices which were a statistical criterion. We examined the duplication of item
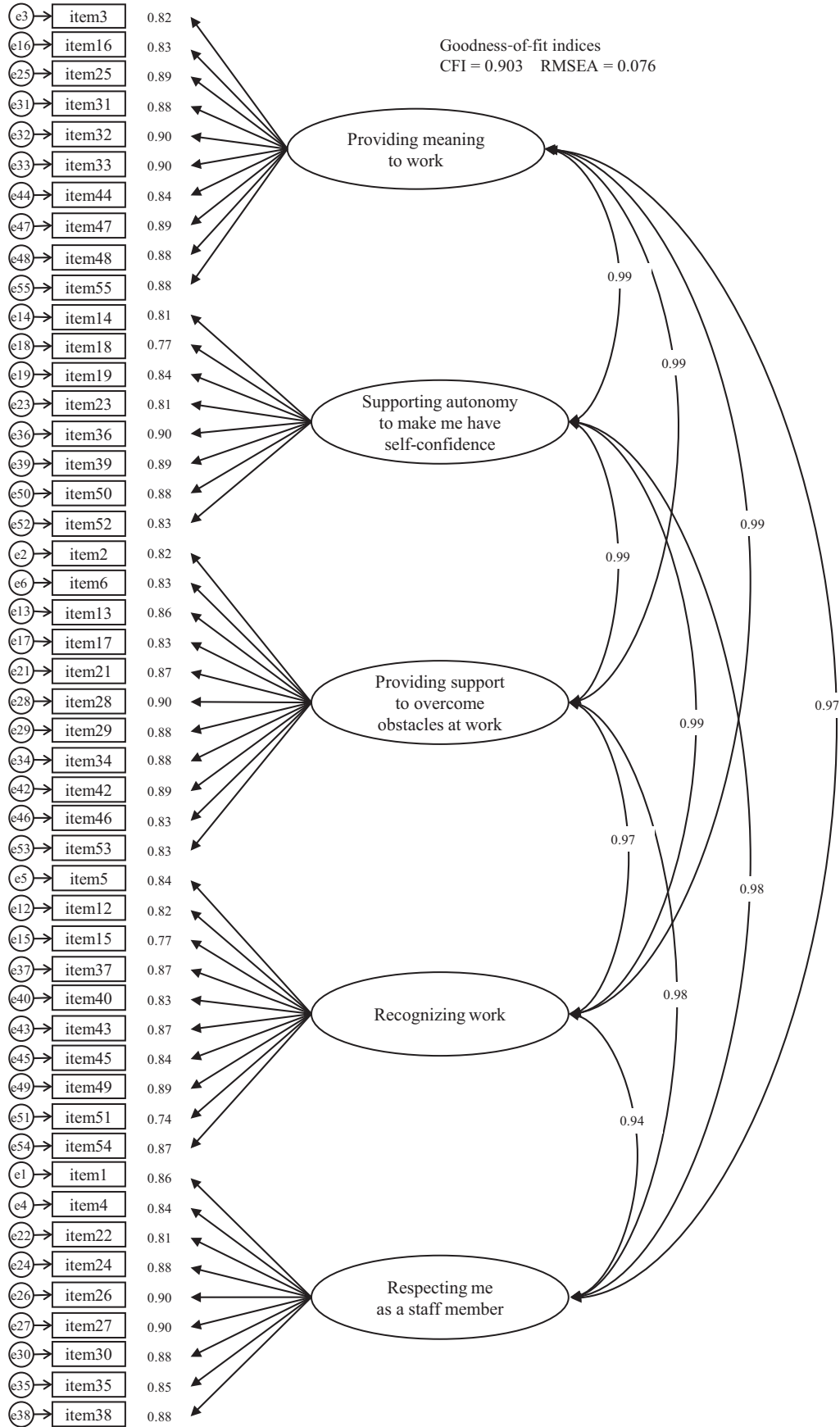
FIGURE 2 Confirmatory factor analysis of Nurse Managers' Empowering Behavioral Scale for Staff Nurses (NMEB-SN). CFI, comparative fit index; RMSEA, root mean square error of approximation

contents and whether they were concrete behaviours that could be recognized by staff nurses. Four items (Nos. 9, 10, 11 and 41 in Table 1) were deleted because they appeared to be included in the content of other items of the same factor. Furthermore, three items (Nos. 7, 8 and 20 in Table 1) were deleted since these items were related to work scheduling, rather than nurse managers' behaviours. After deleting seven items in total, the CFI was found to be 0.903 and RMSEA was 0.076 (Figure 2). The five subscales with 48 items altogether that met the criteria for model fitting were identified as the final version of the NMEB-SN and were used for criterion-related validity and to verify reliability.

4.3.2 | Criterion-related validity

The correlations between the overall NMEB-SN and all the external criteria are statistically significant ($p < .001$). Further, the composite score of the NMEB-SN was positively correlated with LMX ($r = .87$), psychological empowerment ($r = .26$), affective commitment ($r = .36$), work engagement ($r = .27$) and job satisfaction ($r = .52$), whereas it was negatively correlated with turnover intention ($r = −.37$) (Table 3). This is in comparison with LMX, which also positively correlated with psychological empowerment ($r = .26$), affective commitment ($r = .38$), work engagement ($r = .31$) and job satisfaction ($r = .54$), whereas it was negatively correlated with turnover intention ($r = −.37$).

4.4 | Reliability

Cronbach's α coefficients of the NMEB-SN were 0.95–0.97 for the five subscales and 0.99 for the overall scale. Further, the ICC values between the main test and the secondary survey were 0.91–0.93 for the five subscales and 0.93 for the overall scale (Table 4).

5 | DISCUSSION

In this study, we created the NMEB-SN comprising five subscales with a total of 48 items to clearly measure nurse managers'

empowering behaviours for staff nurses. This scale was developed based on the perspectives of staff nurses. The NMEB-SN consists of items related to the behaviours of nurse managers that empower staff nurses. Therefore, staff nurses' perceptions of nurse managers' behaviours were important.

5.1 | Comparison of the NMEB-SN with EL measurement

We suggest that NMEB-SN constructs can be applied to measure nurse managers' empowering behaviours pertaining for staff nurses. From the five constructs of scale extracted as the components of NMEB-SN, four overlapped with EL measurement constructs initially defined by previous authors. These are as follows: (a) providing meaning to work, (b) encouraging self-determination and self-confidence by participation and delegation, (c) ensuring development support and (d) showing concern and ensuring interaction (Ahearne, Mathieu, & Rapp, 2005; Amundsen & Martinsen, 2014; Arnold et al., 2000; Hui, 1994; Konczak, Stelly, & Trusty, 2000). The "recognition of work" of the NMEB-SN was a unique construct not found in previous EL measurement components. The "recognition of work" component includes actions such as evaluating staff nurses' work and encouraging the use of the results by the nurse manager. Recognition for achievements is a motivator (Herzberg, 1966; Ohta, 2011) and therefore will enhance psychological empowerment as a motivational construct. This unique element indicates that professional staff nurses value recognition from other professionals in the same area (Ohta, 2011).

5.2 | Reliability

Cronbach's α coefficient of the NMEB-SN was ≥0.95, which is within the standard of ≥0.70 (Terwee et al., 2007). Accordingly, the internal consistency was confirmed. However, the appropriate tolerance for Cronbach's α coefficient is 0.70–0.90 and item redundancy is indicated when Cronbach's α coefficient is ≥0.98 (de Vet, 2011). The contents of the NMEB-SN include the nurse managers' perceptible

TABLE 3 Results of Pearson's correlation analysis of NMEB-SN and various external criteria (N = 1,146)

	NMEB-SN					
	Composite score	Providing meaning to work	Supporting autonomy to make me have self-confidence	Providing support to overcome obstacles at work	Recognizing work	Respecting me (one) as a staff member
LMX	0.87	0.85	0.85	0.85	0.82	0.86
Psychological empowerment	0.26	0.25	0.30	0.23	0.28	0.22
Affective commitment	0.36	0.35	0.37	0.35	0.35	0.32
Work engagement	0.27	0.27	0.29	0.25	0.27	0.23
Job satisfaction	0.52	0.51	0.52	0.50	0.51	0.50
Turnover intention	−0.37	−0.37	−0.38	−0.36	−0.36	−0.36

Note: For all correlations, $p < .001$.
Abbreviations: LMX, leader–member exchange; NMEB-SN, Nurse Managers' Empowering Behavioral Scale for Staff Nurses.

TABLE 4 Results of the statistical analysis of the NMEB-SN, including the number of items, means, standard deviations, score ranges, Cronbach's α (N = 1,146) and test-retest reliability (N = 199)

	Number of items	Score range	Mean	Standard deviation	Cronbach's α	ICC
NMEB-SN						
Composite score	48	1–5	3.51	0.92	0.99	0.93
Providing meaning to work	10	1–5	3.47	0.96	0.97	0.92
Supporting autonomy to make me have self-confidence	8	1–5	3.51	0.90	0.95	0.91
Providing support to overcome obstacles at work	11	1–5	3.55	0.95	0.97	0.93
Recognizing work	10	1–5	3.44	0.91	0.96	0.91
Respecting me (one) as a staff member	9	1–5	3.62	1.00	0.97	0.93

Abbreviations: ICC, intra-class correlation coefficient; NMEB-SN, Nurse Managers' Empowering Behavioral Scale for Staff Nurses.

and concrete behaviours towards staff nurses. The differences between the items are appropriately used in the NMEB-SN. Therefore, there is a partial overlap between the contents of the items. The more items included in the measurement, the higher the Cronbach's α coefficient value (Terwee et al., 2007). The NMEB-SN has 48 items and most likely the reason why the scale's Cronbach's α coefficient is high. The ICC for test–retest reliability was ≥0.90, and with this, the NMEB-SN's stability was confirmed.

5.3 | Validity

By using the good-fit indices of CFA, we confirmed the construct validity of the NMEB-SN (five subscales with 48 items altogether). Further, we could test the criterion-related validity of the relationships between NMEB-SN and external criteria. The strength of the correlation coefficient between the finalized NMEB-SN and each external criterion was almost the same as the results based on previous meta-analysis of EL (Kim et al., 2018). According to Kim et al. (2018), the 80% credibility interval, a result of meta-analysing EL and each external criterion, was as follows: 0.39–0.79 for LMX, 0.32–0.60 for psychological empowerment, 0.30–0.51 for commitment (organizational, affective and career), 0.19–0.71 for work engagement, 0.37–0.50 for job satisfaction and 0.25–0.32 for withdrawal (turnover intention, intent to quit, intent to stay and absenteeism).

5.4 | Implications of study findings

The strength of the NMEB-SN is that this measurement tool has been created based on the experience of staff nurses. Therefore, the items in the scale represent specific situations occurring at the nursing workplace. Nurse managers can use the items on this scale, which are specifically described, as an action guideline of empowering behaviours for staff nurses and as an index to evaluate their own actions. In particular, it will be an effective educational tool for new nurse managers or nurse manager candidates. Nurse managers can practice these behaviours to retain staff nurses in the organization.

5.5 | Limitations and future research

This study has some limitations. First, the people targeted by this study were staff nurses working in hospital wards, which limit the use of this scale in other nursing environments. Hence, future research should confirm the applicability of the NMEB-SN in various settings/locations, such as intensive care units, outpatient departments and nursing homes. Second, this study only considered staff nurses' point of view. To examine the effects of the NMEB-SN more comprehensively, following research should consider other objective variables as well, such as staff nurses' performance and turnover rates. Third, the NMEB-SN was limited only to the nursing work environment in Japan. As such, the roles of nurse managers and staff nurses in Japan may be different from those of other countries. Future studies should verify the cross-cultural relevance.

6 | CONCLUSION

We developed the NMEB-SN and successfully validated the measurement tool in the Japanese hospital setting. Because the NMEB-SN reflects the nursing profession and environment while taking into account concrete behaviours of nurse managers, this scale can be used as a guideline for empowering staff nurses in the future.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

All authors of this study meet at least one of the authorship criteria of ICMJE (http://www.icmje.org/icmje-recommendations.pdf) and have agreed on the final version.

ETHICAL APPROVAL

This study was conducted with the approval of the Medical Research Ethics Committee of Tokyo Medical and Dental University (approval numbers: M2016–119 and M2017–197).

A PATIENT CONSENT STATEMENT

This study has not needed to seek patient consent.

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