Original article

Development of a Japanese version of Salmon's Item List suitable for comparing satisfaction with childbirth experience between different modes of delivery

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Abstract

Purpose

Cesarean section birth rates in Japan increased to 19.7% by 2014. In Japan, there is no suitable scale for comparing the satisfaction of childbirth experience between vaginal deliveries and cesarean sections. This study aimed to develop a Japanese version of Salmon's Item List to compare different delivery modes.

Method

First, we pre-tested 22 women receiving a one-month postpartum check-up using a Japanese version of Salmon's Item List that had been translated per the process recommended by World Health Organization. Next, 401 women undergoing one-month postpartum check-ups at 5 different secondary emergency hospitals completed the translated questionnaire. SPSS Statistics ver. 23 was used for statistical analysis, and the significance level was set at 5%.

Results

There were 344 (68.8%) valid responses. Cronbach's alpha for the total scale was 0.849 and 0.654–0.90 for the three subscales, which were similar to the original version. Higher scores indicate more positive experiences. The highest total score was for planned cesarean, followed by normal delivery, emergency cesarean section, and vacuum extraction.

Conclusion

This scale can objectively evaluate childbirth experience via any mode. There is, nevertheless, still room for improvement of the Japanese version of Salmon's Item List by re-examining its subscale components.

Key words: childbirth, cesarean section, satisfaction with childbirth, rating scale for childbirth experience

Introduction

Birth numbers have been decreasing yearly in Japan, and in 2014, there was a record minimum of approximately one million births (Cabinet Office, 2016). The declining birth rate is predicted to continue to accelerate because of the increasing average age of mothers who give birth to their first child which was 30.3 years old in 2016 (Cabinet Office, 2016). With recent lifestyle changes, many women hope for a safe, valuable, and satisfying childbirth experience (Kameda et al., 2006;

Takeuchi, 2014). It is important to support mothers so that they can have a positive childbirth experience whatever the delivery mode because a mothers' childbirth experience affects self-esteem and the mother-infant interaction. If the childbirth experience is negative, the mother might develop low self-esteem, which can cause postpartum depression and difficulty in child care (Arimoto et al., 2010; Tokiwa, 2003; Yui et al., 2009).

According to reports on cesarean section births, women often feel that their cesarean section is a shocking or bad experience (Obayashi et al., 2010). There are

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reports that women who give birth by cesarean section have a higher risk of developing maternal depression than do women who give birth vaginally (Harada, 2008; Sato et al., 2002; Yamashita et al., 2003).

In 1990, the rate of cesarean section births in Japan was 10%; by 2014, this has increased to 19.7% (Ministry of Health, Labour, and Welfare, 2016)—in other words, roughly one in five births was by cesarean section. According to the 2014 Japan obstetrics and gynecology clinical guidelines, cesarean sections are required when the mother has a history of cesarean section, breech presentation, or twin pregnancies (Japan Society of Obstetrics and Gynecology, 2014). Additionally, given the older age of mothers, the influence of advanced reproductive technologies, and diversifying needs of pregnant women, the range of births that need cesarean sections is expanding (Takeuchi, 2014).

Currently, there is almost no quantitative research about cesarean section childbirths in Japan. Until now, there has been no scale allowing for comparing cesarean section and vaginal delivery in Japan. Because existing questionnaires (Misago et al., 2005; Saegusa, 1999; Takehara et al., 2007; Tokiwa et al., 2000a; Tokiwa et al., 2000b) contain questions related only to vaginal delivery such as “Were you able to let out groans without controlling them?” it is doubtful that such scales are suitable for comparing vaginal delivery and cesarean section births.

Internationally, cesarean section birth rates (Martin et al., 2017; Vogel et al., 2015) have increased at a significantly higher rate compared to Japan. Currently, 48.6% of births in China and 32.7% in the USA are cesarean section births. An increasing number of women choose to have cesarean sections even when medically unnecessary (American College of Obstetricians and Gynecologists, 2013; Loke et al., 2015), which appears to be the cause of high cesarean section rates internationally.

According to Spaich et al. (2013), in Europe, the mode of delivery does not directly influence women's satisfaction with childbirth experience. Important factors for positive childbirth experience are involvement in decision-making, support during labor, and effective analgesia (Blomquist et al., 2011). Japanese women's attitudes toward cesarean section may be changing along

with the social environment, such as the fact that older mothers are giving birth and reproductive technologies are advancing.

A suitable scale to measure the satisfaction of the birth experience needs to be developed to understand the current attitudes of women who gave birth by cesarean section and how these attitudes compare with those of women who give birth by vaginal delivery.

Rating scale of mothers' childbirth experiences

Within the last five years, there have been two literature reviews on rating scales of childbirth experiences (Bertucci et al., 2012; Sawyer et al., 2013). Drawing on these two reviews, we chose Salmon's Item List as a suitable scale for comparing different modes of delivery.

Salmon's Item List was developed in 1992 as a multi-dimensional assessment of women's experience of childbirth (Salmon et al., 1992). Stadlmayr translated Salmon's Item List into German in 2001 (Stadlmayr et al., 2001), although it has been used in many other countries. This scale measures women's feelings about their labor and delivery experience. It consists of 20 items comprising contrasting pairs of adjectives (e.g., fulfilled–not fulfilled, easy–not easy) with seven response options. Compared with other measures, Salmon's Item List seemed more suitable because it consists only of adjectives, which makes it easier for postpartum women to answer. Therefore, this research aimed to develop a Japanese version of Salmon's Item List, because the scale is suitable for comparing mothers' satisfaction in childbirth for both vaginal delivery and cesarean section.

Materials and methods

Questionnaire description

Salmon's Item List measures how women feel about their labor and delivery experience. It is a self-administered questionnaire consisting of 20 items, prefaced with the question “How do you feel about your labor and delivery?” The items consist of adjectives of contrasting feelings (example: fulfilled–not fulfilled, easy–not easy) with 7 response options. The position of the poles (on the left or right) varies randomly by item. A predetermined method is used to calculate the overall birth

experience score, which ranges from 0 to 120. Higher total scores indicate a more positive evaluation of the childbirth experience, and lower scores, a more negative evaluation. There are three subscales: fulfillment/delight (10–70 points), distress (8–56 points), and difficulty (4–28 points). The Cronbach's alpha coefficients, which indicate the scale's reliability, range from 0.54 to 0.83. This study was performed after gaining approval from Professor Peter Salmon, the developer of Salmon's Item List (Salmon et al., 1990; Salmon et al., 1992).

Timing of the research

In Japan, mothers are hospitalized for 5 to 7 days after delivery. Furthermore, it is standard to return with the baby for a check-up one month after delivery. Generally, it is advised that a review of the delivery be done within 2 or 3 days after delivery in Japan. In contrast, in other countries, mothers and babies are typically discharged from the hospital within 2 to 3 days of delivery. In Japan, some studies about women who had cesarean section childbirth experiences were not done 2–3 days after delivery because of concern about mothers' physical and mental conditions on reaching motherhood (Tokiwa et al., 2000a). Furthermore, most of the hospitals that cooperated with our research conducted screening for postpartum depression using the Edinburgh Postpartum Depression Scale, and we did not want to overburden the mothers for our research.

On the other hand, according to Taniguchi et al. (2014), most women who have given birth still have an uplifted feeling about their delivery one month later. Additionally, they advised that a mental health check-up one month after childbirth is necessary for early detection of postpartum depression (Taniguchi et al., 2014). Considering these issues, we decided it was better to conduct this study one month after delivery at the time of the hospital's final follow-up.

Questionnaire translation

We translated the questionnaire using the process of translation and adaptation of instruments recommended by the World Health Organization (2015). First, we translated the English adjectives into Japanese and confirmed their validity with several nursing researchers.

Then, we asked an English language teacher who is a native English speaker and bilingual in English and Japanese to review the study. From the viewpoint of comparative culture, we examined differences in the various expressions and decided which was the most appropriate. Second, we asked a gynecologist who is a native English speaker to re-confirm the content of the questionnaire. Third, we asked another English teacher (also a native speaker of English and bilingual of English and Japanese) to translate the Japanese adjectives into English and determine whether they matched the original English versions. The adjectives in the translated version were judged to be the same as those in the original version. Subsequently, we asked an acquaintance of ours—a Japanese licensed nurse who currently lives in the USA—to recruit women to answer the questionnaire. She asked women who had given birth up to one year ago to respond to the questionnaire after explaining the purpose of the study. The results of the questionnaire and opinions received from the questionnaire were discussed. Fourth, 22 women who were having their one-month postpartum gynecological check-up completed the questionnaire after the purpose of this research was explained to them and the questionnaires distributed. Finally, the results of the questionnaire including blank items and the amount of time taken to respond were discussed.

As a result of this pretest, two discussion points arose. First, item 12, “In control–Not under control,” was not answered by two women. Although the word *jisei* (“self-restraint”) was thought to be a difficult Japanese word, we decided to use it because “was able to apply self-restraint” seemed more suitable to the question than “was able to control oneself.” This was decided based on consultation with the above gynecologist and English language teacher who are both native speakers of English and are also fluent in Japanese.

Second, the positive and negative questions were randomly ordered; however, it was thought that anyone could easily make a mistake when marking the answers because of the random order. P. Salmon, the developer of the original version of Salmon's Item List, presented the items in a random order deliberately. Because several nursing researchers showed that the German ver-

Table 1 Translation into Japanese of Salmon's Item List

Items	Original version		Japanese version	
1	Disappointed	Not disappointed	がっかりした	がっかりしなかった
2	Fulfilled	Not fulfilled	達成感があつた	達成感がなかった
3	Enthusiastic	Not enthusiastic	やる気があつた	やる気がなかった
4	Satisfied	Not satisfied	満足した	満足しなかった
5	Delighted	Not delighted	喜んだ	喜ばなかった
6	Depressed	Not depressed	落ち込んだ	落ち込まなかった
7	Happy	Not happy	うれしかった	うれしくなかった
8	Excited	Not excited	興奮していた	興奮しなかった
9	Good experience	Bad experience	よい経験だった	悪い経験だった
10	Coped well	Did not cope well	うまく対応できた	うまく対応できなかった
11	Cheated	Not cheated	だまされた感じだった	だまされた感じはしなかった
12	In control	Not under control	自制できた	自制できなかった
13	Enjoyable	Not enjoyable	楽しめた	楽しめなかった
14	Relaxed	Not relaxed	リラックスした	リラックスしなかった
15	Anxious	Not anxious	不安だった	不安ではなかった
16	Painful	Not painful	痛かった	痛くなかった
17	Easy	Not easy	簡単だった	簡単ではなかった
18	Time going fast	Time going slowly	あっという間だった	時間がゆっくり流れた
19	Exhausted	Not exhausted	疲れきった	疲れきりはしなかった
20	Confident	Not confident	自信に満ちた	自信に満ちなかった

sion produced good results using this same randomized order, we ultimately decided to use this order for the Japanese version. At this point, it was agreed that the questionnaire was appropriate, and the evaluation proceeded to the next phase. Table 1 shows Salmon's Item List of both the original and Japanese version.

Design

This was a cross-sectional study.

Research period

The data collection period lasted from July 2015 to October 2015.

Participants

We asked midwives to distribute 500 questionnaires in five secondary emergency hospitals in Iwate, Japan, to women having a one-month post-delivery gynecological check-up. Of the patients approached, 80.2% ($n=401$) completed the questionnaires and submitted them on the day of their check-up. Women under 20 years old, those with severe mental disorders, and those who had just experienced a stillbirth were not recruited. From the 401 questionnaires returned, we excluded those that were incomplete. Therefore, the total number of questionnaires used was 344 (68.8%).

Data analysis

The Mann-Whitney U test and the Kruskal-Wallis test were used to analyze the Salmon's Item List scores to see whether there were differences by mode of delivery. To determine the number of components retained for varimax rotation, a screening test was performed. Loadings of 0.45 or more were used to describe the components while smaller loadings were ignored. The scale's reliability was evaluated using internal consistency coefficients (Cronbach's alpha). SPSS Statistics 23 for Windows was used for statistical analysis, and the significance level was set at 5%. The delivery styles were analyzed based on a two-category classification (cesarean section and vaginal delivery) and a four-category classification (emergency cesarean section, planned cesarean section, normal delivery, and vacuum extraction). We divided the delivery styles in this way because we were interested in clarifying whether the experience of having a cesarean section itself leads to a poor birth experience among women or whether a poor birth experience depends on the level of urgency for the procedure (e.g., emergency or planned).

Ethical considerations

The study was approved by the Ethics Review Committee of Tohoku University Graduate School of Medi-

cine (Approval Number 2015-1-143). The significance, objectives, and methods of this research were explained to all participants beforehand and an explanatory leaflet was handed out. In addition, we explained that refusing to participate would not affect the participants in any way and that they had the right to withdraw from participating at any time. Because the questionnaires were answered anonymously, the privacy of the participants was protected.

Results

Sociodemographic details

The obstetric history of the study sample is shown in Table 2. Out of the 344 women, 223 women had a normal delivery, 17 a vacuum extraction, 39 an emergency cesarean section, and 65 a planned cesarean section. When comparing sociodemographic by mode of delivery (using the two-category classification), we found significant differences in age, the experience of miscarriage or abortion, baby gestational age at birth, and birth weight. When using the four-category classification, women's age, experience with infertility treatment, the experience of miscarriage or abortion, parity, baby gestational age at birth, and birth weight showed significant differences. The 344 women ranged in age from 20 to 45 years, with a mean age of 31.0 ($SD=5.0$). The distribution of highest education levels was as follows: 121 participants (35.2%) completed high school education, 132 (38.5%) completed vocational school or junior college, and 83 (24.2%) completed a college or graduate school, the remaining had completed another level of education. As for the distribution of employment situation, 164 (47.7%) worked, while 180 (52.3%) did not.

Principal component analysis

Table 3 shows the mean and standard deviation for each item. According to the principal component analysis, four factors with an eigenvalue of over 1.0 were extracted. The four factors together explained 62.64% of the variance. When comparing Salmon's original version, which contains three factors (fulfillment/delight, distress, and difficulty), with our Japanese version, the fulfillment/delight factor was found to be similar in both

versions; however, the distress and difficulty factors emerged as a single factor (Factor 2) in our version. Additionally, Factors 3 and 4 had only a few items, so they were excluded. The first two factors can only be classified as positive or negative. We ultimately decided to use the same component structure as the original version in this study for the purpose of expanding the range of interpretations for the currently existing instrument.

Internal consistency and discriminant validity

Internal consistencies for all scales are shown in Table 4. The Cronbach's alpha value for all scales was 0.849 and for the subscales, ranged from 0.654–0.90. The intraclass correlation coefficients for the three subscales were 0.24–0.67. The Cronbach's alpha coefficients when each item was deleted ranged from 0.832–0.862. The Cronbach's alpha coefficient increased (to 0.862) when item 16 was deleted. The item-total correlations (excluding item 16) ranged from 0.096 to 0.690, while the item-total correlation for item 16 was negative and weak (-0.096 ; Table 5).

Salmon's Item List scores according to mode of delivery

The scores of Salmon's Item List according to the mode of delivery (using the two-category classification) are shown in Table 6.

The mean total score for all subjects was 80.5 ($SD=17.6$). For participants who received a vaginal delivery, the mean total score was 80.7 ($SD=16.9$), while the mean score was 80.1 ($SD=19.2$) for those who received a cesarean section. There was no significant difference between the total scores.

The mean score for fulfillment/delight was 59.5 ($SD=12.0$). For participants who underwent vaginal delivery and cesarean section, the mean scores were 60.6 ($SD=11.2$) and 56.8 ($SD=13.4$), respectively. There was a significant difference in these scores ($p=.002$).

The mean score for distress was 41.0 ($SD=8.6$). For participants who underwent vaginal delivery and cesarean section, the mean scores were 40.8 ($SD=8.4$) and 41.4 ($SD=9.0$), respectively. There was no significant difference in these scores between the groups.

Table 2 Mother and baby demographics (N=344)

	Total (N=344)	Cesarean Section (n=104)		Vaginal Delivery (n=240)		Two-category classification p-value	Four-category classification p-value
		Emergency Cesarean Section (n=39)	Planned Cesarean Section (n=65)	Normal Delivery (n=223)	Vacuum Extraction (n=17)		
Age (years)							
Mean (SD)	31.0 (5.0)	33.1 (5.0)	33.5 (4.7)	30.2 (4.7)	31.1 (4.7)	0.001	0.009
Range	(20-45)	(20-45)	(22-43)	(20-42)	(22-40)		
Unknown	2			2	0		
Final Education, n (%)							
High School	121 (35.2)	42 (40.8)	28 (43.1)	79 (32.9)	9 (52.9)		
Junior College or Vocational School	132 (38.5)	35 (34.0)	20 (30.8)	97 (40.4)	5 (29.4)		
College and Graduate School	83 (24.2)	24 (23.3)	15 (23.0)	59 (24.6)	3 (17.6)	n.s.	n.s.
Other	7 (2.0)	2 (1.9)	2 (3.1)	5 (2.1)	-		
Unknown	1 (0.2)	1 (0.9)	0	0	0		
Work, n (%)							
Employed	164 (47.7)	46 (44.2)	28 (43.0)	118 (49.2)	8 (47.0)	n.s.	n.s.
Unemployed	180 (52.3)	58 (55.8)	37 (56.9)	122 (50.8)	9 (52.9)		
Infertility Treatment, n (%)							
Yes	19 (5.6)	8 (7.8)	5 (7.8)	11 (4.6)	3 (18.8)		
No	322 (94.4)	95 (92.2)	59 (92.2)	227 (95.4)	13 (81.3)	n.s.	0.049
Unknown	3 (0.9)	1 (1.0)	1 (1.5)	2 (0.8)	1 (5.9)		
Miscarriage or Abortion, n (%)							
Yes	74 (21.5)	30 (28.8)	22 (33.8)	44 (18.3)	1 (5.9)	0.022	0.029
No	270 (78.5)	74 (71.2)	43 (66.2)	196 (81.7)	16 (94.1)		
Parity, n (%)							
Primipara	175 (50.9)	50 (48.0)	21 (32.3)	125 (52.1)	15 (88.2)	n.s.	<.001
Multipara	169 (49.1)	54 (51.9)	44 (67.7)	115 (47.9)	2 (11.8)		
Baby Gestational Age at Birth (weeks)							
Mean (SD)	38.8 (1.6)	37.8 (1.9)	37.4 (1.1)	39.2 (1.4)	39.8 (0.9)	<.001	<.001
Range	(32-42)	(32-42)	(34-41)	(34-42)	(38-41)		
Unknown	10	5	4	5	0		
Birth Weight at Birth, n (%)							
Under 2500g	41 (11.9)	22 (21.2)	12 (18.5)	19 (7.9)	1 (5.9)	<.001	<.001
Over 2500g	303 (88.0)	82 (78.8)	53 (81.5)	221 (92.1)	16 (94.1)		

Table 3 Mean item scores and component analysis of Salmon's Item List

No	Item	Mean	SD	Factor 1	Factor 2	Factor 3	Factor 4
1	Disappointed	6.58	1.13	-0.43	-0.05	-0.15	0.64
2	Fulfilled	5.95	1.96	0.79	-0.16	-0.07	0.11
3	Enthusiastic	5.87	1.69	0.83	-0.05	-0.05	0.15
4	Satisfied	6.13	1.61	0.88	-0.11	-0.13	0.12
5	Delighted	6.46	1.56	0.87	-0.30	-0.23	0.10
6	Depressed	5.56	2.01	-0.60	-0.09	0.01	0.45
7	Happy	6.48	1.56	0.83	-0.29	-0.25	0.09
8	Excited	5.02	1.80	0.47	-0.23	0.34	0.39
9	Good experience	6.42	1.44	0.85	-0.19	-0.14	0.03
10	Coped well	5.04	1.67	0.63	0.42	0.21	0.04
11	Cheated	6.50	1.38	-0.74	0.19	0.26	0.20
12	In control	4.92	1.69	0.43	0.51	0.31	-0.03
13	Enjoyable	4.84	1.89	0.47	0.65	0.22	0.06
14	Relaxed	4.46	1.90	0.38	0.69	0.22	0.02
15	Anxious	3.46	2.04	-0.05	-0.52	0.17	0.13
16	Painful	2.08	1.62	0.38	-0.53	0.32	-0.22
17	Easy	2.33	1.56	-0.13	0.59	-0.36	0.20
18	Time going fast	4.52	2.21	0.11	0.55	-0.29	-0.04
19	Exhausted	3.33	1.98	-0.90	-0.62	0.37	0.06
20	Confident	4.57	1.53	0.44	0.37	0.40	0.15
Eigenvalue				5.63	3.06	2.47	1.38
% Variance Explained				28.13	15.30	12.33	6.88
Cumulative % Variance Explained				28.13	43.43	55.76	62.64

Table 4 Intraclass correlation coefficients in three dimensions of Salmon's Item List

Dimensions of Salmon's Item List	Intraclass correlation coefficients ²⁾			
	$\alpha^{1)}$	1	2	3
1) Fulfilment/delight	0.90	—		
2) Distress	0.74	0.67**	—	
3) Difficulty	0.65	0.24**	0.60**	—

Note. $N=344$ ** $p<.01$

1) Cronbach's alpha, 2) Pearson's correlation coefficients

The mean score for "difficulty" was 15.7 ($SD=4.9$); for participants who underwent vaginal delivery, the mean score was 15.3 ($SD=4.8$), while for participants who underwent a cesarean section, it was 16.8 ($SD=4.9$). There was a significant difference in these scores ($p=.016$).

Table 7 shows the scores for Salmon's Item List according to the mode of delivery (for the four-category classification).

The mean total score for participants who underwent a normal delivery was 81.4 ($SD=16.8$), while for those who underwent a vacuum extraction, emergency cesarean section, and planned cesarean section, the mean scores were 71.2 ($SD=15.7$), 71.2 ($SD=19.7$), and 85.5 ($SD=16.9$), respectively. Therefore, the highest total score was for a planned cesarean, followed by a normal

Table 5 Corrected item-total correlation and Cronbach's alpha coefficient after item deleted

No	Items	Corrected Item-Total Correlation	Cronbach's alpha coefficient after item deleted
1	Disappointed	0.338	0.846
2	Fulfilled	0.571	0.836
3	Enthusiastic	0.672	0.832
4	Satisfied	0.690	0.832
5	Delighted	0.597	0.836
6	Depressed	0.495	0.839
7	Happy	0.570	0.837
8	Excited	0.257	0.85
9	Good experience	0.632	0.835
10	Coped well	0.664	0.833
11	Cheated	0.536	0.839
12	In control	0.493	0.84
13	Enjoyable	0.604	0.834
14	Relaxed	0.528	0.838
15	Anxious	0.199	0.854
16	Painful	-0.096	0.862
17	Easy	0.096	0.855
18	Time going fast	0.262	0.852
19	Exhausted	0.282	0.85
20	Confident	0.476	0.841

delivery, emergency cesarean section, and vacuum extraction.

As for fulfillment/delight, the mean score was highest for those who underwent a normal delivery, followed by a planned cesarean section, vacuum extraction, and emergency cesarean section. For distress, participants who underwent a planned cesarean section had the

Table 6 Salmon's Item List scores according to mode of delivery (two-category classification) *M* (SD) (*n*=344)

Mode	All (<i>n</i> =344)	Vaginal delivery (<i>n</i> =240)	Cesarean section (<i>n</i> =104)	<i>p</i>
Total	80.5 (17.6)	80.7 (16.9)	80.1 (19.2)	n.s
1) Fulfillment/Delight	59.5 (12.0)	60.6 (11.2)	56.8 (13.4)	.002**
2) Distress	41.0 (8.6)	40.8 (8.4)	41.4 (9.0)	n.s
3) Difficulty	15.7 (4.9)	15.3 (4.8)	16.8 (4.9)	.016*

Mann-Whitney U test (***p*<.01, **p*<.05)**Table 7** Salmon's Item List scores according to mode of delivery (four-category classification) *M* (SD) (*n*=344)

Mode	Normal delivery (<i>n</i> =223)	Vacuum extraction (<i>n</i> =17)	Emergency cesarean section (<i>n</i> =39)	Planned cesarean section (<i>n</i> =65)	<i>p</i> -value
Total	81.4 (16.8)	71.2 (15.7)	71.2 (19.7)	85.5 (16.9)	<.001**
1) Fulfillment/Delight	60.7 (11.4)	59.2 (8.5)	51.3 (15.5)	60.2 (10.9)	<.001**
2) Distress	41.1 (8.4)	35.9 (7.0)	37.6 (8.8)	43.6 (8.5)	<.001**
3) Difficulty	15.6 (4.7)	11.0 (3.6)	14.9 (4.7)	17.9 (4.7)	<.001**

Kruskal-Wallis test (***p*<.01)

highest score, followed by those who underwent a normal delivery, emergency cesarean section, and vacuum extraction (note that a higher score indicates less distress). Finally, for difficulty, the mean score was highest for those who underwent a planned cesarean section, followed by a normal delivery, emergency cesarean section, and vacuum extraction (a higher score means less difficulty). Among the four categories, there were significant differences in each score.

Discussion

The Japanese version of Salmon's Item List created in this study was shown to be usable in Japan and had similar properties as the original and German versions (Stadlmayr et al., 2001). Even when translated into Japanese, the Cronbach's alpha coefficient was sufficient, suggesting that it can be used to evaluate the experience of any mode of delivery.

In the principal components analysis, two components were ultimately extracted. Factor 2 was almost the same as distress and difficulty, which are separate components of the original version (Salmon et al., 1992). These two components—called fulfillment/delight and distress/difficulty—were simply classified as “positive” and “negative.” However, given that we found differences in scores for Salmon's Item List when using the original three components using these three components could possibly increase the breadth of interpretation in the fu-

ture. This is because, for the four-category classification, the scores for distress and difficulty were lower among those who received emergency cesarean section and vacuum extraction, while when using the two-category classification, the score for difficulty was higher among those who underwent a cesarean section than among those who underwent a vaginal delivery. Furthermore, the distress score was the same between those who underwent vaginal delivery and those who underwent a cesarean section. In addition, the Cronbach's alpha coefficients when using three components (like the original version) were sufficient (although they differed depending on the classification of the mode of delivery). In this way, the Japanese version of Salmon's Item List should use the three-component structure of the original version. Nevertheless, there is a need to re-examine this Japanese version to consider the influencing factors and components with more participants. This scale may be used to objectively evaluate the childbirth experience as a scale for any mode of delivery, which was the purpose of this research because the questions do not use words restricted to any particular delivery style. Further, this scale has a fast and straightforward response format requiring only the notation of adjectives, as differences in the characteristics of the different delivery modes have been found based on the score results.

Additionally, prior research (Imazaki, 2006; Tanabe-Nishino, 2006) suggested that in Japan there is still a cultural way of thinking that one must experience vagi-

nal delivery to be a woman. Some researchers have suggested that the childbirth experience of mothers who gave birth by cesarean section is negative because they could not have a vaginal delivery (Stadlmayr et al., 2001). However, in this study, women who had a planned cesarean section had a more positive experience than did those who had a normal birth. Clearly, women who had an emergency cesarean section or vacuum extraction did not have good birth experiences. The difference between the results of previous research and this study may be influenced by the fact that there have been many qualitative studies of cesarean sections in Japan but extremely few quantitative studies. The results of this study resembled those of Spaich et al.'s research (2013) in Germany. It is possible that Japanese women do not especially recognize cesarean sections as bad and they have the same perspectives as women in Germany and other countries that accept cesarean sections.

This study reconfirmed the need to give special care to women who had a vacuum extraction birth, because they, along with those who underwent emergency cesarean section, appeared to have a worse experience than women who underwent a normal delivery. However, there is even less existing research on vacuum extraction than on cesarean section. Therefore, we believe that it is necessary to conduct further research with women using this scale and to clarify the causes and differences affecting childbirth experiences of women who undergo emergency cesarean section and vacuum extraction. In order to minimize the presence of confounding factors, we were careful to balance the factors contributing to complications in each delivery mode.

As to the timing of the research, our study was conducted one-month postpartum during the gynecological check-up. According to other studies (Kunikiyo et al., 2007; Suto et al., 2012; Tokiwa, 2003), reviewing one's birth experience should be done within 48–72 hours of delivery. In such cases, the results might be more pronounced. Recently, the number of hospitals in Japan that administer 2-week postpartum gynecological check-ups is increasing. Therefore, opportunities for postpartum follow-up at an earlier stage are increasing. The appropriate timing of the use of this scale must still be considered.

Limitations of this research and future issues

Since this research was conducted in a specific small area of Japan, we should expand the area and increase the number of cases, including verifying the subscale components. Since we did not give enough consideration to the influencing factors this time, we could not pursue the causes as to why emergency cesarean section and vacuum extraction had low values. In the future, we should predict and verify the influencing factors. To make Salmon's Item List more effective in Japan, its consistency and validity still need to be further evaluated. To decrease the influence of confounding factors in the demographics of the participants, research should balance the number of participants experiencing each delivery mode as well as conduct studies with larger sample sizes.

Conclusion

This scale can be used as a rating scale to objectively evaluate a mother's satisfaction with childbirth experience via any mode. There is, nevertheless, still room for improvement of the Japanese version of Salmon's Item List by re-examining its subscale components.

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Conflict of Interest

This article was adapted from part of a master's thesis submitted to Tohoku University Graduate School of Medicine. Additionally, part of this thesis was presented during a Poster session at The 8th Congress of the International Society for Gender Medicine in 2017. The authors declare that there are no conflicts of interest related to business, etc. regarding this article.

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出産体験の評価尺度Salmon's Item Listの日本語版の開発 —分娩様式を問わない出産体験評価尺度の検討—

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抄 録

目 的

帝王切開による出生数は2014年には19.7%と増加している。日本において、経膈分娩で出産した母親と帝王切開術で出産をした母親の出産体験を同一の尺度で比較するための適切な尺度は見当たらない。そこで本研究では、出産体験の分娩様式による違いを比較するためにSalmon's Item Listの日本語版を開発することを目的とした。

方 法

まず、世界保健機関 (WHO) が推奨する手順に沿って翻訳したSalmon's Item Listの日本語版を使用し、産後1ヶ月健診を受けた22名の女性にプレテストを実施した。次に5つの二次救急病院において産後1ヶ月健診を受けた女性401名が、プレテストで内容を確認したSalmon's Item Listの日本語版を実施した。分析にはSPSSver.23を使用し、有意水準は5%未満とした。

結 果

有効回答数は344名 (68.8%) であった。信頼性を示すCronbach α 係数は合計点において0.849、下位尺度では0.654–0.90であり、概ねオリジナル版と同様の結果であった。この尺度は、得点が高いほど肯定的な出産体験であることを示す。最も高得点であったのは予定帝王切開術であり、続いて自然分娩、緊急帝王切開術、吸引分娩であった。

結 論

このSalmon's Item List日本語版はどの分娩様式においても出産体験の客観的な評価のために使用できる。今後はさらに使用症例を増やし下位尺度の構成要素等、検討を重ねていく必要があると考える。

キーワード： 出産・分娩、帝王切開術、出産体験の満足度、出産体験の評価尺度