Pilot study of a video-based educational program to reduce family violence for parents of adult children with schizophrenia

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Abstract

This pilot study evaluated a video-based educational program for improving communication skills and reducing family violence between parents and their adult children with schizophrenia. We used a one group pretest-posttest design. The program included a main 90-minute video and six stories, each 20–30 minutes long. We made assessments at baseline and program completion (three months after baseline). Sixty-six parent participants completed the intervention. The average frequency of acts of family violence significantly decreased from 11.4 (SD = 26.2) at pretest to 5.1 (SD = 13.2) at posttest ($p = 0.016$). Our findings showed significant improvements regarding expressed emotion, psychological distress, family empowerment, and hope, demonstrating preliminary positive results for this video-based educational program. The program was shown to be feasible for support/educational groups of family members of adults with mental disorders to deliver and may also be useful for practitioner-led educational groups for families in public health centers or medical settings to offer.

Key words: family caregivers, family intervention, family violence, schizophrenia, Japan

Introduction

In Japan, accelerated deinstitutionalization in conjunction with as many as 75% of adults with mental disorders living with their families [1] demonstrates the importance of family involvement in community mental health care. Notably, 75% of Japanese psychiatric hospital inpatients under the age of 65 have been diagnosed with schizophrenia, or schizotypal or delusional disorders [2]. One concern regarding patients with schizophrenia following hospital discharge is the high rate of family violence, particularly toward parents, who are often their primary caregivers. In Japan, rates of physical violence against family members by persons with schizophrenia have been reported at 51.0% for violence against mothers, 47.0% for violence against fathers, and 60.9% in total [3].

Research by Kageyama and colleagues [4] found that physical violence toward parents by adult children with schizophrenia was significantly related to higher hostility and criticism in family interactions, two primary components of expressed emotion (EE) with the third being overinvolvement [5]. Furthermore, families with high EE experienced more distress and a higher frequency of physical violence [6]. The EE construct is the foundation for many early-intervention models for families of discharged psychiatric patients, with the expectation that improving communication skills and reducing stress in the home environment could decrease the likelihood of relapse and subsequent rehospitalization [7]. These family psychoeducational

interventions were shown to be effective in reducing rehospitalization rates [8], as were brief educational programs [9]. However, while family education specifically focused on communication strategies for both parents and their adult children with schizophrenia, it is unknown whether these interventions could reduce family violence. There has been limited research on educational programs designed to manage adult child-to-parent violence. In Taiwan, a nurse-led clinical intervention based on cognitive behavioral theory showed a significant reduction in violence indicators, impulsivity, violence attribution, and aggression and improved coping and reactions to violence [10]. This intervention was conducted in inpatient settings with two separate sessions with parents and their adult children and two joint sessions over the course of two months.

In Japan, 23% of families reported having inadequate information about mental illness for a period of three years from the onset of their relative's disorder[11]. In medical settings, families often have limited opportunities to receive education regarding relevant mental health information [12]. However, Japan has a long history of family-led self-help groups with the establishment of a nationwide association in 1965. Nationwide, Minna-net, has 1,200 local self-help groups for families. These groups meet, on average, 7.8 times per year [13] and for a period of 2-3 hours. Eighty-five percent of group participants are parents, 80% live with their relatives with mental disorders, and 82.7% have relatives diagnosed with schizophrenia [13]. Family group meetings offer an opportunity for parents to learn how to improve their communication

skills in ways that could potentially reduce violence between them and their adult children with schizophrenia.

We developed a 90-minute, video-based educational program to be delivered at these family groups. The intervention was designed improve communication skills related to family violence, and we conducted a pilot study to evaluate its outcomes and feasibility.

Methods

Study design

We used a one group, pretest-posttest study design. Participants were assessed at baseline (pretest) and three months later at program completion (posttest). The intervention and data collection were conducted between March and June, 2019.

Program development, content, and structure

A video-based educational program was designed to improve communication between parents and their adult children with schizophrenia with the goal of reducing family violence. The program was named the “SOKAI Program,” which means “mutual understanding” in Japanese.

To begin the development of the program, focus group interviews with 10 individuals—five persons with schizophrenia and five parents of adult children with schizophrenia—were conducted. The focus group interviews helped clarify the reasons

for family violence and ways to resolve this problem as perceived by persons with schizophrenia and parents [14].

Secondly, we formed a research team comprised of 15 adults with mental disorders and 10 parents of adult children with mental disorders. These team members were recruited though three large self-help groups for persons with mental disorders and for family members near Tokyo in Japan. The research members met eight times and discussed program content for a period of two hours on each occasion. The program was developed by the first author based on the information provided by the group and then subsequently revised on the feedback received. The final program consisted of a main 90-minute video (including time for participants to share their feelings and thoughts) and six 20–30 minute stories relating to violent incidents from the perspectives of adults with mental disorders and parents of adult children with mental disorders. The main video included possible reasons persons with schizophrenia commit acts of violence, as well as potential solutions and narratives of their experiences with violence. Personal stories described and explained the experiences of persons with schizophrenia regarding how they felt at the time, why they committed an act of family violence, and how they proceeded toward recovery. Similarly, the experiences of parents were also delineated and explicated as to how parents experienced the violence and proceeded toward resolution of and recovery from the incident. Some of the research

members were video recorded as a part of the program development effort. Table 1 shows the content of the videos.

INSERT TABLE1 HERE.

Study participants

Eligible study participants were parents who lived with their adult children with schizophrenia. We calculated the sample size based on the effect size of 0.3 from the randomized peer-led family intervention by Dixon and colleagues [15] to 0.6 in the intervention study of Sun and Hsu [10] for family members/patient violence intervention, with a statistical power of 0.80, and alpha value of 0.05. Given these factors, we estimated that 24–90 study participants were required for this pilot evaluation. We targeted 100 study participants to account for potential drop-outs.

Outcome Measures

We administered all outcome measures at both pretest (baseline) and posttest (three months post-baseline).

Family violence

We defined "family violence" as any incident or pattern of incidents of controlling, coercive, or threatening behavior, or violence or abuse, between family members. This definition encompasses physical, psychological, sexual, and financial violence, and is based on the definition issued by the UK Home Office [16]. We assessed for 11 types of family violence that could potentially be perpetrated by adults

with schizophrenia (see Table 3). The frequency of family violence was calculated for a maximum of 90 times, when an act of violence occurred on all 90 days. At posttest, participants' subjective cognition of changes in family violence were assessed for frequency (decrease, increase, same) and strength (weaker, stronger, same) compared to baseline assessments. We assessed participants' fears of family violence and violence toward others using a seven-point scale ranging from 1 (completely disagree) to 7 (completely agree), with higher scores indicating a greater degree of fear.

Expressed Emotion

We used the Japanese version of the Family Attitude Scale (FAS)[17] to assess communication and relationships between participants and their adult children with schizophrenia and criticism and hostility as they related to participants' EE. The FAS is a 30-item scale with scores ranging from 0 to 120, with higher scores indicating a greater degree of criticism and hostility. Cronbach's alphas in this study were 0.955 (pretest) and 0.947 (posttest).

Psychological distress

We used the Japanese version of the Kessler Psychological Distress Scale (K6) to measure participants' psychological distress [18]. K6 is a six-item scale with scores ranging from 0 to 24, with higher scores indicating a greater degree of psychological distress. Cronbach's alphas for this study were 0.865 at pretest and 0.825 at posttest.

Family Empowerment

We used the family subscale of the Japanese version [19] of the Family Empowerment Scale (FES)[20] for family caregivers of adults with mental disorders to assess participants' management of day-to-day situations involving their adult children with schizophrenia. Scores for the 12-item family subscale range from 1 to 5, with higher scores indicating a greater degree of empowerment. Cronbach's alphas for the current study were 0.877 (pretest) and 0.912 (posttest).

Hope

We used the Japanese version of the Herth Hope Index (HHI) [21], [22] to measure levels of hope, with higher total scores indicating higher levels of hope (total scores ranged from 12 to 48). Cronbach's alphas in this study were 0.853 (pretest) and 0.903 (posttest).

Process evaluation

We evaluated participants' comprehension of the topics covered in the videos at both pretest and posttest, to assess for change. We assessed the frequency participants watched the videos, self-evaluation, and feasibility only at posttest.

Comprehension of the content covered by the videos

It was important for participants not only to watch but also to comprehend the content of the videos, including understanding mental illness and treatment and why violence occurs. This was assessed using nine items scored on a seven-point scale

ranging from 1 (completely incomprehensible) to 7 (completely comprehensible), with higher scores indicating a higher comprehension of the content. An example of the items was “I can explain how to communicate better with my adult child”

Times watching the videos

We used participants’ self-reports to assess for the number of times the main video and each of the six stories were watched.

Self-evaluation and feasibility

We determined helpfulness and feasibility of the program using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). We asked participants to rate the extent to which they felt the main video and each of the six stories were effective in helping them understand and cope with family violence, and how useful they were for the different situations presented. We also queried participants as to the extent they would have liked to watch the videos in a family group, alone at home, or in a family group setting with a practitioner present.

Analysis

We used McNemar’s test to analyze the difference in proportion of any violence experienced within the three-month period between pretest and posttest. One outlier regarding the frequency of family violence was removed during analysis. We performed paired *t*-tests between the pretest and posttest scores for frequency of family violence, FAS, family empowerment, and HHI, and participants’ comprehension of content

covered as a process measure. Effect sizes were also calculated. Pearson correlations between the number of times participants watched the videos and the differences in pretest and posttest scores on the outcome variables, as well as with the scores related to comprehension of the topics covered in the videos, were calculated to evaluate the process of the program implementation. We also conducted drop-out analyses comparing baseline demographics of participants who completed the intervention to those who did not.

We used SAS version 9.4 for Windows to analyze the data. Only sample size estimation and effect size calculation were conducted using G*Power 3.1.9.2.

Ethical considerations

The Institutional Review Board of the first author's university approved the study protocol on January 9, 2019 (ID: 18256). We obtained written informed consent from all participants before the pretest. This study was registered with the University Hospital Medical Information Network—Clinical Trials Registry (UMIN-CTR), and approved by the registry of International Committee for Medical Journal Editors (No. UMIN000035770, February, 2019). No scenes of violence were displayed in the videos to avoid possible re-traumatization of participants. We encouraged participants to stop watching the videos at any time if they felt distressed.

Results

Participant characteristics

Two participants out of the 71 parents who enrolled in the study were not able to watch the story videos at home, and three did not return their posttest questionnaires. Thus, five participants dropped out of the intervention and 66 completed the intervention. Participants who completed the intervention were mainly mothers (83.3%) with an average age of 68.6 years, most were primary caregivers (89.4%), and just over half had a household income of US$ 20,000 to 40,000. Of the participants' adult children with schizophrenia, more than two-thirds were male (69.7%), they had an average age of 39.6 years, and almost all of them regularly visited a psychiatrist (90.9%). Almost half of the participants' adult children with schizophrenia visited rehabilitation services (48.5%) and 40.9% stayed home most days (see Table 2).

We analyzed the sociodemographic characteristics of participants who completed the intervention and those who dropped out. Participants who dropped out generally had a higher household income than participants who completed the program (see Table 2). All participants who dropped out had adult children who stayed home most days and they were the primary caregiver for their adult child. Four out of five of these participants had experienced violence from their adult children within the past three months.

INSERT TABLE2 HERE

Differences in outcome

Table 3 shows the frequencies of the 11 types of violence perpetrated by the participants' adult children with schizophrenia. The number of participants who experienced any violence within the past three months was 36 (54.6%) at pretest and 32 (48.5%) at posttest. McNemar's test showed no significant difference in the proportion of those experiencing any violence within three months between pretest and posttest (χ^2 = 0.8; p = 0.503). The total frequency of family violence was significantly different between pretest (11.4± 26.2) and posttest (5.1±13.2) (Table 4).

INSERT TABLE3 HERE

INSERT TABLE4 HERE

Subjective cognition of changes from baseline regarding frequency of incidents of family violence either decreased (9 participants; 13.6%) or stayed the same (57 participants; 86.4%), and the strength of the violent experiences was perceived as weaker (10 participants; 15.2%) or the same (55 participants; 83.3%). There were no significant differences in the fear of family violence (p = 0.553) or violence toward others (p = 0.774) between pretest and posttest.

As shown in Table 4, the posttest scores of FAS, and K6 were significantly lower than pretest scores. The posttest scores of family subscale of FES and HHI were significantly higher than pretest scores. The effect sizes were 0.662 (family subscale of FES), 0.404 (FAS), 0.355 (K6), and 0.329 (HHI).

Process evaluations

Participants watched the main video on their own an average of 2.96 times (SD = 1.75; range 0-9 times), and each of the six story videos on average of 3.02 times (SD = 1.44; range 1-9 times). Correlations of the average number of times the videos were watched with the outcomes for FAS, frequency of family violence, K6, FES family subscale, and HHI varied between 0.067 to 0.218. Correlations of the average number of times the videos were watched with the nine items regarding comprehension of content covered in the videos were between 0.032 to 0.261. As shown in Table 5, the nine items for assessment of participants' comprehension of the content covered in the videos had significantly higher posttest scores than pretest scores.

INSERT TABLE5 HERE

Participant program evaluation and feasibility scores varied, on average, between 2.63 to 3.43. The lower scores were for "you want to watch the program alone at home" (mean = 2.63), and "you want to watch the program in family groups without a practitioner" (mean = 2.84). Participants' evaluations of the effectiveness of the main video (mean = 3.28) and the personal story videos (mean = 3.18), indicated the videos' potential usefulness to parents with adult children who recently experienced their first episode of schizophrenia (mean = 3.44), parents who did not experience violence from their adult children (mean = 3.15), parents of adult children with mental disorders other than schizophrenia (mean = 3.02), adult children with schizophrenia (mean = 3.03),

practitioners (mean = 3.39), and participants in practitioner-led family psychoeducational groups (mean = 3.30).

Discussion

Participant characteristics

Participants who completed the study were, on average, 68.6 years old and their adult children were, on average, 39.6 years old. These demographics did not differ from family group members in a nationwide survey, who were, on average, 69.3 years old and their adult children with mental disorders were 45.3 years of age, on average [12]. The demographics of participants who dropped out did not significantly differ from those who completed the intervention, with the exception of household income. However, participants who dropped out were more likely to stay home most days to care for their adult children and, therefore, had a higher likelihood of experiencing violence from them. Consequently, those who dropped out may have found watching the videos and responding to the questionnaire more emotionally distressing than other participants.

Effectiveness of the program

This pretest-posttest pilot study showed promise for the effectiveness of the video-based educational program in reducing the frequency of family violence incidents, EE, and psychological distress, as well as increasing family empowerment

and hope for parents of adult children with schizophrenia. The number of participants who experienced any family violence within the past three months was 36 (54.6%) at pretest and 32 (48.5%) at posttest. There was no significant difference at pretest and posttest in the proportion of participants who experienced any violence; however, the total frequency of incidents of family violence did significantly decrease from 11.4 (SD = 26.2) at pretest to 5.1 (SD = 13.2) at posttest. Moreover, at posttest, nine participants reported a decrease in the frequency of violent incidents and 10 reported weaker intensity of violent incidents. However, no participants reported more frequent or stronger intensity of family violence at posttest. This program was designed and offered to parents of adult children with schizophrenia, not to their adult children. We hypothesized it could possibly reduce family violence and developed this program to improve communication between parents and their adult children leading to less occurrence and intensity of violent incidents. A Taiwanese program designed to manage child-to-parent violence was targeted at both parents and their adult children [10]. Although our program was only directed toward parents, the program showed significant decreases in the total frequency of family violence between pretest and posttest. The program's high accessibility and preliminary effectiveness on decreasing family violence is encouraging, and suggests further research should be conducted to test its effectiveness on a wider scale.

The findings showed positive results regarding study outcomes including EE, psychological distress (K6), family empowerment (FES), and hope (HHI) of parents of adult children with schizophrenia. Prior research has found that experiencing physical family violence is related to the higher hostility and criticism of EE [4], [6] and higher psychological distress [23]. Parents who experience family violence may become angry and quite emotionally distressed. Consequently, parents who have these emotions may have difficulty communicating effectively with their adult children and this may trigger an incident of family violence. Thus, these factors may be causes as well as results of family violence. The relationships among these factors are not direct cause-and-effect, but far more complex. This pilot program showed significant improvements for all of its secondary outcomes, which may imply they work synergistically with family violence.

The program had significant positive effects on family empowerment (family subscale of FES) and hope (HHI), which were similar to previous outcomes for family peer education programs [15], [24]. Family empowerment had the highest effect size (0.662) of the outcomes measured, higher than the 0.31 of a 12-week course of Family-to-Family Education Program provided to families in the United States. The family subscale of FES assesses the immediate situation in the home and primarily involves evaluating parents' management of day-to-day situations. The participants in this program were all parents living with their adult children with schizophrenia. Violence committed by persons with mental disorders often happens in the normal course of daily

life [25], rather than under unusual circumstances. Therefore, it is important for family members to have non-threatening communication skills, so as not to inadvertently trigger conflict-ridden situations that may result in a violent episode, as well as effective coping skills in managing daily circumstances so they do not become problematic. For example, family empowerment may be helpful not only in alleviating family violence but also for caregivers to manage the daily care of their relatives with schizophrenia. Therefore, this program may be useful as a general family educational tool.

Hope is extremely important for parents who experience family violence and/or care for adult children with schizophrenia, as life for these families coping with adult children with schizophrenia can be very discouraging and distressing. For example, in qualitative research studies of parents who experienced family violence by their adult children with schizophrenia, family members described their lives as enduring repeated violence [26]–[28]. In a quantitative study, caregivers who experienced physical violence, one-fourth had thoughts of murder-suicide and one-third had wished for their relative's death [29]. Many Japanese families are elderly parents living with and caring for their middle-aged adult children with schizophrenia on a daily basis, and consequently, often have difficulty sustaining hope for the future. This program included stories of recovery by parents and adult children with mental disorders. These personal narratives referred to hope in a way that can be empowering to other parents [30]. Given that other family peer education programs in Japan have not shown such

positive results [24], it seems that a possible reason may be that recovery stories were not included.

Feasibility of the program

The participants watched the videos an average of approximately three times. We asked participants to watch each story at least once during the three-month period. Most of participants watched not only the stories but also the main video more than once. Correlations between the number of times the videos were watched, the outcome variables, and the assessments of comprehension of the content in the videos were generally weak. However, the nine items regarding comprehension had significantly higher posttest scores than pretest scores. Some participants wrote unsolicited responses, such as "I did not understand the content by watching the videos only one time. I could understand by watching them two to three times." Consequently, it seemed that participants may need to watch the videos more than once to fully comprehend the content. The use of videos made it possible for participants to watch them as many times as they felt was helpful to them.

Regarding the participants' evaluation and feasibility of the program, the lowest rating was for the item that asked if "you want to watch the program alone at home." Some participants included responses such as, "Watching the video at home by myself reminded me of a past painful scene, and I felt it was hard to watch." However, no one expressed difficulties when they watched the main video with other participants on the

day of the pretest. Therefore, for some participants, watching the videos with others outside the home may be easier than watching them alone at home. Consequently, the first viewing of the videos in the presence of others in a family group meeting is a program recommendation.

The second lowest score relating to feasibility of the intervention was for the item that asked participants to rate if "you want to do the program without a practitioner in a family group." This video-based program was designed for family group members to implement by themselves; however, some did not want to watch the videos on their own. This program can be implemented as a practitioner-led family educational intervention as well.

Practice implications

This program was found to be feasible to implement at meetings of family groups in Japan, to which many parents of adult children with schizophrenia belong. Furthermore, this video-based intervention could be easily used by practitioners for family education in public health centers or other medical settings. If practitioners are involved in the program, they could discuss the story videos and debrief with caregivers. In Japan, previous research showed that 57.9% of family members of long-term hospitalized patients with schizophrenia were at high risk for PTSD and may encounter family violence prior to the hospitalization of their family member [31]. To accelerate deinstitutionalization, family members of psychiatric inpatients need to be

supported and empowered. This program may be particularly helpful to family members of long-term psychiatric inpatients prior to their relative's discharge.

Limitations and future research

The primary limitation was the study having a pretest-posttest design, rather than being a randomized controlled trial (RCT). As a result, we cannot rule out the possibility of a variety of confounding variables having produced the positive outcomes. We tried to implement an RCT; however, family group leaders refused to agree to implement an RCT because the procedures seemed too complicated and they believed many elderly group members would have difficulties understanding the procedures.

Another limitation was the assessment method employed to measure family violence. We asked participants to recall the number of times each type of violence occurred within the past three months. This measurement process has the potential for recall bias. Although we discussed this potential bias with the research team, we were unable to determine a more effective, but still feasible, method within the context of the study design.

A second limitation was the three-month gap between assessments. The participants who dropped out had an extensive burden of caring for their relative, and were not able to continue with the intervention; however, they were able to come to the study site and watch the main video on the day of the pretest. Therefore, performing the entire program and assessments in one day could be tested in the future. However,

posttest responses may be more likely to be affected by pretest responses as both are given on the same day. A strength of this pilot intervention was we had an extremely low dropout rate of 7%. This is quite remarkable considering the three-month time span between pretest and posttest and that participants had to return the posttest on their own initiative.

We developed a video-based educational program which demonstrated significant improvements regarding the number of family violence incidents, EE, psychological distress, family empowerment, and hope of parents of adult children with schizophrenia. It is possible this intervention may be helpful for persons with mental disorders as well. Parent participants in responding to posttest items noted that this program may be useful to their adult children with schizophrenia. When developing the program, we sought feedback from persons with severe psychiatric disorders. Some indicated they found the program helpful in understanding parents' perspectives and feelings. Comments included, "I have never thought about my mother's pain. By listening to other parents' stories, I have realized she was annoyed with me as well." Testing this intervention with persons with mental disorders is a future step to consider.

Compliance with Ethical Standards

Conflict of Interest

The authors declare that they haves no conflicts of interest.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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Table1. Components of the program

	min	Components (telling personal stories)
Main	9min	Research background of family violence (1 personal story)
	4min	Illness and treatment (0 personal story)
	16min	Violence when highly symptomatic (3 personal stories)
	18min	Violence when quite stable (4 personal stories)
	8min	Sharing own feelings and thoughts
	19min	Solution and recovery (7 personal stories)
	5min	Messages from adult children and their parents (8 personal stories)
	1min	Resources- information & consultation
	8min	Sharing own feelings and thoughts
	2min	Rap song about recovery (1 personal story)
Story1	20min	Violence when highly symptomatic (4 personal stories)
Story 2	3min	Violence when quite stable (5 persona stories)
Story3	21min	Violence when close parent-child relationship (3 personal stories)
Story4	22min	Other types of violence, e.g., self-harm (3 personal stories)
Story5	26min	Adult children' recovery (5 personal stories)
Story6	19min	Parents' recovery (4 personal stories)

Table2. Baseline Socio-demographic data comparison between completers and dropouts

		Completed n=66	Dropout n=5	
		n (%) Mean ± SD	n (%) Mean ± SD	P[1]
Parent participants				
Relationship	Father	11 (16.7%)	0 (0%)	1.000
	Mother	55 (83.3%)	5 (100.0%)	
Age (years)	Average	68.6 ± 8.4	69.0 ± 9.7	0.525
Primary caregiver	Yes	59 (89.4%)	5 (100.0%)	1.000
	No	7 (10.6%)	0 (0%)	
Household income[2]	Less than US$ 20,000	8 (12.1%)	1 (20.0%)	0.039
	US$ 20,000 to 40,000	35 (53.0%)	0 (0.0%)	
	Over US$ 40,000	23 (34.9%)	4 (80.0%)	
Violence Within past 3 months	Experienced any violence	36 (54.6%)	4 (80.0%)	0.378
	Not at all	30 (45.4%)	1 (20.0%)	
Adult children with schizophrenia				
Gender	Male	46 (69.7%)	3 (60.0%)	0.642

	Female	20 (30.3%)	2 (40.0%)	
Age (years)	Average	39.6 ± 8.8	43.2 ± 9.9	0.395
Years since onset	Average	18.9 ± 9.4	23.0 ± 10.2	0.359
Psychiatrist visit	Regularly	60 (90.9%)	5 (100.0%)	1.000
	Hospitalized	3 (4.6%)	0 (0%)	
	Not regularly visit	3 (4.6%)	0 (0%)	
Taking medication	Yes	57 (86.4%)	3 (60.0%)	0.169
as prescribed	No	9 (13.6%)	2 (40.0%)	
Number of hospitalizations	Average	2.6 ± 2.8	2.0 ± 1.9	0.640
Rehabilitation	Visit rehabilitation services	32 (48.5%)	0 (0%)	0.053
	Mostly stay at home	27 (40.9%)	5 (100.0%)	
	Other	7 (%)	0 (0%)	

1 P-value: t-test or Fisher's exact test.

2 Conversion of 100 JPY to US$ 1

Table3.Outcomes of family violence by type and frequency

N=66

Types of violence	items	Experienced violence within past 3 months	
		Pre-test n (%)	Post-test n (%)
Physical	Destroyed property	10 (15.2%)	8 (12.1%)
	Punching and kicking	7 (10.6%)	4 (6.1%)
Psychological	Shouting	22 (33.3%)	22 (33.3%)
	Swearing and insulting	14 (21.2%)	15 (22.7%)
Threatening	Threatening to say ‘I will kill you’	8 (12.1%)	7 (10.6%)
	Threatening gesture to punch or kick	5 (7.6%)	6 (9.1%)
	Threatening with knife	2 (3.0%)	1 (1.5%)
Controlling	Restrict your behaviors	16 (24.2%)	11 (16.7%)
Coercive	Coercive behaviors	14 (21.2%)	10 (15.2%)
Sexual	Sexual harassment behavior	1 (1.5%)	1 (1.5%)
Financial	Financial loss	10 (15.2%)	5 (7.6%)
	Any violence above	36 (54.6%)	32 (48.5%)

Table4. Mean differences in outcome measures

N=66

	range	Pre-test Mean ± SD	Post-test Mean ± SD	P	Effect size
FAS	0-120	44.6 ± 20.2	39.9 ± 17.7	0.002	0.404
Total number of violent incidents	0-	11.4± 26.2	5.1±13.2	0.016	0.307
K6	0-24	6.5 ± 4.6	5.2 ± 3.6	0.005	0.355
Family subscale of FES	12-60	3.1 ± 0.6	3.3 ± 0.6	<0.0001	0.662
HHI	12-48	34.7 ± 5.5	36.1 ± 6.2	0.010	0.329

P values: paired t-test.

Abbreviations: SD, Standard deviation; FAS, Family Attitude Scale; K6, Kessler 6; FES, Family Empowerment Scale; HHI, Herth Hope Index.

Table5. Comparisons of comprehension of content covered between pre-post tests

N=66

	Pre-test Mean ± SD	Post-test Mean ± SD	P
Illness and treatment	3.70 ± 1.39	4.86 ± 1.12	<0.0001
Cognitive function	3.15 ± 1.46	4.32 ± 1.22	<0.0001
Worsen condition	3.26 ± 1.35	4.58 ± 1.23	<0.0001
Reasons for violence	2.97 ± 1.53	4.61 ± 1.36	<0.0001
Solutions for violence	2.42 ± 1.35	4.35 ± 1.21	<0.0001
Your adult child's feelings	3.59 ± 1.47	4.71 ± 1.30	<0.0001
Better ways to communicate with your adult child	3.52 ± 1.47	4.64 ± 1.37	<0.0001
Recovery of persons with mental disorders	2.98 ± 1.46	4.21 ± 1.28	<0.0001
Recovery of family members	2.92 ± 1.44	4.36 ± 1.21	<0.0001

P values:paired t-test.