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博士論文

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鈴木雄介

The community-based interventional programmes for family caregivers who look after persons with traumatic brain injury

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Abstract: The purpose of this study is to verify the effect of interventional programmes to reduce the psychological distress of family caregivers of persons with traumatic brain injury. The interventional programme was conducted over five meetings which were held for four hours and took place once a week, involving a total of 16 persons. The interventional programme mainly consisted of providing basic knowledge of traumatic brain injury, ways of treating cognitive dysfunction and training of communication skills applying assertiveness training. Evaluation criteria were GHQ-30, SDS, STAI and RAS as assessment measures and were analysed before and after the intervention and at three month and six month follow-ups after the interventional programme. A considerable reduction of the mean score was statistically recognised in comparison of SDS at pre-intervention and after the six month follow-up and STAI at pre-intervention and post-intervention in the analysis of variance of pre- and post-intervention and follow-ups.

Key words: Traumatic brain injury, family interventions, communication skills training, assertiveness training for family.

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Introduction

Cognitive dysfunction caused by traumatic brain injury affects the ability to respond to and process information, memory, attention, and stimulus of patients (Lezak, 2004). And among patients having traumatic brain injury, there are patients with neurobehavioral changes such as aggressiveness and self-centeredness who have difficulty performing daily living activities and social activities. Also, aggressive expressions and behaviour are said to worsen, whereas other disability indexes improve as time goes by (Brooks, Campsie, Symington, Beattie, & McKinlay, 1987). Family members are confused by such changes in patients with traumatic brain injury and feel the burden of their care. Hall et al. (1994) indicate that the behaviour factors which cause family caregivers of persons with traumatic brain injury to feel the burden are those such as severe temper outbursts, self-centeredness, slowness, forgetfulness and aggressiveness. Also, Kreutzer, Gervasio, and Camplair (1994) report behaviour problems and emotional and personality disturbances as factors (Kreutzer, Marwitz, & Kepler, 1992). Brooks and McKinlay (1983) report personality change as a factor.

Moreover, evidence has been accumulated from recent decades of research that most family caregivers have psychological distress such as depression and anxiety caused by the neurobehavioral change of patients with traumatic brain injury (Perlesz, Kinsella, & Crowe, 1999).

Despite this evidence, both domestic and international, few intervention studies have been conducted to reduce the psychological distress of family caregivers of persons with traumatic brain injury (Boschen, Gargaro, Gan, Gerber, & Brandys, 2007). Prior international studies have been trying to reduce psychological distress of family caregivers by interventions such as information instruction (Sanguinetti & Catanzaro, 1987) on cognitive dysfunction, behaviour management

programmes (Carnevale, Anselmi, Busichio, & Millis, 2002), stress management programmes (Singer et al., 1994) and problem-solving training (Rivera, Elliott, Berry, & Grant, 2008). However, methodology problems are indicated, such as that most of the preceding studies use assessment measures which are not standardized as effective, and there is not enough information regarding the contents of the interventions (Sinnakaruppan, Downey, & Morrison, 2005). On the other hand, the authors' prior study (Suzuki & Motomura, 2009) showed brain contusion patients' emotional and behavioural changes, such as "Shouting out loudly with anger" and "Violent behaviour", were undermining the family caregivers' mental health. Also, in the authors' clinical experience, scenes have been witnessed showing that family caregivers are struggling with communication with patients who are experiencing emotional and behavioural changes for reasons such as "the patient being offensive cannot be helped" or "the need to be quietly patient without saying anything because a warning might adversely promote anger". Kreutzer, Gervasio, and Camplair (1994) research using The Family Assessment Device (FAD) point out communication problems between primary caregivers and patients by referring to primary caregivers who could not frankly express clear thoughts and feelings, and expressed anger and aggressiveness in some instances toward patients. So, we conducted communication skills training applying assertiveness training as a communication method to express oneself without feeling anxiety and tried to reduce the psychological distress of family caregivers. Assertiveness is a concept originating in the USA that is a communication skill used to express oneself without feeling anxiety based on maintaining one's own opinions while respecting the opinions of others (Alberti & Emmons, 2008). Originally, the assertiveness training method was established for persons with psychosocial problems (Riley & McCranie, 1990). In recent years, studies (Johnson, 1993; Killus, 1993) of occupations with high stress have been

seen and assertiveness training is used as part of interpersonal effectiveness training in our country, Japan (Suzuki, Kanoya, Katsuki, & Sato, 2007).

Aims

The purpose of this study is to verify the effect of an interventional programme which uses communication skills training as a core, applying assertiveness training in order to reduce psychological distress of family caregivers of persons with traumatic brain injury.

Method

Subjects

The participants were recruited from family members (240 related members) of persons with traumatic brain injury within the Kinki area. Preconditions for joining were: (1) a patient treated for traumatic brain injury; (2) a feeling of difficulty communicating with the patient; (3) the ability to participate in the entire interventional programme schedule. Moreover, the number of candidates was limited to 20 persons in total (10 persons at each meeting site) because the interventional programme consists of communication skills training with role-playing. After a three months period from the start of recruitment, we received 16 applicants and all of the 16 applicants fulfilled the preconditions. We randomly divided the 16 applicants in half, allocating them to Kobe and Osaka sites, and conducted the interventional programme. This study is approved by the ethics committee of Kobe University Graduate School of Health Science (Date of approval, December 8th, 2009).

Assessment measures

Assessment measures were used for evaluation of the degree of psychological distress and assertiveness of family caregivers as per below.

1. The General Health Questionnaire-30

(GHQ-30) (Goldberg, 1978). This is an assessment measure consisting of 30 items in a self-administered questionnaire. It is a screening device for clearly grasping the current psychiatric health condition – disorder of the respondent and identifying whether the respondent is mentally healthy or not. Higher total points indicate that the respondent is mentally unhealthy. GHQ-30 Japanese version was used (Nakagawa, & Obo, 1985).

2. Self-rating Depression Scale (SDS) (Zung, 1965). This is an assessment measure consisting of 20 items in a self-administered questionnaire to examine depression in the respondent. Higher total scores indicate greater depression. SDS Japanese version was used (Fukuda, & Kobayashi, 1983).

3. Stated-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, & Lushene, 1970). This is an assessment measure consisting of 40 items in a self-administered questionnaire. 20 items pertain to Stated Anxiety, which question “how you feel right now, at this moment” and 20 items pertain to Trait Anxiety which question “how you generally feel”. Higher total scores indicate greater anxiety. STAI Japanese version was used (Mizuguchi, Shimonaka, & Nakasato, 1991).

4. Rathus Assertiveness Schedule (RAS) (Rathus, 1973). RAS is an assessment measure consisting of 30 items assessing assertiveness. In this study, we followed the RAS scoring method. Each item is scored from -3 to +3 excluding 0. +3 means “very characteristic of me, extremely descriptive” and -3 means “very uncharacteristic of me, extremely non-descriptive”. The scale ranges from -90 (least assertive) to +90 (most assertive). It is interpreted as the higher the score the more assertive the respondent can be. RAS is multipurpose and has been utilized for many subjects, such as the effect of assertiveness training in adolescent character development enhancement programs for high school students (Kessler, Ibrahim, & Kahn, 1986), the effect of assertiveness training for sociophobic patients (Cottraux, Mollard, & Defayolle, 1982), and a study of anxiety and

assertiveness in the relatives of alcoholics (Schuckit, 1982). It is possible to use RAS in the field of Health and Welfare. The reliability and validity of RAS has been verified by several researchers (Linehan & Walker, 1983; McCartan & Hargie, 1990). RAS Japanese version was used (Shimizu et al. 2003).

Procedure

We explained the purpose and method of the study based on the briefing paper to the participants and received consent to participate in this study. After collecting descriptive information regarding the participants and the patients with traumatic brain injury, we received answers to the assessment measures of GHQ-30, SDS, STAI, and RAS and set this as the pre-intervention variable. After making certain of filling out all of the descriptive information and assessment measures, we conducted the interventional programme, a total of five times, once a week, for four hours each time. After finishing the fifth time, we once again received answers to the assessment measures and set this as the post-intervention variable. At three months and six months after finishing the interventional programme, we mailed assessment measures to the participants as the follow-up variables. After finishing the interventional programme at the Kobe site, we conducted an interventional programme of exactly the same content and frequency for the participants of the Osaka site. All of the participants participated in the entire interventional programme schedule and replied to all of the assessment measures.

Interventional programme

The interventional programme was mainly structured as Basic knowledge of traumatic brain injury, Methods for coping with cognitive dysfunction, Communication skills training. The operation of the interventional programme was directed by occupational therapists such as the author who have learned assertiveness training and have much experience in the rehabilitation of traumatic brain injury patients.

Each time, two occupational therapists assisted with the operation of interventional programme.

1. Basic knowledge of traumatic brain injury.

We provided basic information regarding disturbance of attention, memory disturbance, dysexecutive behaviour, and, emotional and behavioural changes.

2. Methods for coping with cognitive dysfunction.

We provided various coping strategies to family caregivers for the above cognitive dysfunctions. For example, in regard to memory disturbance, Errorless learning; in order for patients to store information effectively, immediately correct mistakes when the patient is learning by making sure the patient does not make any mistakes when the patient is learning. Memory aids adaptation; we explained how to adapt memory aids to the needs of the patient, improving them according to the conditions and adopting them. In regard to emotional and behavioural changes, referring to "Assessment and management of behaviour problems associated with traumatic brain injury" by Ponsford, Sloan, and Snow (1995), we explained the following method of responding to problematic behaviour of patients, (a) Environmental arrangement; eliminate environmental factors which tend to induce problematic behaviour. (b) Positive enhancement; provide a bonus, encourage, praise, and notice when good behaviour is performed. (c) Time-out; ignore the problematic behaviour when it does not stop, leave the room, and isolate the patient. (d) Passive attitude; absolutely avoid criticising, blaming, and pushing or prodding. (e) Supportive attitude; always take the attitude that "I am supporting you". (f) Records; keep a record of problematic behaviour in each case.

3. Communication skills training.

Assertiveness training followed the standard guidelines and principles suggested by the authors on assertiveness (Alberti & Emmons, 2008). We explained the basis and information regarding assertiveness training by distributing written information on the subject. Role-playing of assertive behaviour was

practiced through coaching and by demonstration aids by the directors and other participants. As an example of role-playing, we suggested the following way for family caregivers to suggest and request their own wants to patients with behaviour problems without anxiety while respecting the other person.

(1) Pick out the problem behaviour; explain the scene giving rise to the problem behaviour of the patients.

(2) Present the request and suggestion; present the request and suggestion which the participant carried out regarding the problem behaviour.

(3) Role-playing; select a counterpart as a cast mate for the role of patient for each participant. The participant provides information as to the patient's expected response and way of speaking when the request and suggestion to patient are presented, in order for the counterpart to act easily.

(4) Feed-back; other participants observe the role-playing and provide feed-back of the good points and the points which need to be improved considering such points as "Are the objectives of the request and suggestion focused?" "Can you voice your feelings?", and "Did you try to understand the patient?".

(5) Revision of request or suggestion; the participants and leaders discuss the contents of the feed-back and revise the request and suggestion.

(6) Re-role-playing; perform the role-playing again according to the revised request and suggestion methods.

Statistical analyses

SPSS (Statistical Package for Social Sciences v16 for Windows) was used for the statistical analyses. At first, in order to study the relationship between assertiveness and psychological distress, we conducted regression analysis based on setting the pre-intervention GHQ-30, SDS, and STAI each as dependent variables and RAS as an independent variable. Next, we conducted repeated measure analyses of variance in order to analyse the variance of variables from pre-intervention,

post-intervention, and follow-ups (after three months and after six months) for verification of the effect of the interventional programme. In case a significant difference in analyses of variance was determined, *post-hoc analyses* were performed. Tukey's honestly significant difference test was used for multiple comparisons.

Results

Descriptive information of family participants and patients.

Table 1 shows descriptive information of family participants and patients. Family participants are two males and 14 females, between 39 and 75 years of age ($M=58$, $SD=10.5$). The family relationships to the patients were 13 parents and three marital partners. The duration of care giving was between 3 ~ 19 years ($M=10$, $SD=4.7$). The number of other persons living with each family participant and patient was between 0~4 persons ($M=1.8$, $SD=1.1$). The numbers of patients living with persons other than the family participant were 13 males and three females. Their ages were between 20~50 years old ($M=34.4$, $SD=8.2$). The Barthel Index (Mahoney & Barthel, 1965) was used for the functional evaluation of daily living activities of the patients. This 10-item assessment tool evaluates physical dependence in daily living activities. The scoring range of the Barthel Index is between 0 to 100 points and a higher score indicates a greater independence in daily living activities. The Barthel Index of the patients was between 60~100 points ($M=87.2$, $SD=14.4$).

The relationship between assertiveness and psychological distress.

A regression equation called $SDS=46.520-0.240 \times RAS$ was formulated. This regression equation was more significant at $P=0.043$ than the analysis of variance table, and the coefficient of regression was also significant

Table 1. Descriptive information of families and patients.

Participants						Patients		
Sex	Age	The family relationship with the patients	Length of caregiving	No. of others in home	Sex	Age	Barthel Index	
F	53y	Mother	5y	2	M	24y	90	
F	57y	Mother	15y	2	F	29y	80	
F	61y	Mother	15y	3	M	32y	60	
F	59y	Mother	13y	3	M	30y	95	
F	50y	Wife	8y	1	M	50y	80	
F	49y	Mother	8y	2	M	26y	95	
M	68y	Father	6y	4	F	34y	100	
F	65y	Mother	11y	0	M	38y	85	
F	44y	Mother	8y	2	M	20y	65	
F	60y	Mother	5y	0	M	35y	100	
F	75y	Mother	17y	0	M	46y	100	
F	47y	Wife	6y	2	M	43y	90	
M	60y	Father	11y	2	M	29y	100	
F	75y	Mother	10y	2	F	41y	100	
F	39y	Wife	3y	2	M	39y	60	
F	66y	Mother	19y	2	M	34y	95	

Note. M=Male; F=Female

at $P=0.043$. However, the coefficient of determination R^2 was small at 0.262 and too low for prediction accuracy. Although multiple regression analysis was conducted using a forced entry method by entering factors, such as the length of care giving and the Barthel Index, which were considered to be related ethically, there was no significance at $P=0.255$ in the analysis variance table, and a multiple regression equation, which could be significant, could not be formulated.

Verification of the effectiveness of the interventional programme.

GHQ-30

The mean score for pre-intervention was 12.63 ($SD=8.38$), for post-intervention was 7.88 ($SD=7.27$), after the three month follow-up was 10.81 ($SD=8.72$) and after the six month follow-up was 8.56 ($SD=7.77$). Although the mean score for post-intervention decreased compared to pre-intervention, it increased again after the three month follow-up and then again decreased after the six month follow-up. There was no significant difference in the comparison of mean scores ($F=2.217$; $p=0.099$) at the time of measurement (Table 2).

SDS

The mean score for pre-intervention was 48.88 ($SD=8.12$), for post-intervention was 44.63 ($SD=7.26$), after the three month follow-up was 45.19 ($SD=8.72$) and after the six month follow-up was 44.00 ($SD=9.95$).

Although the mean score at post-intervention decreased compared to pre-intervention, it again increased after the three month follow-up and then again decreased after the six month follow-up. At the time of measurement, there was a significant difference ($F=2.966$; $p=0.042$) when comparing the mean scores, and the result of post-hoc analysis shows that there was a statistically significant decrease ($p=0.045$) when comparing the mean scores of pre-intervention and after the six month follow-up (Table 2).

STAI (Stated anxiety)

The mean score for pre-intervention was 52.88 ($SD=12.18$), for post-intervention was 45.69 ($SD=13.19$), after the three month follow-up was 49.56 ($SD=14.62$) and after the six month follow-up was 49.19 ($SD=14.73$). Although the mean score at post-intervention decreased compared to pre-intervention, it increased again after both follow-ups. There was a significant difference when comparing the mean scores ($F=3.538$ $p=0.042$) at the time of measurement, and the result of post-hoc analysis shows that there was a statistically significant decrease ($p=0.033$) comparing pre-intervention and post-intervention mean scores (Table 2).

STAI (Trait anxiety)

The mean score for pre-intervention was 55.81 ($SD=11.65$), for post-intervention was 52.94 ($SD=12.22$), after the three month follow-up was 52.31 ($SD=16.53$), and after the six month follow-up was 53.06 ($SD=15.40$).

Although the mean scores through the time of evaluation after the three month follow-up gradually decreased, it again increased after the six month follow-up. There was no significant difference ($F=0.544$; $p=0.655$) comparing the mean scores at the time of measurement (Table 2).

RAS

The mean score for pre-intervention was -10.88 ($SD=22.86$), for post-intervention was

-7.13 ($SD=27.26$), after the three month follow up was -0.56 ($SD=35.14$), and after the six month follow-up was -8.38 ($SD=25.65$). Although the mean scores through the time of evaluation after the three month follow-up gradually decreased, it again increased after the six months follow-up. There was no significant difference ($F=2.450$; $p=0.076$) comparing the mean scores at the time of measurement (Table 2).

Table 2. Means, SD, and comparison of means—GHQ-30,SDS,STAI, and RAS—pre -and post-intervention and follow-up.

		M	SD	rep ANOVA		Tukey HSD	
				F	p value*		p value**
GHQ-30	Pre	12.63	8.38	2.217	0.099		
	Post	7.88	7.27				
	Follow-up (3 M)	10.81	8.72				
	Follow-up (6 M)	8.56	7.77				
SDS	Pre	48.88	8.12	2.966	0.042	Pre—Follow-up (6 M)	0.045
	Post	44.63	7.26				
	Follow-up (3 M)	45.19	8.72				
	Follow-up (6 M)	44.00	9.95				
STAI (Stated anxiety)	Pre	52.88	12.18	3.538	0.042	Pre—Post	0.033
	Post	45.69	13.91				
	Follow-up (3 M)	49.56	14.62				
	Follow-up (6 M)	49.19	14.73				
STAI (Trait anxiety)	Pre	55.81	11.65	0.544	0.655		
	Post	52.94	12.11				
	Follow-up (3 M)	52.31	16.53				
	Follow-up (6 M)	53.06	15.40				
RAS	Pre	-10.88	22.86	2.450	0.076		
	Post	-7.13	27.26				
	Follow-up (3 M)	-0.56	35.14				
	Follow-up (6 M)	-8.38	25.65				

Note. M=Mean; SD=Standard deviation. * repeated measure ANOVA ** multiple comparison (Tukey HSD)

Exemplification of the result of the interventional programme.

In addition to verification of the effect by statistical analysis, we present here an example of role-playing along with protocol.

(1) Presentation of problematic behaviour; a female participant (hereafter referred to as Person A) experienced stress caused by the behaviour of the patient (hereafter referred to as the son) who insistently asks her to “Listen to what has happened during the day” while she is busy cooking dinner.

(2) Presentation of request and suggestion; Person A presented the request to the son “Not to tell her what has happened during the day while she is cooking dinner.”

(3) Role-play; we started the role-play by setting a scene as for cooking a dinner.

The cast mate (acting as the son) performed the behaviour of insisting that “Person A listen to him” based on information such as the patient’s manner of speaking and the patient’s anticipated reaction when hearing Person A’s request and suggestion, and acted out the part of not listening to Person A. Role-play became stalled in a deadlocked situation.

(4) Feed-back; other participants gave feed-back as “Wouldn’t it be better for Person A to talk to the cast mate (acting as the son) in a calmer manner?” and “Wouldn’t it be more heartfelt for the son to be told by Person A exactly how Person A has been feeling about her son’s behaviour?” The leader gave feed-back to Person A as for Person A to confirm “What time would she be able to listen to her son’s story?” and that Person A should

make requests of her son that would meet his cognitive function level, such as “Can her son remember her request? ” (As her son has memory impairment, there is a possibility that he might forget Person A’s request.)

(5) Modification of request and suggestions; as a result of the discussion of the content of the feed-back, Person A modified her request like this. “Until now, I have not had a chance to tell you that I was having a hard time when you begged me to listen to you while I was cooking dinner. Well, I will be able to listen to you after dinner, so please let me listen to you then when I can be relaxed. ”

(6) Re-role-playing; although the cast mate (acting as the son) acted out accepting Person A’s request, he added some improvised dialogue, such as “I am not confident that I can remember this until tomorrow, ” which took into consideration the son’s memory impairment. Therefore, Person A added the suggestion “Shall we put a written promise note in the

kitchen just in case you forget? ” The cast mate (acting as the son) accepted her suggestion and the role-play ended without them being aggressive to each other.

As we questioned Person A for her feed-back after finishing the role-playing, she gave the feedback that “Although until now I became emotional and often tended to talk aggressively, by performing role-playing I could understand what the other person thought after the way I had talked to him. I feel like I can actually present my requests and suggestions to my son, starting tomorrow, after this.” Also, as we asked the other participants for their feed-back from watching this role-playing, they gave as their feed-back that “They felt that all this time, they had only been thinking about and speaking for themselves. And they got a tip on how to present demands and suggestions to a patient”. For your reference, Table 3 shows a selected list of the participants’ demands and suggestions used in the role-playing.

Table 3. Selected list of participants demands and suggestions used in role-playing.

-
- Do not stay up late at night. Go to the bed earlier (between 11 pm and 12 pm).
 - Fix your clothing by looking in a mirror after using the toilet.
 - I want you to willingly go to see a doctor with no resistance.
 - I want you to make sure to put things in their designated places because you forget where you put things.
 - I want you to keep promised appointments.
 - I want you to keep up a daily routine with regular hours. (I want you to make up a list of your daily schedule.)
 - I want you not to get angry when I point out a mistake.
 - Do not try to come along with me when I go out.
 - I would like to refuse when you ask me to take you out. I want to say I cannot do it today.
 - I want you not to shout in reaction to small noises around you.
 - I want you to speak slowly and calmly.
 - I want you to cut down the time you spend playing TV games by even just one hour.
 - I want you to stop getting angry when you cannot get into a group circle.
-

Discussion

The purpose of this study was to verify the effect of the interventional programme in order to reduce psychological distress of family caregivers for persons with traumatic brain

injury. We have focused on the problem of communication between family caregivers of persons with traumatic brain injury and patients with traumatic brain injury. In this study, the interventional programme was constituted primarily of communication skills training by applying assertiveness training. As a result,

after a six month follow-up, the mean score of assessment measures of all psychological distress was reduced compared to the mean score of pre-intervention. By statistical analysis, both SDS, comparing the mean scores between pre-intervention and six months after follow-up, and STAI (stated anxiety), comparing the mean scores between pre-intervention and post-intervention, recognised a statistically significant decrease in a comparison of the mean scores. This means the interventional programme showed evidence of the effect of relieving the psychological distress (especially depression and anxiety) of family caregivers of persons with traumatic brain injury. It is characteristic of the result that although the degree of psychological stress was decreased at the point of post-intervention, it tended to increase again at the point of follow-up. Therefore, the result suggests the necessity of continuous support even after finishing the intervention program. We conducted hearings for reference concerning impressions of experiencing the interventional programme, and the majority of the participants considered that the interventional programme would be beneficial for many other family caregivers of persons with traumatic brain injury. We also asked for continuous support focussing on each individual participant after finishing the interventional programme. Follow-up counselling for individual participants, including checking how the material learned from the interventional programme is being used in everyday communication scenes with the patient, will enhance the effect of the interventional programme. As was indicated in the exemplification of the effect of the interventional programme, family caregivers who had experienced the interventional programme could objectively monitor their own past communication with the patient by recreating everyday communication exchanges between caregiver and patient through role-playing. This monitoring brought the realization that until now the requests and suggestions to the patient were one-sided and emotional. And not only by trying a better

way of making requests and suggestions through re-role-playing, it is also surmised that the biggest reason for reducing the psychological distress of family caregivers is that self-efficacy could be built up when necessary and that one could make adjustments in behaviour and thinking. In this study, RAS was adopted to assess measures of assertiveness. As regression equations could be formulated for pre-intervention RAS and SDS, it is presumed there is a possibility of reducing the depression symptoms by conduction of assertive communication. The evidence suggests the need for the introduction of communication skills training applying assertiveness training in order to reduce the psychological distress of family caregivers of persons with traumatic brain injury.

However, although the mean score of RAS increased up to the three months follow-up, there was no statistical significance at the time of measurement. This suggests the possibility that another different manner of intervention might be needed for behaviour modification of assertiveness. But it is possible to see by RAS a degree of self-assertion or a trend in communication behaviour, and we believe it was meaningful to adapt the assessment measures in this study.

Study limitation

In the methodology of this study, we have adequately stated the information of the contents of the intervention by using assessment measures for which consensus has been widely gained in the world. But there is a limitation to this study because the analytical power is weak as the sample size was only 16 persons. The reason the sample size was small was due to the fact that the interventional programme was to be with participants of intended family caregivers in order to extract the frank opinions of the participants. That is to say, patients with traumatic brain injury often need to be watched by others in order to live everyday life. Therefore, there are many cases where the family caregivers cannot leave home. In order for family caregivers to participate in an

interventional programme meeting five consecutive times like this, family members other than the participant need to take over watching the patient. As a result, it seems it was difficult for family caregivers to participate in the interventional programme. This suggests the necessity of developing human resources and aid agencies such as respite, other than the main caregivers, who can watch the patients. An additional limitation was that this study did not set a control group. However, if a control group were set in this study, we would have been continuously imposing on the control group to only answer psychological assessment measures for a total of four times, including a period of six months after the interventional programme, not only before and after the interventional programme. The reason for us not setting a control group was for ethical considerations of the family caregivers in this study. A lack of scientific validity for not setting a control group has been pointed out by several researchers, not only for this study (Boschen, Gargaro, Gan, Gerber, & Brandys, 2007; Sinnakaruppan, Downey, & Morrison, 2005). This is a common issue of intervention studies, not only of family caregivers of persons with traumatic brain injury.

Conclusion

This study suggests that an interventional programme focussing on communication skills training applying assertiveness training is effective in reducing the psychological distress of family caregivers of persons with traumatic brain injury. However, the result of this study suggests that further study, with consideration as to the limitations which became evident in this study, is necessary.

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