# Intervention study for promoting partnerships between professionals and self-help groups of families of individuals with severe mental illness in Japan

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**Objective**　This study was performed to examine effects of an intervention aimed at promoting partnerships between professionals and self-help groups for family members (family groups) of persons with severe mental illness in Japan.

**Methods**　A group randomization design where the unit of randomization was the family group as a whole was used, with family groups (N＝24) randomly assigned to either intervention or control groups. Twelve family groups and 15 professionals made up the intervention group, and 12 family groups and 14 professionals made up the control group. A total of 149 family members were eligible participants in the study; 76 from family groups in the intervention group and 73 from the control group. A semi-structured program was conducted for six months. The effects of the intervention were analyzed at three levels: the family group level, the individual family member level and the individual professional level.

**Results**　Significant increases were found in the number of family members registered in family groups and program satisfaction for members of the intervention family groups. Professionals involved with family groups in the intervention group felt greater empowerment than those in the control group.

**Conclusion**　The tested intervention proved effective for both family groups and professionals associated with the groups.

**Key words**：self-help groups, family groups, partnership, professionals, schizophrenia

## I. Introduction

Research indicates that participation of families in self-help groups (family groups) reduces feelings of guilt and self-blame among family members of individuals with severe mental illness[1,2] as well as their perception of the burden associated with caring for these individuals[3]. Studies have also shown that participation in family groups increases family members' knowledge of mental illness[4] and their ability to cope with problems[4,5], as well as enhancing the quality of parent-child relationships[6].

In Japan, the majority of such family groups are initially established with support from professionals[7]. However, the latter generally do not like to provide long-term support for family groups due to insufficient manpower and a belief that professionals should not themselves be involved. Therefore, the working relationship between professionals and family groups is not always positive[8].

For desirable relationships between professionals and self-help groups, several researchers have suggested a consultation model[9,10] and a partnership model[11~14]. Intervention studies based on the consultation model have been conducted, with documented positive effects for both professionals[9] and self-help groups[10]. Partnerships between professionals and self-help groups are interdependent alliances, characterized by cooperation, collegiality, balanced responsibilities, mutual respect, equality of status, shared decision making, and linkage functions[15]. The partnership model allows for regular and frequent contact with no time limitation[12], whereas the consultation model is limited[16]. Also, the partnership model requires shared decision making followed by mutual efforts to achieve shared goals[15], whereas the consultation model requires decision making by the group[10,16]. In Japan, local public professionals have public responsibility to support family groups[17], which means that there is no time

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limitation. We believe that professionals should be working with family groups to achieve shared goals. Accordingly, we support the partnership model presented by Stewart et al and the proposed strategies for promoting partnership[14]. However, to our knowledge, no intervention study has hitherto applied the partnership model to professionals and self-help groups.

The purpose of the present study was to examine effects of an intervention program aimed at promoting partnerships between professionals and family groups, based on the partnership model discussed by Stewart and colleagues[14]. The intervention targeted three elements (communication development, role and goal clarification, and education) that are essential for the development of a collaborative climate between professionals and family groups. The hypothesis was that favorable would accrue for collaboration-related outcomes at three levels: the family group, the individual family member, and the individual professional. Specifically, we hypothesized that, at the family group level, our program would increase the number of family members, because a collaborative climate is more inviting in this respect[10]. In addition, we expected that, at the individual family member level, participants in the intervention would be (a) more satisfied with the program, (b) have greater appreciation of family group activities, and (c) perceive greater empowerment and higher self-esteem, compared to members in the control group. Finally, we hypothesized that, at the individual professional level, the program would result in a greater empowerment among professionals to support family groups, given that involvement with self-help groups has been shown to be related to enhancement of professional skills and knowledge[18].

## II. Methods

*Participants and Procedures*

This study used a group randomization design with single family group as the unit of randomization. Eligibility criteria for family groups were: (a) affiliation with ZENKAREN (the Japanese National Federation of Families of the Mentally Ill) and location in the Kanto area; (b) a community-basis; and (c) meetings held once or more per month. To respect the right of self-determination by groups, we first informed the 125 family groups that met these criteria. Of the total, 80 responded and 61 wished to participate in the research (see Figure 1). Representatives of each family group were also asked for contact information regarding the professionals who supported their family group and those with public responsibility for supporting these community-based family groups were asked to participate in the study.

We contacted all of them and provided information about the study, but were only able to secure the participation of professionals in 24 cases. The most common reason for non-participation was insufficient professional manpower to execute the intervention. The 125 eligible groups held meetings once per month. Comparing the 24 groups with the total of 125 eligible groups, there were no major differences in rates of professional participation in the meetings as follows; the proportions for non-participation (0% in Table 1) in the 125 and 24 groups were 24.1% and 25.0%, respectively, with full participation (100% in Table 1) in 42.3% and 37.5%.

The 24 family groups were then randomly assigned to either intervention or control groups. Twelve family groups and 15 professionals made up the intervention group, while 12 family groups and 14 professionals made up the control group. Neither the family groups nor the professionals were blinded to the group's assignment.

At the next step, family members were informed about the nature and groups of the study. Those who consented to participate responded to questionnaires at baseline and after 6 months. Matching was then made with reference to demographic data for the members and their relatives with mental illness. Such a matching method has previously been used among anonymous self-help groups[19]. Members who met all of the following eligible criteria were the family member participants in this study: 1) attending 5 or more of a total of 7 meetings over the intervention period; 2) belonging to the groups for one or more years at baseline.

As illustrated in Figure 1, in the intervention groups, 203 of the total of 602 family members who were registered in the groups attended the meetings at baseline. In the control group, 219 of the total of 457 family members attended. Finally, 76 family members in the intervention group and 73 in the control groups were included as eligible participants.

On average, 6.2 family members per group participated in the study and attended 6.5 of the seven meetings held during the study period.

*Ehics*

We provided information as to the aims, methods, liberty to non-participate, freedom to withdraw at any time, and protection of privacy using a prospectus, and obtained participants' consent without any written form. The control group was assured of almost the same intervention after the intervention period. In addition, we did not control the intervention tightly because such actions might lead to distortion of the nature of self-help groups[20]. Also, in order to respect confidentiality, through dis-

Eligible family groups (n=125)

↓

Responded (n=80)

↓ Informed consent for family groups

Family groups which wished to participate
in this study (n=61)

↓ Informed consent for professionals listed by family groups

Family groups for which one or more professional
wished to participate in this study (n=24)

↓

Group randomization

| Intervention group<br>Family groups (n=12)<br>Professionals (n=15) | Control group<br>Family groups (n=12)<br>Professionals (n=14) |

------Family member participants were identified as follows------

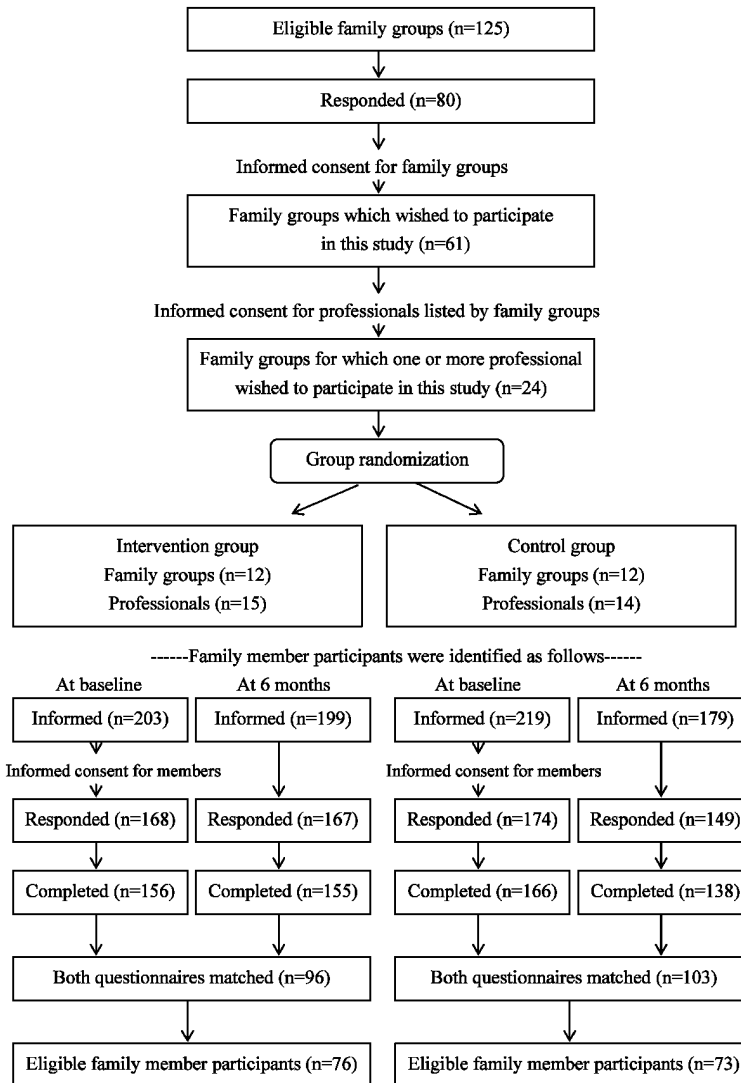| At baseline | At 6 months | At baseline | At 6 months |
|---|---|---|---|
| Informed (n=203) | Informed (n=199) | Informed (n=219) | Informed (n=179) |
| Informed consent for members | | Informed consent for members | |
| Responded (n=168) | Responded (n=167) | Responded (n=174) | Responded (n=149) |
| Completed (n=156) | Completed (n=155) | Completed (n=166) | Completed (n=138) |
| Both questionnaires matched (n=96) | | Both questionnaires matched (n=103) | |
| Eligible family member participants (n=76) | | Eligible family member participants (n=73) | |

**Figure 1.** Flow diagram of the study subjects: Family groups, professionals, and family members

cussion with staff of ZENKAREN, we decided that the researcher must not write members' names in order not to identify individuals on record. The study protocol was reviewed and approved by the board of directors of ZENKAREN.

*The Intervention Program*

The intervention consisted of a semi-structured program for promoting partnership based on the model proposed by Stewart et al.[14], delivered to participants over a six-month period. They identified meanings and mechanisms of partnership, and proposed strategies for promoting partnership[14]:

communication development, credibility enhancement, trust building, role and goal clarification, education, and a clearinghouse. Three of these strategies were selected as components of present intervention program: communication development; role and goal clarification; and education. The reasons for their selection were that communication should develop credibility and trust between the parties, and clearinghouses are scarce in Japan.

The communication development strategies were designed to improve the exchange of information and knowledge between family members and professionals. In this program, the professionals par-

**Table 1.** Comparisons of professional support before the intervention and during the intervention period

| | Intervention n = 12 | | Control n = 12 | |
|---|---|---|---|---|
| | Usual support Before 6 months | The program Intervention period | Usual support Before 6 months | Usual support Control period |
| Rate for professionals' participation the meetings | | | | |
| 0% （not at all） | 3 | 0 | 3 | 3 |
| 1–99% | 4 | 0 | 5 | 5 |
| 100% （every meeting, once per month） | 5 | 12 | 4 | 4 |
| mean ± SD （%） | 62.9 ± 42.3 | 100.0 | 55.0 ± 42.7 | 53.6 ± 40.5 |
| Additional time of professionals' participating in the meetings （min）　　　［mean ± SD］ | — | 350.4 ± 478.3 | — | — |
| Number of times of the discussions to clarify the goals and roles　　　　　　［mean ± SD］ | — | 3.4 ± 0.9 | — | — |
| Total time of discussions to clarify the goals and roles （min）　　　　　　　［mean ± SD］ | — | 227.3 ± 80.5 | — | — |

Dashes indicate no applicable data.

ticipated in meetings once a month. As compared with the length of time of professionals' participating in the meetings for 6 months before the intervention, we calculated increase during the intervention period, which is the additional time of professionals' participating in the meetings in Table 1. When professionals had been participating in every meeting before the intervention, the additional time is zero. When professionals had not been participating at all, we added all the meeting times.

The role and goal clarification strategies involved input from both parties about the expectations of each other with the goals of defining roles and establishing group objectives sensitive to each side's needs and interests. In this program, the family members and professionals discussed what the family group should do and what the family members and professionals expected of each other. The number of times and total time required for the discussions to clarify the goals and roles between the family members and professionals is shown in Table 1.

The educational strategies were simply delivered to the professional during a two-day training seminar with the goal of increasing their professional knowledge and skills in terms of interacting with family members.

Over the same 6-month period, professionals providing support to family groups in the control condition continued to interact with family groups as previously （see Table 1）.

*Outcome variables*

1）　The family group level

Number of family members registered in the family group who make an application for formal member （not the number of members' attending the meetings）.

2）　The individual family member level

Group effectiveness of self-help groups has often been defined as member satisfaction and member estimates of benefits received[1,21]. Personal satisfaction and benefits from participation were assessed using the Group Appraisal Scale[22].

Satisfaction with professional services for family groups was assessed using the Client Satisfaction Questionnaire （CSQ–8）[23]. The validity and reliability of a translated Japanese version[24] have been confirmed.

Much research has indicated that critical goals of self-help groups are member's empowerment and self-esteem[11]. Empowerment of family members was assessed using the Family Empowerment Scale[19], measuring three levels of empowerment （Family, Service System, and Community/Political） to give a total score.

Self-esteem of family members was assessed using the summative method in the Japanese-version of the Self-Esteem Scale[25,26], those validity and reliability have been confirmed[26].

3）　The individual professional level

Professional knowledge and skills were assessed using the Knowledge and Skills Subscale from the Social Worker Empowerment Scale[27].

*Analysis*

First, the demographic data and baseline scores of the outcome variables were tested to assess comparability between two groups. This study was of a group randomization design allocating randomly intact groups. Therefore, regarding the individual fa-

mily member and professional levels, we used mixed model analysis of variance or generalized estimating equations with family groups as the random effect, taking into account the extra component of variation due to the nested design[28,29].

Second, main effects of the intervention on the outcome variables were assessed using analysis of covariance (ANCOVA) or mixed model ANCOVA after adjusting for the baseline scores of the outcome variables and demographic data, with determination of significant differences between the groups. The reason for using ANCOVA was that adjustment for the baseline score may improve the precision of one's estimate even with comparable treatment groups[30,31]. When ANCOVA or mixed model AN-COVA shows a significant difference, the intervention has a significant effect on the outcome variable.

Third, interactions of the intervention by the baseline scores of the outcome variables were analyzed by adding interactions to the analysis of the main effect. A statistically significant interaction means that the intervention has different effects according to the baseline score of the outcome variables. When a statistic showed a significant interaction, the subjects were divided into two groups on the median of the baseline score of the outcome variable. Thus, interactions of the intervention by the two groups were analyzed once again.

Finally, the program implementation was assessed using the Pearson correlation coefficient to examine the relationships between the process variables of the program and all outcome variables. The process variables were the additional time of professionals' participating in the meetings and total time of discussions to clarify the goals and roles. The outcome variables were used as a summary statistic for each family group.

All of the data analyses were conducted using SAS version 6.12.

## III. Results

*Characteristics of the intervention and control groups*

Characteristics of the family groups, the individual family members and the individual professionals in the intervention and control groups did not differ significantly with the exception of leaders' age and professionals' experience in education about family groups (Table 2). The most common diagnosis of relatives with mental illness was schizophrenia. Distributions of the outcome measures at baseline did not differ significantly between the two groups (Table 3).

*Main Effects*

As hypothesized, at the family group level, the number of family members registered in family groups increased significantly within the intervention group compared to the control group (Table 4). At the individual family member level, the intervention had a significantly effect on the CSQ–8. Also, with an alpha level of 0.10, there was a modest intervention effect on the Service System score and the total score on the Family Empowerment Scale. However, we observed null effects of the intervention on other individual family member outcomes as well as on outcomes related to individual professionals.

*Interaction Effects*

As illustrated in Table 5, at the individual family member level, only the CSQ–8 had a significant interaction of the intervention with the baseline score. We divided the family members into two groups on the median of the baseline score. The intervention had a significant effect only on those with the lower baseline CSQ–8 (F = 22.2, P < 0.001) and not those with the higher baseline (F = 1.3, P = 0.26). Also, there was a statistically significant interaction of the intervention with the knowledge/skills baseline score. As illustrated in Figure 2, the intervention had a significant effect only on those professionals with the lower baseline score.

*Process evaluation*

From Pearson correlation coefficients between the program variables and the outcome variables, there were significantly positive correlations between the additional time of professionals' participating in the meetings and the increase in the CSQ–8 (r = 0.705, P = 0.01) and the Service System score (r = 0.722, P = 0.008).

## IV. Discussion

From our results, we conclude that the tested intervention led to several positive outcomes in terms of partnerships between professionals and family groups. One positive outcome occurred at the family group level and involved increased enrolment of family members in family groups. This is consistent with previous reports that professional interactions contribute to increasing new members of self-help groups[1,32]. Following the study's rationale, we conclude that the reason was that family members found the collaborative environment inviting and conducive to their needs and interests.

There was also evidence of intervention effects at the individual family member level, particularly on level of client satisfaction. Also there was a significant effect particularly on those with a relatively low CSQ–8 at baseline. This finding means that family members were satisfied with the program, in

**Table 2.** Characteristics of the family groups, the family members and the professionals

| Categories （n＝intervention/control）<br>Characteristics | Intervention<br>n （％）<br>mean±SD | Control<br>n （％）<br>mean±SD | P value |
|---|---|---|---|
| Family Group Level （n＝12/12）[a] | | | |
| Number of members registered in the group | 50.2±36.1 | 38.1±22.0 | 0.33 |
| Number of committees | 7.9±4.9 | 9.3±4.2 | 0.36 |
| Sex of the leader （male） | 7(58.3) | 7(58.3) | 1.00 |
| Age of the leader （yrs） | 65.1±7.6 | 70.7±4.4 | 0.04 |
| Number of members' attending the meetings[b] | 17.5±10.1 | 15.4±7.8 | 0.57 |
| Social activities[c]　Public policy activities | 8(66.7) | 8(66.7) | 1.00 |
| 　　　　　　　　　Sheltered workshops | 6(50.0) | 7(58.3) | 0.68 |
| 　　　　　　　　　Official peer counseling | 3(25.0) | 7(58.3) | 0.21 |
| 　　　　　　　　　Fundraising activities | 10(83.3) | 10(83.3) | 1.00 |
| Rate of professional's participating in the meeting （％）[b] | 62.9±42.3 | 55.0±42.7 | 0.65 |
| Individual Family Member Level （n＝76/73）[d] | | | |
| Length of membership （yrs） | 5.9±4.2 | 6.7±4.3 | 0.30 |
| Role in the group （committee） | 53(69.7) | 47(64.4) | 0.62 |
| Members　Age （yrs） | 63.6±8.3 | 65.0±7.6 | 0.26 |
| 　　　　Sex （female） | 61(80.3) | 53(72.6) | 0.53 |
| 　　　　Relation to person with mental illness （parent） | 71(93.4) | 67(91.8) | 0.44 |
| Persons with mental ill　Age （yrs） | 35.9±9.5 | 37.5±9.8 | 0.28 |
| 　　　　　　　　　　Sex （male） | 57(75.0) | 47(64.4) | 0.79 |
| 　　　　　　　　　　Diagnosis （schizophrenia） | 59(77.7) | 66(90.4) | 0.60 |
| 　　　　　　　　　　Length of the mental illness （yrs） | 14.8±8.9 | 16.3±9.7 | 0.12 |
| 　　　　　　　　　　Treatment （outpatient treatment） | 63(82.9) | 66(90.4) | 0.19 |
| Individual Professional Level （n＝15/14）[d] | | | |
| Sex （female） | 10(66.7) | 10(71.4) | 0.76 |
| Discipline　Public health nurse | 7(46.7) | 8(57.2) | |
| 　　　　Social worker | 7(46.7) | 5(35.7) | 0.85 |
| 　　　　Clerk of a welfare department | 1( 6.6) | 1( 7.1) | |
| Agency or department　Public health | 13(86.7) | 12(85.7) | 0.93 |
| 　　　　　　　　　Public welfare | 2(13.3) | 2(14.3) | 0.93 |
| Length of professional activity （yrs） | 13.6±9.3 | 13.9±6.6 | 0.98 |
| Length of professional activity in the mental health fields （yrs） | 10.2±9.6 | 8.7±7.1 | 0.83 |
| Length of supporting the family group subject （yrs） | 1.5±1.5 | 1.0±1.0 | 0.26 |
| Length of supporting other family groups （yrs） | 4.0±6.9 | 2.6±5.0 | 0.51 |
| Length of supporting other self-help groups （yrs） | 3.2±5.2 | 5.0±7.3 | 0.31 |
| Education about family groups （had experience） | 8(53.3) | 2(14.3) | 0.05 |
| Education about self-help groups （had experience） | 10(66.7) | 6(42.9) | 0.28 |

SD: standard deviation.

[a]　Fisher's exact test: categorical data, *t* test: continuous data.

[b]　Data are for 6 months before the baseline.

[c]　Data are for the year preceding baseline.

[d]　Mixed model ANOVA: continuous data, generalized estimating equations: binary data, Fisher's exact test: discipline.

particular those who had previously not been satisfied with professional involvement. In addition, there was positive correlation between the increase in the CSQ–8 and the additional length of time that the professionals participated in the meetings. This clearly suggested that family members desired

**Table 3.** Baseline scores for outcome variables

| Categories (n＝intervention/control)<br>Outcome variables (range; Cronbach's alpha coefficient for this study) | Intervention mean (SD) | Control mean (SD) | P value |
|---|---|---|---|
| Family Group Level (n＝12/12) | | | |
| 　Number of members registered | 50.2(36.1) | 38.1(22.0) | 0.33 |
| Individual Family Member Level (n＝76/73) | | | |
| 　Group Appraisal Scale | | | |
| 　　Group Satisfaction Scale (5–25; $\alpha$＝0.80) | 15.7( 3.4) | 15.7( 3.7) | 0.91 |
| 　　Group Benefit Scale (5–25; $\alpha$＝0.77) | 19.5( 2.7) | 19.4( 3.2) | 0.94 |
| 　CSQ–8 (8–32; $\alpha$＝0.90) | 22.4( 4.0) | 23.9( 3.5) | 0.16 |
| 　Family Empowerment Scale | | | |
| 　　Family (12–60; $\alpha$＝0.78) | 42.6( 6.6) | 42.8( 7.2) | 0.97 |
| 　　Service System (12–60; $\alpha$＝0.80) | 43.7( 7.8) | 44.0( 8.1) | 0.92 |
| 　　Community/Political (10–50; $\alpha$＝0.82) | 34.6( 7.0) | 34.1( 7.0) | 0.52 |
| 　　Total Score (34–170; $\alpha$＝0.91) | 120.8(18.5) | 120.8(20.6) | 0.82 |
| 　Self-Esteem Scale (10–40; $\alpha$＝0.75) | 26.6( 4.1) | 25.9( 4.9) | 0.81 |
| Individual Professional Level (n＝15/14) | | | |
| 　Knowledge and Skills Subscale (9–45; $\alpha$＝0.87) | 26.9( 5.2) | 22.9( 6.4) | 0.14 |

SD: standard deviation.

$t$ test: number of members.

Mixed model ANOVA: the other variables.

**Table 4.** Main effects of the intervention

| Categories (n＝intervention/control)<br>Outcome variables (range) | Intervention | | Control | | Effect<br>F (p) |
|---|---|---|---|---|---|
| | Baseline mean (SD) | At 6 months mean (SD) | Baseline mean (SD) | At 6 months mean (SD) | |
| Family Group Level (n＝12/12)[a] | | | | | |
| 　Number of members registered | 50.2(36.1) | 53.1(37.5) | 38.1(22.0) | 37.9(23.2) | 5.38(0.03) |
| Individual Family Member Level (n＝76/73)[b] | | | | | |
| 　Group Appraisal Scale | | | | | |
| 　　Group Satisfaction (5–25) | 15.7( 3.4) | 15.6( 3.3) | 15.7( 3.7) | 15.6( 3.7) | 0.33(0.58) |
| 　　Group Benefit (5–25) | 19.5( 2.7) | 19.0( 2.7) | 19.4( 3.2) | 19.0( 3.6) | 0.00(1.00) |
| 　CSQ–8(8–32) | 22.4( 4.0) | 24.5( 3.2) | 23.9( 3.5) | 22.9( 3.8) | 15.59(0.0007) |
| 　Family Empowerment Scale | | | | | |
| 　　Family(12–60) | 42.6( 6.6) | 44.1( 6.6) | 42.8( 7.2) | 43.3( 6.6) | 2.44(0.15) |
| 　　Service System(12–60) | 43.7( 7.8) | 44.9( 6.6) | 44.0( 8.1) | 43.5( 8.0) | 3.55(0.08) |
| 　　Community/Political(10–50) | 34.6( 7.0) | 35.7( 6.4) | 34.1( 7.0) | 34.3( 6.3) | 2.37(0.13) |
| 　　Total Score(34–170) | 120.8(18.5) | 124.6(17.5) | 120.8(20.6) | 121.1(19.3) | 4.35(0.06) |
| 　Self-Esteem Scale(10–40) | 26.6( 4.1) | 26.6( 4.1) | 25.9( 4.9) | 26.0( 5.0) | 1.16(0.29) |
| Individual Professional Level (n＝15/14)[c] | | | | | |
| 　Knowledge and Skills Subscale (9–45) | 26.9( 5.2) | 28.7( 4.4) | 22.9( 6.4) | 22.5( 7.5) | 2.03(0.17) |

SD: standard deviation.

[a] F statistic in ANCOVA, with baseline scores and age of leader as covariates.

[b] F statistic in mixed model ANCOVA, with baseline scores as covariates.

[c] F statistic in mixed model ANCOVA, with baseline scores and presence or absence of education about family groups as covariates.

**Table 5.** Interactions of the intervention by the baseline scores for the outcome variables

| Categories（n＝intervention/control）<br>Outcome variables（range） | Intervention<br>At 6 months<br>LSmean（SE） | Control<br>At 6 months<br>LSmean（SE） | Effect | |
| --- | --- | --- | --- | --- |
| | | | Intervention<br>F（p） | Intervention<br>×baseline scores<br>F（p） |
| Family Group Level（n＝12/12）[a] | | | | |
| 　Number of members registered | 47.2(1.0) | 43.9(1.0) | 2.27(0.15) | 0.06(0.80) |
| Individual Family Member Level（n＝76/73）[b] | | | | |
| 　Group Appraisal Scale | | | | |
| 　　Group Satisfaction Scale（5–25） | 15.8(0.4) | 15.4(0.4) | 0.03(0.9) | 0.00(1.0) |
| 　　Group Benefit Scale（5–25） | 19.0(0.3) | 19.0(0.4) | 1.53(0.2) | 1.55(0.2) |
| 　CSQ-8（8–32） | 24.7(0.3) | 22.3(0.5) | 9.85(0.002) | 5.96(0.02) |
| 　Family Empowerment Scale | | | | |
| 　　Family（12–60） | 44.2(0.4) | 43.2(0.4) | 0.03(0.97) | 0.01(0.93) |
| 　　Service System（12–60） | 45.2(0.6) | 43.1(0.9) | 1.44(0.23) | 0.62(0.43) |
| 　　Community/Political（10–50） | 35.5(0.4) | 34.5(0.5) | 0.95(0.33) | 0.53(0.47) |
| 　　Total Score（34–170） | 124.9(1.2) | 121.0(1.5) | 0.18(0.67) | 0.0(0.98) |
| 　Self-Esteem Scale（10–40） | 26.3(0.3) | 26.2(0.5) | 0.10(0.75) | 0.07(0.79) |
| Individual Professional Level（n＝15/14）[c] | | | | |
| 　Knowledge and Skills Subscale（9–45） | 27.7(0.8) | 25.8(1.1) | 13.00(0.007) | 10.86(0.01) |

LSmean: least square means; SE: standard error.

[a] F statistic in ANCOVA, with baseline scores and age of leader as covariates.

[b] F statistic in mixed model ANCOVA, with baseline scores as covariate.

[c] F statistic in mixed model ANCOVA, with baseline scores and presence or absence education about family groups as covariates.
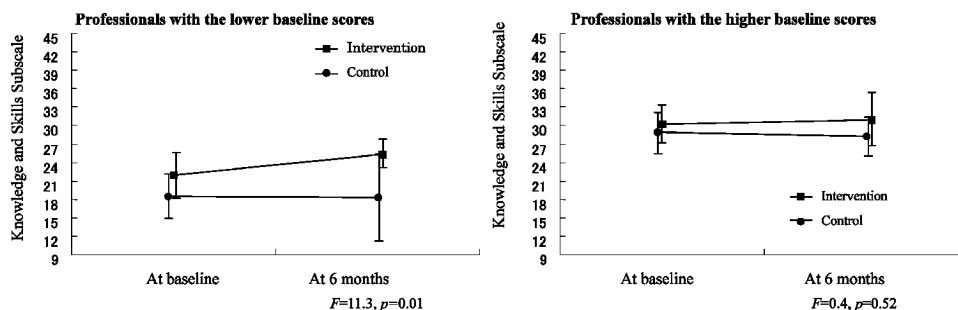


**Figure 2.** Interaction of the intervention by the baseline score of the Knowledge and Skills Subscale
Professionals were divided into two groups with reference to the median of the baseline score, and the figures show change for each group.
Vertical lines depict standard deviations of the means.
F statistics are with mixed model ANCOVA, using baseline score and presence or absence of education about family groups as covariates.

professionals' participation in the meetings.

　However, evidence of intervention effects on family members' empowerment was less conclusive, with an alpha of 0.10. There was a positive correlation between the length of time that professionals participated additionally in the meetings and the increase in the Service System score. Through communication with professionals over the intervention period, family members may acquire an improved ability to negotiate with them about the service received by their relative.

　Finally, the intervention had a positive effect on

professionals with lower levels of the knowledge and skills, and thus may empower them to deal effectively with family members[33]. However, the professionals in the intervention group had more experience in education about family groups than those of the control group at baseline. Therefore, there is the possibility that professionals who had some knowledge about family groups could develop a collaborative climate by receiving the educational program, and lead to members' satisfaction.

Several explanations may be forwarded concerning the lack of, or otherwise modest, effects of the intervention on the hypothesized outcomes. It may be that an intervention of a longer duration is needed to generate more significant change on the outcomes. It takes time and significant commitment from the involved parties to build a successful partnership.

Overall, we could not clearly demonstrate effects of the intervention. However, to our knowledge, this is the first report of a randomized controlled trial of a program for promoting a positive working relationship between self-help groups and professionals. There have been only intervention studies without pre-post outcome evaluation, based on the consultation model[9,10]. Most family groups in Japan desire public professionals' support[34] as reflected by our family member subjects satisfaction with professionals' participation in meetings. Therefore, we believe that a partnership with no time limitation is appropriate as the desirable relationship in Japan. However, in order to modify the program, further research may be necessary regarding how to educate professionals to various levels of knowledge, how best to obtain significant commitments from both parties, and how to incorporate other characteristics of partnerships in a dynamic flexible interaction with each other[14,35].

We must consider some limitations of the present study. First, the program included three components and the effectiveness of each component can only be clarified by additional investigations. Second, family member subjects were themselves a part of family members registered in the family groups. Also, we cannot calculate exactly the proportion of family member subjects who actually attended in the meetings during the intervention period. However, there is an ethical reason for not identifying individuals, and for not controlling attendance. Third, only 24 of the eligible 125 groups participated in this study. However, the relationship between professionals and the 24 group subjects were similar to those with other nonparticipating groups. Therefore, the program could be generally applicable. Fourth, all subjects of this study were not blinded to the

group's assignment. This may have affected the results, but a blinded approach is only practicable when comparing treatments of similar nature[30]. Finally, it is difficult to generalize the study's findings to other countries. Despite these limitations, we believe that our results provide additional insight into the importance of cultivating partnerships between professionals and family members and ways to build such partnerships. Our confidence stems from the fact that the study was conducted in a natural setting and was based on naturally occurring groups consisting of diverse individuals-all of which increased the study's external validity. At a minimum, we interpret our findings to suggest that professionals can be trained to provide support to family groups in a collaborative manner that is likely to strengthen partnerships and increase the likelihood that individuals with severe mental illness will be able to benefit from an effective system of social support.

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