

Development and validation of a professional autonomy scale for Japanese midwives

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ABSTRACT

Japanese midwives are required to autonomously perform midwifery diagnosis and maternity care. However, education to promote the professional autonomy of midwives is inadequate, and previous studies have not been able to identify a measure for it. This study aimed to develop a professional autonomy scale for midwives, to be used for the education and career advancement of Japanese midwives. The Midwives Professional Autonomy Scale extracted items from the midwives' "autonomy" and "specialty" literature, and 10 professionals verified the surface and content validity of the scale. Overall, 695 Japanese midwives participated in a survey, of which a sample of 399 was recovered. Exploratory factor analysis was performed using the sample to confirm the validity of the construct and internal consistency of the scale (Cronbach's alpha value 0.95). Additionally, the validity of the criteria was confirmed using the self-efficacy scale, self-esteem scale, and job satisfaction, and the stability was confirmed by test-retest reliability. Consequently, the professional autonomy scale for Japanese midwives comprised 24 items and 5 factors. This scale can thus be used to evaluate the professional autonomy of Japanese midwives and for midwifery education.

Keywords: midwife, professional autonomy, scale, reliability, validity

Abbreviation:

J-MPAS: Japanese Midwives Professional Autonomy Scale

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INTRODUCTION

In Japan, outpatient and in-hospital midwifery have increased in recent years, and advanced midwives¹ who can autonomously provide midwifery care are expected to play an active role. One of the reasons is that the number of obstetricians and obstetric facilities is decreasing in Japan.² Japanese midwives do not want to practice "autonomous care" independently and tend to prefer to work under the direction and guidance of a doctor.³ Therefore, Japanese midwives require education to improve their professional autonomy. For that purpose, it is necessary to visualize the autonomy required for midwives, and indispensable to develop a professional autonomy scale.

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Literature review

The autonomy demanded of midwives is a unique quality, demonstrated in their midwifery practice and essential to the profession. Prior research conducted in Japan has found that midwife autonomy is indicated by care responsibilities and decision-making that support the autonomy of the expectant mother.⁴ Pollard⁵ defines autonomy as the ability to make responsible decisions regarding actions and judgments. Thus, midwife autonomy is the ability to proactively make a midwifery diagnosis of a perinatal woman's condition and to provide midwifery care responsibly; Pollard states that a prerequisite for midwife autonomy is that the midwife must have knowledge and authority or the right to regulation of autonomy (scope of practice). Other previous overseas studies have also associated autonomy with the freedom to make judgments based on one's own practice⁶ or with the regulation of work.⁷ However, midwives in Japan are unclear about their authority over midwifery care and lack awareness of such authority; hence, they often provide midwifery care under the direction of physicians. Midwifery education does not allow midwives to provide autonomous care. Therefore, it is necessary to clarify the regulation of autonomy (scope of practice) by the authority and to improve professional autonomy in midwifery education in Japan.

In this study, referring to previous studies,⁸⁻¹¹ professional autonomy was defined as "the ability to make decisions and choices based on professional norms and to take responsibility for their actions." There are no scales to measure professional autonomy—specifically for midwives—in Japan. A study by Ishibiki et al, which used the Professional Autonomy in Nursing Scale,⁴ developed by Kikuchi et al, found that professional autonomy in midwives correlated with age, years of experience, job position, and number of experiences assisting with delivery. They also found that midwives with high autonomy had high levels of collaboration with doctors.⁹ However, the scale used is largely divided into three sections—recognizing, judging, and practicing—in the context of nursing activities and items comprise events that represent behaviors specific to the decision-making process in nursing and mastery of nursing skills. Nonetheless, the scale lacks items that represent behavioral characteristics of midwifery, such as midwifery diagnosis and care, and it is, therefore, difficult to suggest that this scale measures the autonomy demanded of midwives. There are also no scales that measure autonomy specific to midwives in past research outside of Japan. The "Perceptions of Empowerment in Midwifery Scale,"¹² developed by Matthews, to measure the perception of empowerment in midwifery includes questions related to autonomy in midwives. However, the question "I am autonomous in my practice" is abstract and only part of a scale to measure perceptions of empowerment. Therefore, concrete measurement of the autonomy required for decision-making and action in midwifery practice in all settings has been lacking. While the Nursing Activity Scale,¹³ proposed by the American researcher Schutzenhofer, and the Pankratz Nursing Questionnaire¹⁴ from Pankratz et al have been translated^{10,15} and used in Japan, both scales measure the autonomy demanded of nurses when making decisions concerning nursing conduct and actions. Thus, they are not suited to midwives who provide midwifery care based on their own diagnoses. Further, considering that these scales may be impacted by the historical background in which they were developed, for example with regard to the social position held by nurses, it would be difficult for them to measure the autonomy of midwives in modern society. Thus, it is clear that existing scales measuring autonomy in nurses cannot be used to measure the professional autonomy in midwifery practice, demanded of midwives in modern Japan. It is therefore essential to develop a scale measuring autonomy that is specific to midwives. Further, utilizing this scale to visualize the autonomy of midwives will be integral in providing education for future Japanese midwives that fosters autonomy. Furthermore, we believe that it would be useful to foster midwife autonomy education in other countries where the authority of midwives is in a state similar to that of Japan.

Purpose of the study

This study aimed to develop a professional autonomy scale for midwives and to evaluate its reliability and validity.

METHODS

Design

A cross-sectional research design was used to develop and confirm the reliability and validity of a professional autonomy scale for midwives.

Item generation and selection

In step one, three teachers, involved in midwifery education, extracted professional autonomy scale items for midwives. The items were extracted with reference to “Midwife’s Statement,” “Essential Competencies for Midwifery Practice,” and Japan’s “Midwifery Practical Ability Proficiency Stage (Clinical Ladder).”^{16,17} We also referred to the International Confederation of Midwives’ Code of Ethics for Midwives¹⁸ and “Ability Essential for Basic Midwifery Operations.”¹⁹ Additionally, we referred to previous studies on professional autonomy and references^{8, 9, 20-23} with the keywords “midwife,” “autonomy,” “professional,” and “scale.” The content was related to the characteristics of thoughts and behaviors that are recognized as being that of midwives. The questions were based on the midwife’s core competencies, which reflected the midwife’s statement, which is a global standard. In particular, the questions extracted the content related to autonomous decision-making and behavior that are essential for midwifery care for mothers and newborns during pregnancy, delivery, and puerperium, and created a prototype of a 44-item professional autonomy scale for midwives.

Content validity

In step two, the content validity of the scale items was considered by six teachers and four ward managers, engaged in midwife education. This was to check whether the content measures the autonomy of midwives, covers the elements, and that the number of items and question expressions is appropriate. The content validity was confirmed when the Content Validity Index (CVI) for all 44 items was more than 0.8.

Pilot study

To analyze the test items, a pilot study was conducted on 30 midwives working in perinatal medical centers, general hospitals, and clinics. The data of 30 samples were item-analyzed, and items with the same meaning were deleted or the expressions were modified. The items with a correlation coefficient greater than 0.8 were selected; 33 items of the original “Japanese Midwives Professional Autonomy Scale (J-MPAS)” were thus selected. Refer to APPENDIX for this point.

Main study

Participants and procedure. The main survey was conducted on midwives conducting deliveries at facilities in the Chubu region. The midwives with a midwifery license, but no work experience, and those who were not currently engaged as midwives, were excluded. The main study was conducted using an anonymous self-administered questionnaire. A test-retest was adopted to examine the stability of the J-MPAS. The retest was conducted approximately two weeks after the first survey. All questionnaires were returned by mail. Questions included 33 items from the original midwives’ professional autonomy scale, including job satisfaction,

self-efficacy scale items, self-esteem scale items, age, years of experience, number of deliveries assisted, educational background, work institution, work status, experience teaching students, and commitment to research.

Measures. The original edition of the J-MPAS 33 items extracted by the pilot study was used. This scale measures the autonomy of Japanese midwives in clinical midwifery care. Midwifery professional autonomy refers to decision-making and responsible care in midwifery practices based on professional ethics. Participants rated each item on a 7-point scale (“Completely Agree” 7 points, “Agree” 6 points, “Somewhat Agree” 5 points, “Neither agree nor disagree” 4 points, “Somewhat Disagree” 3 points, “Disagree” 2 points, and “Completely Disagree” 1 point). These points were simply added to obtain the total score. Midwives’ job satisfaction, self-efficacy, and self-esteem were measured to evaluate criterion-related validity. This decision was based on the results of a study of behaviors accompanying autonomy in midwives by Pollard,⁵ who found that autonomy is accompanied by increased job satisfaction, self-respect, and confidence. An understanding of the scope of their own practice has also been raised as a prerequisite for demonstrating autonomy in midwives. This element has been shown to predict their performance in providing care and is similar to the concept of self-efficacy proposed by Bandura,²⁴ which refers to one’s perception of how well they can complete the actions necessary to achieve a certain result. We measured job satisfaction using a visual analog scale of participants’ satisfaction with their work as a midwife, with “not satisfied” at 0 and “satisfied” at 10. To measure self-esteem, we used the Japanese version of the Rosenberg Self-Esteem Scale, which has been confirmed to have reliability and validity, based on the original version by Yamamoto et al.²⁵ The Japanese version of this Scale comprises 10 items, scored from 1 (does not apply) to 5 (applies) points. Total score is calculated by adding the score for each item. Total scores can range from 10 to 50 points, with a higher score indicating a higher level of self-esteem. For measuring self-efficacy, we used the General Self-Efficacy Scale (GSES), developed and confirmed for reliability and validity by Sakano et al.,²⁶ after receiving consent from the scale’s developers. Self-efficacy refers to one’s expectations regarding whether one can successfully complete a certain action. The GSES measures whether one’s expectations in this respect are high or low. The scale comprises 16 items, each rated on a 2-point scale of “yes” (1 point) or “no” (0 points). Item scores are simply added to calculate the total score. Total score ranges from 0 to 16 points, with a higher score indicating a higher level of self-efficacy.

Ethical considerations

This study was conducted with approval from the Bioethics Review Committee of the Nagoya University Graduate School of Medicine (Approval No.18-127). Participants received an explanation of the study in writing, stating that participation was voluntary, that data collection would use anonymous self-report questionnaire forms, and that individual results would not be identifiable. Participants who agreed to the written explanation answered the questionnaire.

Data analysis

Exploratory factor analysis (principal factor method, promax rotation) of the original 33-item J-MPAS was used to confirm factor structure and to examine construct validity. An eigenvalue of 1 or above and a factor loading of 0.4 or above, were the criteria for item selection. The reliability of scale items was confirmed using Item-Total correlation analysis and Good-Poor analysis of items of the J-MPAS, previously confirmed to have construct validity. Concerning the scale’s reliability, Cronbach’s α coefficient was calculated for the J-MPAS as a whole, and each factor and internal consistency was confirmed with a standard of 0.7 or above. Further, stability

was confirmed using the retest method to calculate the correlation coefficient between the total scores, on the first and second administration of the scale. The criterion-related validity was confirmed from the correlation coefficients between the score on the J-MPAS and scores on the scale of job satisfaction, Rosenberg Self-Esteem Scale, and GSES. SPSS Ver.22.0 for Windows was used for statistical analysis.

RESULTS

The investigation was conducted in 43 institutions (28 perinatal medical centers and general hospitals and 15 clinics), where consent was obtained from August 2018 to December 2018. We distributed an unsigned, written-by-oneself-type question paper to 695 midwives, of whom 402 responded (57.8% response rate). Of these, 399 responses, with no missing data on the scale questions, were analyzed (valid response rate 99.3%).

Demographic characteristics of the participants

The participating midwives had a mean age of 39.4 ± 10.4 years and a mean experience of 13.3 ± 9.4 years. The average score of the participants' J-MPAS, was 128 points. The score of J-MPAS increased as the age, years of experience, and number of childbirth assistance cases increased ($p < 0.01$).

Table 1 Participants' demographic characteristics (N=399)

	N	%	J-MPAS		p^a
			Median	Interquartile	
Age (years)					
20s	83	20.8	121.0	115.0–129.0	<.001
30s	124	31.1	128.5	118.0–139.0	
40s	111	27.8	129.0	119.0–139.0	
50s	80	20.0	139.0	127.5–142.0	
N/A	1	0.3			
Work experience (years)					
< 5	82	20.6	119.5	112.8–128.3	<.001
5–10	115	28.8	127.0	117.0–138.0	
11–15	52	13.0	131.5	121.3–139.8	
≥ 16	149	37.3	136.0	125.5–142.0	
N / A	1	0.3			
Delivery assistance experiences (cases)					
< 99	87	21.8	121.0	114.0–130.0	<.001
100–199	77	19.3	127.0	118.0–138.0	
200–499	119	29.8	129.0	119.0–138.0	
≥ 500	101	25.3	138.0	125.0–142.0	
N/A	15	3.8			

Workplace					
Comprehensive perinatal medical center	103	25.8	132.0	120.0–140.0	
Regional perinatal medical center	84	21.1	128.0	118.3–138.8	ns
General hospital	89	22.3	129.0	119.0–138.0	
Clinic	122	30.6	127.0	117.8–139.3	
Other	1	0.3			

J-MPAS: Japanese Midwives Professional Autonomy Scale

N/A: not applicable

ns : not significant

^a Kruskal-Wallis Test

The Japanese Midwives Professional Autonomy Scale (J-MPAS)

As a result of item analysis, 33 items of the J-MPAS had no ceiling effect or floor effect. Therefore, factor analysis was performed for 33 items. Exploratory factor analysis yielded a factor structure for the J-MPAS comprising 5 factors and 24 items. 9 items with factor loading less than 0.40 were excluded.

Table 2 Exploratory factor analysis of the Japanese Midwives Professional Autonomy Scale N=399

		Factor					Reliability coefficient Cronbach's α (Total scale =0.95)
		I	II	III	IV	V	
Factor I Perinatal midwifery practice ability (9 items)							
28	I can provide midwifery care to help new mothers approach childcare positively.	0.88	-0.07	0.11	-0.06	0.01	
30	I can provide midwifery care to help newborns adapt to life outside the womb.	0.88	0.10	-0.05	-0.08	-0.05	
29	I can provide midwifery care to prevent deviation from the normal events that could occur after childbirth.	0.85	0.01	-0.01	0.05	-0.03	
31	I can provide midwifery care that promotes attachment between mother and child and the family.	0.85	-0.08	0.15	-0.04	-0.10	
27	I can provide midwifery care to support breastfeeding.	0.76	-0.07	0.04	0.06	0.02	0.94
32	I can judge deviation from the norm in newborns (neonatal asphyxia, jaundice, poor suckling, etc.).	0.61	0.17	-0.10	0.19	-0.05	
26	I can provide midwifery care to facilitate overall recovery in new mothers.	0.56	0.36	-0.01	-0.04	-0.02	
20	I can provide midwifery care to prevent deviation from the normal events that could occur during pregnancy.	0.52	0.18	0.08	-0.03	0.15	
21	I can judge deviation from the norm during pregnancy (pregnancy-induced hypertension, fetal growth restriction, etc.)	0.43	0.15	0.01	0.07	0.11	

Factor II Responsibilities in midwifery care (6 items)							
22	I can provide midwifery care suited to the mother's stage of delivery.	0.02	0.98	-0.02	-0.05	-0.09	
24	I can provide midwifery care to prevent deviation from the normal events that could occur during the progression of childbirth (prolonged labor, infection, hemorrhage, etc.).	0.12	0.70	-0.10	0.08	0.09	
23	I can provide midwifery care to allow the mother to actively participate in childbirth.	0.24	0.57	0.06	-0.09	0.07	0.89
9	I can take responsibility for the midwifery care I provided.	-0.08	0.55	0.34	0.04	-0.05	
25	I can handle sudden emergencies in the mother or child (non-reassuring fetal status, atonic hemorrhage, eclampsia, etc.).	0.27	0.47	-0.16	0.20	0.04	
1	I provide midwifery care based on a professional mindset.	-0.02	0.45	0.33	-0.05	-0.04	
Factor III Caring in midwifery care (4 items)							
5	I can provide midwifery care that respects the values of the mother and family (culture, religion, etc.).	-0.02	0.04	0.74	-0.01	0.02	
6	I can respect reproductive health/rights.	0.06	-0.10	0.72	-0.01	0.10	0.83
7	I can express my opinion while respecting the other person's opinion.	0.05	0.03	0.64	0.06	-0.03	
8	I can provide support according to changes in the responses of the mother, child, and family.	0.19	0.07	0.53	0.09	-0.02	
Factor IV Collaboration and cooperation in midwifery care (3 items)							
14	I can collaborate with other professionals (doctors, nurses, laboratory technicians, pharmacists, etc.).	-0.07	0.02	0.06	0.88	-0.03	
13	I can cooperate with other departments in the event of an emergency.	0.04	0.03	-0.04	0.84	0.03	0.85
15	I can coordinate with other professionals (public health nurses, social workers, etc.) to work toward the discharge of mothers and children who require support.	0.17	-0.09	0.15	0.57	-0.01	
Factor V Brush up on midwifery care (2 items)							
18	I can work on research for midwifery practice.	0.03	-0.05	-0.03	-0.03	0.88	
17	I can participate in conferences and training outside the hospital to gain new knowledge and skills on my own.	-0.11	0.03	0.12	0.04	0.60	0.69
Correlations between factors I		-	0.78	0.66	0.71	0.46	
			-	0.56	0.68	0.46	
				-	0.60	0.44	
					-	0.45	
						-	

Principal factor method, promax rotation, factor loading > 0.40, KMO: Kaiser-Meyer-Olkin =0.96

Factor I—“perinatal midwifery practice ability”—comprises 9 items related to midwifery diagnosis and care during pregnancy, delivery, puerperium, and neonatal period: “I can judge deviation from the norm during pregnancy,” “I can provide midwifery care to prevent deviation from the normal events that could occur after childbirth,” “I can provide midwifery care to help newborns adapt to life outside the womb,” and others. They are regarded as the decision-making and action skills necessary for midwifery care. Factor II—“responsibilities in midwifery care”—comprised 6 items expressing the responsibility in the duties as a midwife: “I can take responsibility for the midwifery care I provided,” “I can handle sudden emergencies in the mother or child,” and others. Factor III—“caring in midwifery care”—comprised 4 items, interpreted as content respecting the dignity and rights of those who need midwifery care: “I can provide midwifery care that respects the values of the mother and family,” “I can express my opinion while respecting the other person’s opinion,” and others. Factor IV—“collaboration and cooperation in midwifery care”—comprised 3 items, interpreted as content regarding relationships with other professions in the context of preparing for discharge or collaborating during emergencies: “I can collaborate with other professions,” “I can cooperate with other departments in the event of an emergency,” and others. Factor V—“brush up on midwifery care”—comprised 2 items, interpreted as content deepening professional knowledge, for example working on research or participating in training for midwifery practice: “I can work on research for midwifery practice” and “I can participate in conferences and training outside the hospital to gain new knowledge and skills on my own.” Further, the item-total correlation analysis results confirmed that all 24 items of the J-MPAS had moderate to strong significant correlations with the total scale score ($r=0.40\sim 0.80$, $p<0.01$).

In the good-poor analysis, two groups were created based on the overall score—one with the highest 25% scores and the second with the lowest 25% scores. The respective total scores for the 24-item J-MPAS were compared using a Mann-Whitney U test. The results demonstrated that the average rank of the good group was significantly higher for all items ($p<0.001$).

Reliability and validity of the J-MPAS

Internal consistency. As a result of reliability analysis on internal consistency, Cronbach’s α coefficient for the entire J-MPAS was 0.95. Cronbach’s α coefficients for Factors I–V were 0.94, 0.89, 0.83, 0.85, and 0.69, respectively.

Stability. A reliability analysis of stability was performed using a retest of 324 respondents. Consequently, a significantly strong positive correlation (Intraclass correlation coefficient=0.899, $p<0.001$) was confirmed.

Criterion-related validity. Total scores on the J-MPAS showed a significant positive correlation ($r_s = 0.440$, $p < 0.01$) with total scores on the GSES. Total scores on the job satisfaction and

Table 3 Correlation of Japanese Midwives Professional Autonomy Scale score and job satisfaction/self-esteem/self-efficacy (N=399)

Item	Japanese Midwives Professional Autonomy Scale score					
	Total Score	Factor I	Factor II	Factor III	Factor IV	Factor V
Job satisfaction	.258**	.232**	.256**	.188**	.175**	.175**
Self-esteem score	.358**	.353**	.324**	.272**	.296**	.174**
Self-efficacy score	.440**	.398**	.425**	.345**	.381**	.244**

Spearman’s correlation coefficient, **: $p < 0.01$

self-esteem scale also showed a fragile but significant positive correlation ($r_s = 0.258$, $r_s = 0.358$, $p < 0.01$) with total scores on the J-MPAS. The subscales of the J-MPAS showed that Factor II was significantly positively correlated ($r_s = 0.425$, $p < 0.01$) with the GSES. Other correlations with its subscales showed weak but significant positive correlations ($r_s = 0.174$ – 0.353 , $p < 0.01$).

DISCUSSION

The J-MPAS is the first measure of autonomy developed for midwives in Japan. The results of this study verified the validity and reliability of the J-MPAS and established that this scale is capable of evaluating the professional autonomy of midwives providing midwifery care in perinatal medical care settings.

Evaluation of the validity and reliability of the J-MPAS

Construct validity. Exploratory factor analysis revealed a factor structure for the J-MPAS comprising 5 factors and 24 items and confirmed sufficient consistency. The subscales comprised five characteristics deemed necessary for autonomous midwives: Factor I “perinatal midwifery practice ability,” Factor II “responsibilities in midwifery care,” Factor III “caring in midwifery care,” Factor IV “collaboration and cooperation in midwifery care,” and Factor V “brush up on midwifery care.” We believe that all five factors are included in the core competencies of midwives and that content appropriate for the construct of midwifery autonomy was extracted. The core competencies of midwives are those possessed by professionally autonomous midwives¹⁶ and include “practical midwifery competence,” “ethical sensitivity,” and “professional autonomy.” These three competencies are consistent with the five factors of the J-MPAS. Factors I and II of the J-MPAS are consistent with “practical midwifery competence,” Factor III with “ethical sensitivity,” and Factors IV and V with “professional autonomy.” Furthermore, since the content was also consistent with the concept of autonomy of midwives in Ito,⁴ which served as the conceptual model for this study, we believe that the construct factor validity has been confirmed. The constructive concept of the professional autonomy of the midwife is shown in Table 4.

Compared to the previously used professional autonomy scale⁸ for nurses, the J-MPAS has items that represent decision-making and responsible behavior related to midwifery care. The

Table 4 Constructive concept of the professional autonomy of the midwife

Conceptual framework of autonomy of midwives (Ito: 2015) ⁴	Core competency of the midwives (Japan Nursing Association)	Japanese Midwives Professional Autonomy Scale
“Diagnosis and practice of midwifery” “Ability to practice care during delivery”	Maternity care ability (pregnancy, childbirth, or the puerperium, neonatal diagnosis and care)	Factor I: Perinatal midwifery practice ability
	Ethical stress (Caregiving attitude)	Factor II: Responsibilities in midwifery care Factor III: Caring in midwifery care
“Collaboration and cooperation with doctors”	Professional autonomy ability (Management/Self-development)	Factor IV: Collaboration and cooperation in midwifery care
		Factor V: Brush up on midwifery care

reason is that in Japan, normal birth care is a task that is entrusted solely to midwives, and we believe that items such as sensitivity, cooperativeness, and study skills necessary for the responsibility and practice required by such tasks were extracted as characteristics of autonomous midwives. In other words, the strength of the J-MPAS is that it represents decision-making and responsible behavior in midwifery care, and it demonstrates autonomy specialized in midwifery. However, a possible disadvantage is the possibility of dishonest responses being included, since there were no reversal items in the scale.

Criterion-related validity. Criterion-related validity was confirmed through correlation analysis of the J-MPAS and scores for job satisfaction, the Rosenberg Self-Esteem Scale, and GSES. The significant positive correlation between the total score on the J-MPAS and the total score on the self-efficacy scale indicates that the higher the midwife's autonomy, the higher her self-efficacy. In particular, the significant positive correlation with the score on Factor II, "responsible midwifery care," suggests that midwives' self-confidence increases when they recognize that they were able to practice midwifery during childbirth, which is a significant responsibility. The fact that the total scores on the job satisfaction and self-esteem scales also showed a significant, though weak, positive correlation, rather than no correlation, with the total scores on the J-MPAS suggests that, in no small part, increased midwifery autonomy may also increase job satisfaction and self-esteem.

Pollard⁵ stated that autonomous behavior resulted in increased job satisfaction and confidence. Hence, we believe that the criterion-related validity of the J-MPAS was confirmed by the significant positive correlations between the autonomy of midwives and job satisfaction, self-esteem, and self-efficacy in this study.

Reliability. The results of this study successfully confirmed the reliability of the J-MPAS in terms of internal consistency. Our results further demonstrated a significant positive correlation between the total scale score on the main test and retest, confirming the stability of the scale score. Lastly, item-total correlation analysis found moderate to strong correlations, and a good-poor analysis also showed sufficient discrimination, thereby confirming the reliability of the J-MPAS items.

Application to practice

This study confirmed the reliability and validity of J-MPAS and proved to be a measure of the professional autonomy of midwives. The J-MPAS allows individual midwives to self-evaluate and make use of the results in their own career development. Midwives can see how confident they were in midwifery care by using this scale. Evaluation by the scale leads to better midwifery care for the subsequent mothers and children. This is consistent with the outcomes of the UK Midwifery Conceptual Framework: autonomous execution of midwives provides better care for service recipients. In addition, since it refers to the core competencies of midwives of the world standard, it is considered that midwives in other countries can fully utilize it. Regular use of the scale can help educators promote midwifery autonomy, as it can visualize midwifery autonomy in midwifery practice. Visualization of autonomy allows educators to understand not only the status of the job autonomy of individual midwives but also the growth process. It is also possible to suggest the teaching method for individual midwives and the appropriate timing of education. The novelty of this study is that "brush up on midwifery care" was included in the scale. The professional autonomy scale of other occupations shows the autonomy associated with judgment and behavior during care. However, the J-MPAS provided a new perspective and proved that learning and polishing skills by itself is essential autonomy as a professional.

Limitations

The limitation of this study is that despite the autonomy scale of Japanese midwives, it was not possible to investigate all midwives in Japan. However, the area surveyed caters to the average number of midwives working in Japan, and it is a model city that applies to many areas. Therefore, it can be applied to midwives working in similar urban facilities. In addition, although this survey was conducted with Japanese midwives, future studies using this scale in other countries are needed to examine the autonomy of midwives.

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CONFLICT OF INTEREST STATEMENT

There are no conflicts of interest to declare.

REFERENCES

- 1 Takaoka S. Current status about certification of advanced midwife and expectation [in Japanese]. *J Jpn Acad Midwif*. 2018;32(1):1-2. doi:10.3418/jjam.foreword-32-1.
- 2 Ministry of Health, Labour and Welfare. Background and purpose of promoting outpatient midwifery and midwives in hospitals [in Japanese]. https://www.mhlw.go.jp/file/06-Seisakujouhou-10800000-Iseikyoku/josan_suishin.pdf. Accessed April 16, 2017.
- 3 Shirai C, ed. *The History of Childbirth, Childrearing, and Midwifery: A reflection on 200 Years of Modernization* [in Japanese]. Tokyo: Igaku-Shoin; 2016.
- 4 Ito Y, Yoshimura S, Sagawa T. Property of midwives' autonomy based on concept analysis in the midwifery system [in Japanese]. *Jpn J Matern Health*. 2015;56(1):95-103.
- 5 Pollard K. Searching for autonomy. *Midwifery*. 2003;19(2):113-124. doi:10.1016/S0266-6138(02)00103-1.
- 6 Davis DL, Homer CS. Birthplace as the midwife's work place: how does place of birth impact on midwives? *Women Birth*. 2016;29(5):407-415. doi:10.1016/j.wombi.2016.02.004.
- 7 Bedwell C, McGowan L, Lavender T. Factors affecting midwives' confidence in intrapartum care: a phenomenological study. *Midwifery*. 2015;31(1):170-176. doi:10.1016/j.midw.2014.08.004.
- 8 Kikuchi A, Harada T. A study on the measurement of professional autonomy in nursing [in Japanese]. *Bull Educ Shizuoka Univ Lib Arts Soc Sci Ser*. 1997;47:241-254. doi:10.14945/00008224.
- 9 Ishibiki K, Nagaoka Y, Kanou N. Study on collaboration of midwives with obstetricians: with special focus on midwifery autonomy [in Japanese]. *J Jpn Acad Midwif*. 2013;27(1):60-71. doi:10.3418/jjam.27.60.
- 10 Kaharu C. A study of professional autonomy in the basic nursing curriculum: differences in professional autonomy at nursing schools, junior colleges, and colleges [in Japanese]. *Kango Kenkyu*. 1990;23(1):77-88. doi:10.11477/mf.1681900236.
- 11 Koyano Y. Trends in research and consideration of concepts concerning professional autonomy in nursing [in Japanese]. *Seiroka Kango Daigaku Kiyo*. 2000;26:50-58.
- 12 Matthews A, Scott PA, Gallagher P. The development and psychometric evaluation of the Perceptions of

- Empowerment in Midwifery Scale. *Midwifery*. 2009;25(3):327-335. doi:10.1016/j.midw.2007.02.006.
- 13 Schutzenhofer KK. The measurement of professional autonomy. *J Prof Nurs*. 1987;3(5):278-283. doi:10.1016/S8755-7223(87)80039-X.
 - 14 Pankratz L, Pankratz D. Nursing autonomy and patients' rights: development of a Nursing Attitude Scale. *J Health Soc Behav*. 1974;15(3):211-216. doi:10.2307/2137021.
 - 15 Hirai S, Kazawa M, Ueda T, Suzuki E, Kataoka Y, Sato C. First reported verification of reliability and validity of the Japanese version of the Nursing Activity Scale (1992): professional autonomy of Japanese clinical nurses [in Japanese]. *Jpn J Hum Sci Health Soc Serv*. 2009;15(1):31-38. doi:10.20681/hwelfare.15.1_31.
 - 16 Japanese Midwives Association. *Midwives' declaration/core competencies* [in Japanese]. Tokyo: Japanese Midwives' Publishing Corporation; 2010.
 - 17 Japan Midwifery Practical Ability Promotion Council, ed. *An educational program for building midwifery competency based on the clinical ladder of competencies for midwifery practice* [in Japanese]. Tokyo: Igaku-Shoin; 2015.
 - 18 Japanese Nursing Association. ICM Summary of Midwifery Ethics [in Japanese]. https://www.midwife.or.jp/~/kokusai-katsudo/icm_ethics.pdf. Published 2008. Accessed April 21, 2016.
 - 19 International Confederation of Midwives (ICM). Essential competencies for basic midwifery practice [in Japanese]. http://square.umin.ac.jp/jam/ICM/ICM.2_Essential%20Competencies%20for%20Basic%20Midwifery%20Practice%20.pdf. Published 2010. Accessed April 21, 2016.
 - 20 Goemaes R, Beeckman D, Goossens J, Shawe J, Verhaeghe S, Van Hecke A. Advanced midwifery practice: an evolutionary concept analysis. *Midwifery*. 2016;42:29-37. doi:10.1016/j.midw.2016.09.004.
 - 21 Butler MM, Fraser DM, Murphy RJ. What are the essential competencies required of a midwife at the point of registration? *Midwifery*. 2008;24(3):260-269. doi:10.1016/j.midw.2006.10.010.
 - 22 Fry ST, Johnstone MJ. *Ethics in Nursing Practice: A Guide to Ethical Decision Making* [in Japanese]. 3rd ed. Katada N, Yamamoto A, trans. Tokyo: Japanese Nursing Association Publishing Company; 2010.
 - 23 Raynor MD, Marshall JE, Sullivan A, eds. *Decision Making in Midwifery Practice* [in Japanese]. Hiruta A, trans. Tokyo: Elsevier Japan; 2006.
 - 24 Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 1977;84(2):191-215. doi:10.1037/0033-295X.84.2.191.
 - 25 Yamamoto M, Matsui Y, Yamanari Y. The structure of perceived aspects of self [in Japanese]. *Jpn J Educ Psychol*. 1982;30(1):64-68. doi:10.5926/jjep1953.30.1_64.
 - 26 Sakano Y, Tohjoh M. The general self-efficacy scale: scale development and validation [in Japanese]. *Jpn J Behav Ther*. 1986;12(1):73-82. doi:10.24468/jjbt.12.1_73.

APPENDIX

Original edition of the Japanese Midwives Professional Autonomy Scale (33 items)

	Item	Completely disagree				Completely agree		
		1	2	3	4	5	6	7
1	I provide midwifery care based on a professional mindset.	1	2	3	4	5	6	7
2	I can self-evaluate the midwifery care that I have provided to the mother, child, and family.	1	2	3	4	5	6	7
3	I can provide the information that the mother and family need to make decisions.	1	2	3	4	5	6	7
4	I can explain the rationale for the midwifery care that I provide.	1	2	3	4	5	6	7
5	I can provide midwifery care that respects the values of the mother and family (culture, religion, etc.).	1	2	3	4	5	6	7
6	I can respect reproductive health/rights.	1	2	3	4	5	6	7
7	I can express my opinion while respecting the other person's opinion.	1	2	3	4	5	6	7
8	I can provide support according to changes in the responses of the mother, child, and family.	1	2	3	4	5	6	7
9	I can take responsibility for the midwifery care I provided.	1	2	3	4	5	6	7
10	I can prepare the environment for the safety of the mother and child.	1	2	3	4	5	6	7
11	I can promptly report the deviation from the normality of the mother and child to the doctor.	1	2	3	4	5	6	7
12	I can play a role as a midwife in the medical team.	1	2	3	4	5	6	7
13	I can cooperate with other departments in the event of an emergency.	1	2	3	4	5	6	7
14	I can collaborate with other professionals (doctors, nurses, laboratory technicians, pharmacists, etc.).	1	2	3	4	5	6	7
15	I can coordinate with other professionals (public health nurses, social workers, etc.) to work toward the discharge of mothers and children who require support.	1	2	3	4	5	6	7
16	I can take a leadership role for junior midwives and students.	1	2	3	4	5	6	7
17	I can participate in conferences and training outside the hospital to gain new knowledge and skills on my own.	1	2	3	4	5	6	7
18	I can work on research for midwifery practice.	1	2	3	4	5	6	7

19	I can determine if the health of the pregnant woman and the fetus is normal.	1	2	3	4	5	6	7
20	I can provide midwifery care to prevent deviation from the normal events that could occur during pregnancy.	1	2	3	4	5	6	7
21	I can judge deviation from the norm during pregnancy (pregnancy-induced hypertension, fetal growth restriction, etc.).	1	2	3	4	5	6	7
22	I can provide midwifery care suited to the mother's stage of delivery.	1	2	3	4	5	6	7
23	I can provide midwifery care to allow the mother to actively participate in childbirth.	1	2	3	4	5	6	7
24	I can provide midwifery care to prevent deviation from the normal events that could occur during the progression of childbirth (prolonged labor, infection, hemorrhage, etc.).	1	2	3	4	5	6	7
25	I can handle sudden emergencies in the mother or child (non-reassuring fetal status, atonic hemorrhage, eclampsia, etc.).	1	2	3	4	5	6	7
26	I can provide midwifery care to facilitate overall recovery in new mothers.	1	2	3	4	5	6	7
27	I can provide midwifery care to support breastfeeding.	1	2	3	4	5	6	7
28	I can provide midwifery care to help new mothers approach childcare positively.	1	2	3	4	5	6	7
29	I can provide midwifery care to prevent deviation from the normal events that could occur after childbirth.	1	2	3	4	5	6	7
30	I can provide midwifery care to help newborns adapt to life outside the womb.	1	2	3	4	5	6	7
31	I can provide midwifery care that promotes attachment between mother and child and the family.	1	2	3	4	5	6	7
32	I can judge deviation from the norm in newborns (neonatal asphyxia, jaundice, poor suckling, etc.).	1	2	3	4	5	6	7
33	I can properly care for newborns in need of resuscitation.	1	2	3	4	5	6	7