Original Article

Training health professionals to detect and support mothers at risk of postpartum depression or infant abuse in the community: A cross-sectional and a before and after study

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Summary **The purpose of this study was to evaluate the 2-day seminar in 2 consecutive years respectively for community health professionals. We prepared the child-rearing support manual (CRSM) and conducted a seminar program to improve skills to provide mental assessments and postnatal care support for mothers and their families in the community using the CRSM. After the seminar in the first year, the first questionnaire was performed regarding the participants' expertise, skills, and system of operations of their facilities. After the seminar in the second year, the same questionnaire was administered. In addition, a questionnaire survey was also administered on the use of the CRSM, *etc*. for all prefectural health and welfare centers around the nation. As a result, it was found that the participants in both seminars showed significantly higher scores regarding expertise and skills compared with the other participants who had not participated in the seminar in the first year. In comparison of the participants in both seminars between their responses of the first and the second year, significant increases were confirmed in the score of interpersonal health care skills and in the score for system of operation at their institutions. In addition, it was found that the CRSM was used in approximately half of the institutions around the nation. The authors concluded that this seminar program was effective in developing the expertise and skills of individual health professionals, the system of operation of their institutions, and community maternal and child mental health in the nation.**

Keywords: Child abuse, Depression, Postpartum, Program evaluation, Public health professional

1. Introduction

Postpartum depression is one of the depressive disorders observed in women after childbirth, and can develop at a high rate within one year after childbirth; 10-15% in several countries (*1,2*). Although the most frequent period of development has been described as 4-6 weeks after childbirth, it has been recently clarified that the disease most often occurs even earlier; a couple of weeks after childbirth (*3,4*). As well as having a negative impact on the child-rearing function of the family and the development of infants (*5*), postpartum depression is considered to be one of the risk factors for infant abuse (*6*). The Japanese Ministry of Health, Labour and Welfare has designated the decrease in the incidence of postpartum depression and mortality due to child abuse as the major objective of the project named "*Sukoyaka Oyako* 21 (*Sukoyaka* Family 21: *Sukoyaka* means sound or well-being)". There is an urgent need to establish preventive measurements for inappropriate childcare or infant abuse, including early screening of

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postpartum depression.

Dennis undertook a systematic review to assess the effects of psychosocial and psychological interventions compared with usual antepartum, intrapartum, or postpartum care on the risk for postpartum depression (*7*). She concluded that diverse psychosocial or psychological interventions do not significantly reduce the number of women who develop postpartum depression, but she described that home visits by a health professional were clearly proven to be effective in two trials (*8,9*). Since the Imperial Gift Foundation Boshi-Aiiku-Kai (Mother-Child Nursing Association) was founded in 1934, the Japanese maternal and child health system, including newborn visits, has been supported in communities by volunteer laypersons, such as a Mother-Child Nursing Team. Recently, the program of newborn visits by health professionals, mainly from health and welfare centers in the community, may have contributed towards decreasing the anxiety of mothers regarding child rearing (*10*). The Japanese Ministry of Health, Labour and Welfare designated the new project named "*Kon'nichiwa Akacyan* (Hello-Baby)", in which health professionals should visit all of the newborn babies and their mothers within four months after birth. We considered that improvement of the skills of health professionals, who visit mothers to support their postpartum mental health, would be a practical and effective way for early screening of postpartum depression and to implement preventive measures for infant abuse.

The Edinburgh Postnatal Depression Scale (EPDS) is a self-administered questionnaire developed by Cox *et al*. for population-based screening of postpartum depression (*11*). It has been shown that use of this questionnaire can increase the population-based detection rate of postpartum depression. Okano *et al*. developed the Japanese version of the EPDS, and identified that the cutoff point of a clinical concern for postpartum depression was 8/9 (*12*).

After using the Japanese version of the EPDS (*12*) at newborn visits in Fukuoka since 1998 (*13*), Suzumiya and Yoshida expanded its use to 38 health and welfare centers in communities in 2002, and identified that 10.5-13.9% of newborn mothers exhibited postpartum depression (*2*). Moreover they confirmed the usefulness of the method in which health professionals who perform postnatal visits utilized the EPDS (*11,12*) and the Mother's Attachment to Baby Scale (MABS) (*Marks, unpublished*; *13*); in combination with a check list of risk factors regarding postpartum depression and infant abuse, which includes socioeconomical items (*2,13*). In 2004, the Child-Rearing support manual (CRSM) was developed, based on these three types of questionnaires, using the Grants for Health Science (Research on Children and Families) (*14*), and was freely distributed to 127 main branches of maternal and child health organizations in Japan (in 47 prefectures, 13 government-designated cities, 9 public health center-designated cities and 23 wards of Tokyo). In addition, using this CRSM, a training seminar was scheduled in 2005 and 2006 for health professionals who make postnatal visits. The purpose of this seminar was to improve the skills of health professionals who provide mental assessments and postnatal care support for mothers and their families in the community, and to improve the establishment of measures for the mental health of mothers and children.

The objective of this study was to evaluate the results of the seminar performed for community health professionals over 2 years from the following 2 perspectives.

1) The level of personal expertise and support skills of community health professionals, and the operational level of support activity for the postnatal mental health of mothers at institutions for in each health professional worked.

2) The level of expansion of support activity using the CRSM for the postnatal mental health of mothers around the nation.

2. Methods

2.1. *Training Seminar*

The 2-day seminar titled "Seminar for the postnatal mental health of mothers and child rearing support" was held in Tokyo and Fukuoka in August and September in 2005 and 2006, respectively. As the materials for the seminar, the CRSM and paper patient were used. As teaching methods, lecture, group work and presentation by participants were utilized.

The seminar held in 2005 included 1) "Basic knowledge for the postnatal mental health of mothers (postpartum depression, bonding disorder, *etc*.)" (90 min), 2) "Details and methods of support (details and use of 3 types of self-administered questionnaire sheet)" (90 min), 3) "How to describe cases" (60 min), 4) "Assessment at home visits and how to perform careful interviews" (120 min), and 5) "Planning of support, continuous support, and evaluation" (180 min).

Based on the results of the first self-administered questionnaires in December 2005, it was found that there was significant need for lectures on the concrete use of the EPDS and supervision for support of the cases with specific backgrounds (*15*), and that it would be important to make an image of successful support for various cases (*16*). Furthermore, one month before the seminar in 2006, a structural description of the cases for which continuous support was completed was requested of the 209 persons who were scheduled to participate in the seminar, through the web site of a collaborative researcher to determine the details of the seminar to be held in 2006.

As a result, the details of the seminar in 2006 were determined as follows. In 1) – 5), lectures were

held, and in 6), after obtaining an agreement from the participants, simulated supervision of cases selected from those submitted by participants was performed by several supervisors. 1) "The use of 3 types of questionnaires and several examples of activity in local communities" (100 min), 2) "Organizational cooperation: from support in local communities to the introduction of psychiatric clinics" (80 min), 3) "The use of 3 types of questionnaires and countermeasures for infant abuse – Based on the high-risk cases of infant abuse –" (80 min), 4) "From anxiety for child rearing to infant abuse – for mothers with problems bonding to their children –" (60 min), 5) "Educational seminar methods and their effects" (30 min), 6) "Case supervision" (120 min): a) Advice for the mothers with anxiety regarding child rearing and support in local communities, b) Countermeasures for mothers with postpartum depression: continuous support in local communities or the introduction of psychiatric clinics, and c) Continuous support for the cases of infant abuse in local communities and points of cooperation with other institutions, and 7) Questions and answers (70 min).

2.2. *Study No. 1*

2.2.1. *Participants and procedures*

Firstly, we advertised the seminar through the website of the Mothers' and children's Health & Welfare Association, as well as through the mail to 127 main branches of maternal and child health organizations around the nation, to which the CRSM was distributed in 2004, to request they extend notification of the seminar to related facilities in their catchment areas. The seminar was held in Tokyo and Fukuoka, and 232 health professionals participated in the seminar held in 2005 from Tokyo, Hokkaido, and 37 prefectures. In 2006, a leaflet was sent to the 232 participants from the seminar held in 2005, and the seminar was advertised through the 127 related main branches of maternal and child health organizations and the website, as was done for the first seminar. Since the seminar in 2006 was held as follow-up for the participants in the seminar in 2005, when a participant from the seminar in 2005 was transferred to other institution, his or her colleague in the former institution was invited to participate in the seminar in 2006. For the institutions in which no one had participated in the seminar in 2005, health professionals who had the same level of basic knowledge as the participants in the seminar in 2005 were encouraged to participate in the seminar in 2006. As a result, 209 health professionals from Tokyo, Hokkaido and 34 prefectures participated in the seminar held in Tokyo and Fukuoka in 2006. They included 105 from the institutions that participated in the seminar in 2005, and 104 new participants.

It was advertised publically that the seminar would be performed as part of a research activity. An oral explanation of the objective of the research was provided on the day of the seminar. The fact that the signed questionnaires would be strictly managed and published without identifying individuals and the institutions where they worked was also explained. Subjects were sent the first self-administered questionnaires by mail in December 2005. In addition, subjects were handed the second questionnaires on the day of the seminar in 2006. Written consent to participate in the research was obtained in both 2005 and 2006.

2.2.2. *Measures*

In the questionnaire, demographic data of participants and their institutions was obtained, and original scales for expertise, skills and operation level were used for evaluation of the outcome of the seminar program. This was because reliable and appropriate scale was not available to measure expertise and skills of community health professionals that were required for home visits and other activities for maternal and child mental health support. The scales were prepared based on the scale used in the seminar held by Elliott *et al*. (*17*) for health visitors and the scale developed by Saeki *et al*. (*18,19*) to measure the practical competence of public health nurses who worked for Japanese local governments, as well as the CRSM that had been established, as described above, through activities in Fukuoka.

The scale for expertise was prepared with 15 items and 3 factors, such as Factor 1: knowledge of postpartum mental health, Factor 2: knowledge of details and how to interview postnatal mothers using the 3 types of questionnaires, and Factor 3: knowledge of how to use the 3 types of questionnaires for continuous support for mothers. The questionnaire had a 4-point Likert scale, with points ranging from 1 (not known at all) to 4 (well known). The Cronbach's α values for the total, first, second, and third factors in the participants in the seminar in 2006 were 0.95, 0.88, 0.96, and 0.95, respectively.

The scale for skills was prepared with 10 items and 2 factors, such as Factor 1: interpersonal health care skills, and Factor 2: skill at formulating measures (*16*). The questionnaire had a 4-point Likert scale, with points ranging from 1 (insufficient) to 4 (sufficient). The Cronbach's α values for the total, first, and second factors in the seminar in 2006 were 0.92, 0.92, and 0.88, respectively.

The scale for operational level was prepared to examine whether an institution had an established operation system or not, and included 6 items and 1 factor. In addition, an open question was made regarding the expectation for establishment of operation system within the next year.

2.2.3. *Design*

The participants in the second evaluation were divided into 3 groups: those who participated in both seminars held during the 2 years (Group A), those who were colleagues of participants in the first seminar from the same institution (Group B), and those who participated in the second seminar after they indicated that they had basic knowledge on postpartum mental health and home visits using the EPDS, *etc*., although they had not participated in the first seminar (Group C). In addition, those who participated in both the first and second evaluations were defined as Group A'. Firstly, the background of the A, B, and C groups was examined using ANOVA, χ^2 test, and Fisher exact-test. Then, after examining the difference between the 3 groups using ANOVA regarding the scales for expertise, skills, and operational level, we determined the 2 groups with a difference using Bonferroni's multiple comparison. Next, the difference in the average point of the individual scales in Group A' between the first and second evaluations was examined using paired *t*-test. The test was performed as a two-sided test, and significant difference was confirmed when significance probability was $p < 0.05$. For analysis, the statistical analysis package SPSS12.0J for Windows was used.

2.3. *Study No. 2*

2.3.1. *Participants and procedures*

The research was performed for all of the prefectural health and welfare centers ($n = 394$) around the nation. Since the name of the target department varied, the individual "persons in charge of maternal and child healthcare activities in the municipalities" were requested to fill in and return the questionnaires. For this research, the questionnaires were sent with the explanatory leaflet clearly describing that the results would be provided to all prefectural health and welfare centers and individual municipalities, that the answers would be processed statistically and individual health and welfare centers would not be identified, that the data obtained would not be used for objectives other than that of the study. The request was provided with a letter signed jointly by the Department of maternal and child health and the Department of general affairs Section of abuse prevention, Equal employment, children and families bureau, the Ministry of Health, Labour, and Welfare. When receiving the answers, we considered that the senders agreed to participate in the research. The study was performed from November 2007 to February 2008.

2.3.2. *Research items*

The research items related to demographic data included job title of the person who filled in the questionnaires, location of the health and welfare center and the scale of the area managed by the health and welfare center. In addition, a question was posed regarding the use of the CRSM.

2.3.3. *Design*

The descriptive statistics value was measured. For analysis, Microsoft Excel office 2007 was used.

3. Results

3.1. *Study No. 1*

Although the number of collected answers in the second evaluation was 133 (collection rate: 63.6%), the number of effective answers was 116 (effective answer rate: 55.5%) because 17 were excluded in the total, including those whose participation in the first seminar could not be confirmed ($n = 8$), those who did not fill in the column of agreement in the consent form ($n = 4$), and those who filled in less than 70% for one or more scales ($n = 3$). Groups A, B, and C included 37, 40, and 39 participants, respectively (Table 1). Regarding the demographic data of the participants, it was found that 114 (98.3%) were female, 100 (86.2%) were public health nurses, 12 (10.3%) were midwives, 2 (1.7%) were nurses, and 1 (0.9%) was a physician. Their experience period varied, and the number of executives, those who received education for public health nurses at university, and those who worked for prefectural health institutions was 18 (15.5%), 19 (16.4%), and 35 (30.2%), respectively, showing no difference between the 3 groups.

In comparison of the groups regarding the scores of all subscales and total scores for expertise, Group A showed significantly higher scores than Groups B and C ($p < 0.001$, $p < 0.01$, $p < 0.05$) (Table 2). Regarding the scale of skills, the score of interpersonal health care skills in Group A was significantly higher than that of Groups B and C ($p < 0.01$), while total skill score of Group A tended to be higher than that of Group B ($p < 0.1$). Regarding the scale of operation, Group B showed a significantly higher score than Group C ($p < 0.01$).

The number of those who answered that an operation system would be established at their institutions within the coming year was 29 (25.0%), including 14 (37.8%) in Group A, and a tendency towards significance ($p < 0.10$) was observed in the χ^2 test. Table 3 presents the institutions that indicated that their operation system would be established within the coming year. For example, they described, "We explained how to use the EPDS to all the health professionals in our institution so that they would be able to use it," "We have used the EPDS and the MABS on postpartum day 5 and 1 month after child birth. We are planning to add the

Table 1. Demographic data

		A (n = 37)	B (n = 40)	C (n = 39)	Total (n = 116)	p [1)]	A' (n = 21)
Personal characteristics							
Age		41.1 (± 9.1)	37.3 (± 7.3)	41.0 (± 8.7)	39.7 (± 8.5)	*ns*	40.65 (± 8.0)
Sex	Male	1 (2.7)	0 (0.0)	0 (0.0)	1 (0.9)	*ns*	1 (4.8)
	Female	35 (94.6)	40 (100.0)	39 (100.0)	114 (98.3)		20 (95.2)
	Missing	1 (2.7)	0 (0.0)	0 (0.0)	1 (0.9)		0 (0.0)
Type of qualification	Public health nurse	30 (81.1)	38 (95.0)	32 (82.1)	100 (86.2)	*ns*	19 (90.5)
	Midwife	5 (13.5)	2 (5.0)	5 (12.8)	12 (10.3)		1 (4.8)
	Nurse	1 (2.7)	0 (0.0)	1 (2.6)	2 (1.7)		1 (4.8)
	Physician	0 (0.0)	0 (0.0)	1 (2.6)	1 (0.9)		0 (0.0)
	Missing	1 (2.7)	0 (0.0)	0 (0.0)	1 (0.9)		0 (0.0)
Years of experience	5 years or less	6 (16.2)	8 (20.0)	5 (12.8)	19 (16.4)	*ns*	4 (19.0)
	6 - 10	2 (5.4)	8 (20.0)	6 (15.4)	16 (13.8)		0 (0.0)
	11 - 15	5 (13.5)	7 (17.5)	12 (30.8)	24 (20.7)		3 (14.3)
	16 - 20	14 (37.8)	9 (22.5)	7 (17.9)	30 (25.9)		8 (38.1)
	21 - 25	5 (13.5)	6 (15.0)	4 (10.3)	15 (12.9)		5 (23.8)
	26 - 30	3 (8.1)	1 (2.5)	3 (7.7)	7 (6.0)		1 (4.8)
	31 - 35	1 (2.7)	1 (2.5)	2 (5.1)	4 (3.4)		0 (0.0)
	36 years or more	1 (2.7)	0 (0.0)	0 (0.0)	1 (0.9)		0 (0.0)
Management position	With title	5 (13.5)	6 (15.0)	7 (17.9)	18 (15.5)	*ns*	2 (9.5)
	Without title	32 (86.5)	34 (85.0)	32 (82.1)	98 (84.5)		19 (90.5)
Education (for PHN)	University	6 (16.2)	8 (20.0)	5 (12.8)	19 (16.4)	*ns*	3 (14.3)
	Other	28 (75.7)	32 (80.0)	31 (79.5)	91 (78.4)		16 (76.2)
	Missing	3 (8.1)	0 (0.0)	3 (7.7)	6 (5.2)		2 (9.5)
Education level	University/graduate school	6 (16.2)	12 (30.0)	6 (15.4)	24 (20.7)	*ns*	3 (14.3)
	Other	27 (73.0)	27 (67.5)	31 (79.5)	85 (73.3)		16 (76.2)
	Missing	4 (10.8)	1 (2.5)	2 (5.1)	7 (6.0)		2 (9.5)
Characteristics of institutions							
Type of institutions	Prefectural health institutions	13 (35.1)	15 (37.5)	7 (17.9)	35 (30.2)	*ns*	8 (38.1)
	Other	24 (64.9)	25 (62.5)	32 (82.1)	81 (69.8)		13 (61.9)

[1)] p value based on χ^2 analysis, Fisher's exact test, or ANOVA; *ns:* indicates not significant.

Table 2. Cross-sectional evalualuation after the second seminar

		A (n = 37)	B (n = 40)	C (n = 39)	a)
		Mean (± SD)	Mean (± SD)	Mean (± SD)	
Expertise scale	Total	3.18 (± 0.40)	2.76 (± 0.58)	2.66 (± 0.34)	$1^{***}2^{***}$
	1: Knowledge of postnatal mental health	3.24 (± 0.41)	2.92 (± 0.50)	2.88 (± 0.35)	$1^{**}2^{**}$
	2: Knowledge of 3 types of questionnaires	3.32 (± 0.50)	2.84 (± 0.71)	2.69 (± 0.44)	$1^{**}2^{***}$
	3: Knowledge of how to use 3 types of questionnaires to continuous support for mothers	2.72 (± 0.52)	2.36 (± 0.67)	2.24 (± 0.48)	$1^{*}2^{**}$
Skill scale	Total	2.49 (± 0.48)	2.23 (± 0.56)	2.24 (± 0.51)	$1^{\dagger}$
	1: Interpersonal heath care skills	2.68 (± 0.53)	2.29 (± 0.62)	2.28 (± 0.51)	$1^{**}2^{**}$
	2: Skill at formulating measures	2.22 (± 0.56)	2.16 (± 0.60)	2.19 (± 0.61)	
Operation scale	Total	1.56 (± 0.28)	1.67 (± 0.24)	1.47 (± 0.31)	3^{**}

a) After ANOVA, Bonferroni's multiple comparison was used to identify significant differences between paires of groups; 1: diffrence between A and B; 2: diffrence between A and C; 3: diffrence between B and C; †: $p < 0.1$, *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$.

Table 3. Operation system that would be established within the coming year

	Operation system	n
1	Start to use the EPDS or 3 types of questionnaires	5
2	Development of a cooperation system in the community	8
3	Seminar or study meeting for postpartum depression	7
4	Discussion meeting to support mothers with postpartum depression	3
5	Expansion of subjects for home visits	2
6	Group meetings for mothers with postpartum depression	2
7	Exchange program for prenatal and postpartum mothers	1
8	Others	6

check list for postpartum depression and infant abuse," "We requested the budget for system development for early detection and continuous support of postpartum depression. We are scheduled to develop the system in cooperation with the municipalities," "We planned a seminar for postpartum depression in cooperation with the health and welfare centers. We will continue to run the seminar in cooperation with hospitals in and after the next year," "We will hold an exchange program for prenatal and postpartum mothers," "We are aiming to make home visits for all newborns," and "We hold group meetings for mothers with postpartum depression." As mentioned above, the details of their operation varied, for example, from the development of an institution to collaboration with other medical facilities and administrative organs, and from primary to tertiary prevention.

The number of participants in both seminars in 2005 and 2006 was 21 (Group A'). The demographic data of the 21 participants is shown in Table 1. No significant difference was confirmed in their demographic data in comparison with overall participants in the seminar in 2006. When a paired *t*-test was performed regarding the scale of expertise, it was found that the score of expertise 2 in the seminar in 2006 was significantly higher than that in the seminar in 2005 ($p < 0.001$) (Table 4). Regarding the scale of skills, the score of interpersonal health care skills and total score in the seminar in 2006 were significantly higher than those in 2005 ($p < 0.01$ and $p < 0.05$). In addition, the score of operation in 2006 was significantly higher than that in 2005 ($p < 0.05$).

3.2. *Study No. 2*

We obtained responses from 277 prefectural health and welfare centers (collection rate: 70.3%). Among the respondents, 267 (96.4%) were public health nurses. The population in 35.7% of the catchment area of the health and welfare centers was less than 100,000.

For the question regarding the use of the CRSM, 107/261 (40.9%) responded that they used it for support of cases, and 63 (24.1%) responded that they used it for seminars; suggesting that the CRSM was used in nearly half of the areas in the nation (Table 5). For the question regarding whether participants encouraged the use of a designated method for the screening of postnatal mental health of mothers as municipal support, 109/267 (40.8%) health and welfare centers responded that they had no special guidance, and among the health and welfare centers where such guidance had been performed, 78/158 (49.4%) used the 3 questionnaires indicated in the CRSM (Table 5).

4. Discussion

In the study performed in December 2005, it was found that self-evaluation of the participants on expertise was generally high, but low regarding skills, suggesting that the seminar might have no proximal effects on skills (*15*). However, as a result of statistical analysis in which the three groups described above were compared with each other in the results of the questionnaire performed after the seminar in 2006, and the results of the questionnaire in 2006 were compared with those from the previous

Table 4. Longitudinal evaluation in two years

		2005 yr ($n = 21$)	2006 yr ($n = 21$)	p [1)]
		Mean (± SD)	Mean (± SD)	
Expertise scale	Total	3.03 (± 0.44)	3.12 (± 0.40)	
	1: Knowledge of postnatal mental health	3.05 (± 0.50)	3.25 (± 0.41)	
	2: Knowledge of 3 types of questionnaires	3.17 (± 0.46)	3.75 (± 0.54)	***
	3: Knowledge of how to use 3 types of questionnaires to continuous support for mothers	2.63 (± 0.59)	2.73 (± 0.54)	
Skill scale	Total	2.27 (± 0.50)	2.53 (± 0.47)	*
	1: Interpersonal heath care skills	2.43 (± 0.46)	2.75 (± 0.54)	**
	2: Skill at formulating measures	2.07 (± 0.70)	2.22 (± 0.49)	
Operation scale	Total	1.44 (± 0.29)	1.56 (± 0.22)	*

[1)] p value based on paired *t*-test; *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$.

Table 5. Screening methods and use of the CRSM

Methods of screening of postnatal mental Health as municipal support ($n = 267$)	Edinburgh Postnatal Depression Scale (EPDS)	71	19.8%
	Mother's Attachment to Baby Scale (MABS)	15	5.6%
	Three questionnaires used in the CRSM	78	29.2%
	Risk assessment tool of abuse (Osaka/Minamitama)	36	13.5%
	Others	24	8.9%
	No special guidance	109	40.8%
Use of the CRSM ($n = 261$)	Use for seminars	63	24.1%
	Use for support of cases	107	40.9%
	Not used	106	40.6%
	Unknown	48	18.3%

year, it was suggested that the seminar would have effects on not only accumulation of expertise, but also improvement of interpersonal health care skills. Elliott *et al*. utilized a program in which client-centered therapy, *etc*., was taught for ten half-day sessions(7-8 months) (*17*), and Appleby *et al*. utilized a 2-day program for health visitors to teach cognitive behavioral therapy using role play (*20*), and they were able to demonstrate improvement of interpersonal health care skills. In our seminars, we did not teach a specific psychotherapy, and thus the simulation performed through assessment of the paper patient and group discussion on support (the seminar in 2005) and group supervision based on actual cases (the seminar in 2006) were considered to be effective. It might be also effective that the participants from the first seminar experienced various cases in daily practice with their expertise and motivation obtained from the first seminar for a full year, and were able to describe the cases, in which continuous support was terminated, before the seminar in 2006.

In this study, no significant changes were confirmed in the evaluation of personal skills at formulating measures. However, it was shown that budget establishment and formulating measures for related operations were promoted. In the inter-group comparison on the scale of operation, performed in a cross-sectional manner in 2006, the level of operation was highly evaluated for the institutions, in which health professionals other than those who participated in the first seminar participated in the second seminar. In addition, when a question was posed to a participant from one institution in a longitudinal manner, the score of operation in 2006 was higher than that in the previous year. The number of those who responded that operation systems could be established at their institutions within the coming year tended to be large among the participants in both seminars. Although increase in personal skills may not necessarily be linked with the operational level, the possibility that the effects of the seminars might increase awareness of operating officers and entire members of an institution and promote the establishment of an operation system was suggested.

Furthermore, approximately 20% of the participants responded to the question about the use of the CRSM and the 3 types of questionnaires that they did not know the CRSM. Thus, it was suggested that the main branches of prefectural maternal and child health organizations might have another policy, their awareness of perinatal mental health and support for child rearing might be low, and that cooperation between prefectural governments and health and welfare centers might be insufficient. However, approximately 40% of the health and welfare centers responded that they had used the CRSM for support of individual cases. It can be concluded that the use of the CRSM has expanded to half of the areas in Japan in 3 years after its distribution to main branches of maternal and child health organizations.

As the method for mental health screening of postpartum mothers used in the municipalities, the 3 types of questionnaires recommended in the CRSM were used in approximately half of the health and welfare centers that instructed a specific screening method. It is hoped that the level of guidance to municipalities by prefectural health and welfare centers will be increased. The risk markers for infant abuse in the Osaka Method (*21*) and Minamitama Method (*22*) were the main risk markers of child abuse that have been used in Japan. In the CRSM, the relationship between the postpartum mental health of mothers and the risk for infant abuse was explained, and the items of the MABS that indicated the risk for child abuse were specifically instructed. But this is a moderate manual prepared with a focus placed on maternal mental health. As shown by Suzumiya (*23*), it will be important to clearly indicate the part that includes both countermeasures for perinatal mental health and for the prevention of infant abuse.

Limitation and future research

In Study 1, it was considered that the participants in the seminar and their institutions would play an active role in supporting this theme, and especially those who participated in both seminars were likely to be active and favorable towards the seminars. Thus, there is the possibility that the effects of the seminars were evaluated favorably. In addition, it may be possible that the effects were overevaluated because objective markers were not prepared for the evaluation of expertise and skills, and a control group was not established. On the other hand, in Study 2, responses were obtained from more than 70% of all of the prefectural health and welfare centers in Japan, and thus the results are considered to reflect the situation throughout Japan.

It was demonstrated that 1) the interpersonal health care skills of health professionals who participated in the seminar had increased, 2) development of activities for postnatal mental health and support for child rearing had been promoted at individual institutions, and 3) the use of the CRSM had been steadily expanding around the nation.

It will be necessary to evaluate the countermeasures for perinatal mental health and support activity for child rearing at the national level, with a decrease in the incidence of severe postpartum depression and infant abuse considered as the primary outcome.

5. Conclusion

As the last stage of program evaluation, outcome evaluation was performed. It can be said that the seminars performed over the 2 years were effective at improving the expertise and interpersonal health care skills of health professionals. The possibility that the seminars might facilitate the promotion of operation

system establishment at the institutions of the participants was suggested. In addition, it was demonstrated that the effects of this project were expanded to almost half of the nation. To determine the effects on development of postpartum depression and prevention of infant abuse, further monitoring will be necessary.

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