

# Effectiveness of an Aggression Management Training Program in Japan: A Quasi-Experimental Study

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# **Effectiveness of an Aggression Management Training Program in Japan: A Quasi-Experimental Study**

This study evaluated the effects of the Comprehensive Violence Prevention and Protection Program (CVPPP) training for managing patient aggression in 95 participants who attended the FY 2019 program using a single-group pretest–posttest design. The comparison of findings before and 1 month after the training showed a significant improvement in staff anger ( $p < 0.01$ ) and their negative ( $p < 0.01$ ) and positive attitudes ( $p < 0.01$ ) toward psychiatric inpatient aggression and confidence ( $p < 0.01$ ). Staff with controlling and self-affirming traits provided more effective care and demonstrated a positive attitude toward inpatient aggression ( $p < 0.05$ ).

## **Introduction**

### ***Background***

Aggressive and violent behaviors of psychiatric inpatients have been well documented within psychiatric inpatient wards (Björkdahl et al., 2013; Khoshknab et al., 2012; Martinez, et al., 2016) and remain a significant concern (Stubbs et al., 2009) in several studies highlighting their harmful effects on both patients and staff.

Patient aggression and violence, defined as “a range of behaviors or actions that can result in harm, hurt, or injury to another person, regardless of whether the violence or aggression is physically or verbally expressed, physical harm is sustained, or the intention is clear,” can be caused by a variety of factors (NCIE, 2015). They can be disruptive behaviors caused by not only a variety of psychiatric symptoms, such as intense hallucinations and delusions, but also expressions of discomfort, such as anxiety, fear, and frustration, due to involuntary

hospitalization and unwanted treatment (Gudde et al., 2015; NICE, 2015). Therefore, the prevention and management of aggression and violent behavior within psychiatric inpatient wards is a critical part of psychiatric nursing care (Björkdahl et al., 2012).

Stubbs et al. (2009) reported that when verbal de-escalation is ineffective against patient aggression and violent behavior, the staff physically intervenes to avoid trauma to the patient and those around them or maintain a calm ward environment. Physical interventions include pharmacological restraint, manual restraint, mechanical restraint, and seclusion (Stewart et al., 2009; Wynn, 2004). The use of mechanical physical restraints remains a significant concern in Japan, given that restraints are 260 times more common in Japan than in other countries (Newton-Howes et al., 2020). With regard to the factors that contribute to staff approval of coercive interventions for patient aggression, Cusack et al. (2016) report staff's "fear, negligence, and lack of de-escalation techniques" while Noda et al. (2014) highlighted "negative attitudes toward patient aggression." Aggressive and violent psychiatric inpatient behaviors affect staff attitudes toward patients (Edward et al., 2014; Jansen et al., 2005; Martinez, 2016). The Act on Mental Health and Welfare for the Mentally Disabled governing the Japanese mental health system contains provisions for involuntary hospitalization (Ministry of Health, Labor and Welfare, 2018). Because hospitalization environments that involve coercion are more secluded, several cases of abuse have occurred in Japan. The Utsunomiya scandal of 1984 (Horiguchi, 2014) was an infamous case of grave abuse that was noted by the United Nations Commission on Human Rights. Unfortunately, even in 2020, cases of mass abuse of patients by nurses and nursing assistants have been documented (The Asahi Shinbun, 2020). The staff's negative attitudes toward patients may be related to protecting patients' human rights and dignity. Therefore, evidence shows that care for aggressive behavior requires education, support, and

experience (Khoshknab et al., 2012; Mason & Chandley, 1999; Sato & Kodama, 2021). Several studies identify the appropriate staff training programs for aggressive inpatient behavior (Björkdahl et al., 2013; Gudde et al., 2015; Khoshkneeb et al., 2012; Moylan, 2009; NICE, 2015; Oud, 2006). The training program is an intervention that addresses violence through de-escalation techniques and coercive measures when necessary (Richer et al., 2006). While past programs mainly included approaches for controlling patient aggression and focused on staff self-protection (Björkdahl et al., 2012), recent programs focus on patient experience and caring interventions. In the training program, understanding and preventing complex interactions that may precipitate patient aggression and violent situations (Björkdahl et al., 2012) and ensuring that users are respected and not ignored are imperative.

However, research results regarding the effects of the training program have been inconsistent. Some found it to be effective in reducing fear and aggression (Phillips & Rudestam, 1995) and increasing self-efficacy (Allen & Tynan, 2000; Fitzwater & Gates, 2002). Others reported no effects. Furthermore, the impact on the number of violent incidences and the reduction of seclusion and restraint has been inconsistent (Farrell & Cubit, 2005; Richer et al., 2006). Richter et al. (2006), who analyzed 39 documents on the effects of training programs, showed that a “comprehensive” training program in psychiatric or disability facilities is recommended, at least for the sake of staff confidence or security.

The results of a systematic review by Nelstrop et al. (2006) highlight the lack of RCTs regarding this issue. The effectiveness of violence intervention programs has not been examined in Japan for several reasons: (1) the focus is on individuals rather than by ward, making it impossible to measure the intervention’s effectiveness, (2) the violence base rate is low, making it difficult to detect changes in seclusion restraints; and (3) It is unclear whether the program is

effective alone, independent of other concurrent training programs (such as ethics training). However, considering the impact on patients, continued studies are necessary even with a poor design.

The only current Japanese version of the training program is the Comprehensive Violence Prevention and Protection Program (CVPPP) (Shimosato, 2019; Shimosato & Kinoshita, 2018), developed in 2005. This program focuses on addressing patient aggression and violence with care and compassion (Shimosato, 2019). The training content includes the theory of management aggression and philosophy, assessment, de-escalation, physical skills, legal issues, and aftercare. The program is a four-day (24 hour) training program, and most participants are psychiatric nurses. The program teaches respect for every individual (person-centered). It aims to eliminate critical perspectives about the patient during risk assessment. De-escalation emphasizes verbal and nonverbal communication focusing on compassion and respect. The CVPPP includes training in physical intervention, but its purpose is to consider the compassion and care that should be shown during a physical intervention and not just learning restraint techniques. To date, however, only a few studies in Japan and abroad have examined the continuing effectiveness of the CVPPP.

### ***Objective***

The objective of the CVPPP program is to provide humanistic care to the parties involved. Therefore, this program helps inspire confidence among staff to suppress fear response when dealing with patient aggression and violence (Cusack et al., 2016) and display a caring attitude (Moylan, 2009). Therefore, this study examines the effectiveness of the CVPPP. Specifically, we investigated self-confidence and attitudinal changes after the CVPPP training and which individual characteristics influenced these changes.

## **Methods**

### ***Study design***

This study was quasi-experimental (one group pretest–posttest).

### ***Setting***

Before the course began, we sent the participants explanatory materials detailing the purpose of the study, a survey form, and a return envelope. Participants completed the anonymous questionnaires three times: before the course began, immediately after, and one month following. Only those who agreed to participate in the study were asked to post the questionnaires in a self-addressed envelope after completion, ensuring their voluntary nature. Respondent anonymity was granted during all stages of data collection and analysis. Finally, this study has approval from the Medical Ethics Committee of Shinshu University School of Medicine (protocol approval number: 4502).

A total of 1,146 participants across 40 sites in Japan experienced the CVPPP training between April 2019 and March 2020. Most of the participants were psychiatric nurses, but other professionals involved in the direct care of developmentally disordered patients also participated in the study. Therefore, the study participants are referred to as “staff.”

### ***Participants***

All participants were at least 20 years old. The exclusion criteria included those who dropped out of the training or refused to cooperate with the study (Figure 1).

*[Figure 1 near here]*

### ***Bias***

Despite the methodological limitations related to our inability to control threats to internal

validity, the following measures were taken. To avoid information bias, the same instructors trained and provided programs to ensure equal quality. We selected a one-month post-training period, given that surveys with too long a time frame result in sample bias due to low response rates. Surveys also contain information bias due to other training participation or experiences within the survey period.

Despite the survey selection bias from those who had completed the CVPPP and were more likely to provide direct care for violence and aggression, it seems reasonable to measure changes in staff involved in direct care. Participants expressed their motives for participating in the training by answering the questionnaire which implied that they had given their consent to participate.

### ***Study size***

A preliminary analysis of the study size (study size) revealed a repeated-measures ANOVA of  $N = 28$  and Paired Sample t-test of  $N = 34$ . The significance level ( $\alpha$ ) was set at 0.05, the effect size was set at medium, and the power of the test ( $1 - \beta$ ) was set at 0.8. In general, the expected response rate for mail surveys is 30%–40%, for which 95 respondents were determined to be appropriate. As a post hoc analysis, the effect size and power of the test were calculated. These statistical analyses were performed using G\*Power (Faul et al., 2007).

### ***Quantitative variable***

To evaluate the training, we determined the core demographic data, aggression (Japanese version of Bass-Perry Aggression Questionnaire, BAQ) (Ando et al., 1999), and characteristics of psychiatric care (Japanese version of Interpersonal Circumplex for Psychiatric Care [IPC-PC]) (Kinoshita & Shimosato, 2020). Moreover, we determined the Japanese version of Attitudes Towards Aggression Scale (ATAS) scores (Nakahira et al., 2009; Noda et al., 2014) and the

anger level toward aggressive patient behavior (staff anger level in response to anger-generating situations by service users) (Shimosato & Kinoshita, 2018). (Figure 2)

*[Figure 2 near here]*

The following basic attributes were determined from the surveys: gender (male, female), age, years of work experience, experience of violence (yes, no), and motivation for attending (voluntary, recommended by manager, mandated, and others).

The level of confidence in care during patient aggression was determined. Responses were scored using a Likert scale ranging from “not at all confident” (value 1) to “very confident” (value 7).

The Japanese version of Jansen et al.’s (2006) ATAS was used to measure changes in staff attitudes toward patient aggression. The Japanese version of the ATAS was based on Nakahira et al. (2009) and validated by Noda et al. (2014) in psychiatric inpatient wards. Noda et al. (2014) reported that the ATAS has a two-factor structure, a positive factor, providing new possibilities for caring for them, and a negative factor, such as an unacceptable, or unpleasant one. The ATAS consists of 18 items, and responses were determined using a five-case method, with the scores for each subscale being summed.

The Japanese version of the BAQ was used only at baseline to assess staff aggression among their intrapersonal characteristics. The Japanese version of the BAQ (Ando et al., 1999) is a Japanese version of Buss and Perry’s (1992) self-assessment of aggression, which is a 24-item scale consisting of four components: anger, hostility, verbal aggression, and physical aggression. “In the Japanese version, when translated literally, the subscale anger means short-temperedness” (Shimosato & Kinoshita, 2018). All responses are scored on a Likert scale ranging from “not at all true” (value 1) to “very true” (value 5).

The Japanese version of the IPC-PC was used to measure participants' caring characteristics. The IPC-PC is a measure for nursing characteristics in psychiatry that has a circumplex model structure adapted to the interpersonal aspects of personality. Although this measurement was designed for nurses, it can be applied to staff. Several studies have shown that interpersonal aspects can be systematized conceptually and mathematically using a circular structure (Plutchik & Conte, 1997). Given that each factor is not clearly distinguished as in a general scale, but rather describes a gradual change in circumstances, factors that are adjacent to each other in a circle are characterized by increasing similarity, and factors that are farther apart are characterized by increasing dissimilarity. The circular structure of interpersonal behavior is represented based on two axes: the intimacy dimension, which includes hostile to friendly behavior, and the dominance dimension, including submissive to dominant behavior (Horowitz et al., 1997). The eight factors of IPC-PC are controlling (PA), selfish (BC), refusing (DE), self-negating (FG), independent (HI), accepting (JK), confident (LM), and self-affirming (NO) (Kinoshita & Shimosato, 2020). The code letters representing the factors used in almost all circumplex models are not spelled out. In total, the IPC-PC is a 32-item self-rating scale. All statements were scored on a Likert scale ranging from "not at all true" (value 1) to "very true" (value 5). The anger level during anger-generating situations created by patients (Shimosato & Kinoshita, 2018) was used to measure changes in emotional levels. Aggressive patient behaviors fell into two types: physical, such as throwing and biting, and nonphysical, such as rejecting suggestions and sarcasm. The intensity of each of these anger factors was evaluated using a 7-point scale.

### ***Statistical analysis***

Confidence in care during patient aggression and ATAS were determined at three points: before

training (baseline), immediately after, and one month later. Repeated-measures ANOVA was performed on these three groups, after which pair-wise comparisons were performed. For anger emotion, a paired t-test was performed at two points (baseline and one month after training) to determine significant differences. For each group, the mean score of the component and the standard deviation of the mean was also calculated.

Confidence in care during patient aggression, ATAS, and level of anger feelings after one month compared to the baseline divided into two groups, one with increased scores and the other with decreased scores. The group with the lower scores on the negative factors of the ATAS, level of anger in physical factors, and anger levels in nonphysical factors and that with higher scores on confidence in the care and positive factors of the ATAS was deemed the effective group.

After dividing the participants into two groups, gender (male, female), experience with violence (yes, no), and motivation for attending training (active motivation group, passive motivation group) were compared using cross-tabulation, after which the eight subfactors of IPC-PC were compared using unpaired t-tests.

We also calculated statistical significance, effect sizes, and test power. All statistical analyses used SPSS 27.0 (IBM) and G\*Power, with p values less than 0.05 indicating statistical significance.

## **Results**

### ***Overview of the target population***

Fifty participants who responded to the survey (collection rate: 52.6%) were analyzed. Gender (n = 42) consisted of 26 males and 16 females. Age (n = 42) was  $39.12 \pm 9.32$  and Years of

experience ( $n = 42$ ) was  $11.10 \pm 8.38$ . Concerning occupation ( $n = 48$ ), 40 were nurses, and 8 were other professionals such as physicians and psychologists. Experienced violence from patients ( $n = 35$ ), 33 were Yes and 2 were No. Motivation for participating in the program ( $n = 40$ ) was a multiple-choice question, with 18 respondents in the Active motivation group (Independent), 18 in the Passive motivation group (Recommendation), and 4 in Obligation. For each scale, we analyzed cases that were valid for comparison, while excluding those with missing values. Therefore, the number of cases differed for each test.

### ***Comparison before and after training***

According to Figure 3, repeated-measures ANOVA showed a significant difference in confidence ( $n = 34$ ) between the groups (Greenhouse–Geisser  $p = 0.018$ ). Pair-wise comparisons showed that confidence was significantly higher ( $p = 0.002$ ) after one month of training ( $4.21 \pm 1.22$ ) compared to just before training ( $3.59 \pm 1.56$ ).

Repeated-measures ANOVA showed that positive patient attitudes toward aggression ( $n = 42$ ) significantly differed between the groups (Greenhouse–Geisser  $p = 0.006$ ). Pair-wise comparisons showed that positive attitude scores were significantly higher after one month of training ( $17.81 \pm 2.42$ ) than immediately before training ( $16.38 \pm 2.77$ ) ( $p = 0.004$ ). Repeated-measures ANOVA showed negative patient attitudes toward aggression ( $n = 41$ ) significantly differed between the groups (Greenhouse–Geisser  $p < 0.001$ ). Pair-wise comparisons revealed the decrease in negative attitudes was much lower ( $p < 0.001$ ) one month after training ( $34.68 \pm 7.21$ ) compared to that immediately before training ( $42.78 \pm 8.47$ ).

The results of the corresponding t-test showed a significant difference ( $p < 0.001$ ) in the anger level generated by patients' physical aggression ( $n = 42$ ). The anger level was significantly lower after one month of training ( $38.21 \pm 13.11$ ) than before ( $45.93 \pm 12.11$ ). The results of the t-

test with correspondence showed a significant difference ( $p < 0.001$ ) in the staff anger level generated by patient nonphysical aggression ( $n = 45$ ). The level of anger was significantly lower after 1 month of training ( $16.71 \pm 5.59$ ) compared to that before training ( $19.98 \pm 5.45$ ).

*[Figure 3 near here]*

### ***Differences in core attributes between the effective and ineffective groups for each training indicator***

We divided each indicator into two groups, one with effect and one without effect, to determine differences between basic attributes. Accordingly, no group differences were apparent according to motivation for attending the training, and no group differences in motivation were observed for attending the training. A significant difference was evident between genders in the extent of staff anger generated by patient physical aggression ( $p = 0.015$ ). Females had a greater percentage of effectiveness than males (Table 1).

### ***Differences in individual characteristics of nurses between the effective and ineffective groups for each indicator in training***

A comparison of staff aggression (BAQ) and anger level generated from patient physical factors for the group with and without an effect showed significant differences in staff short-temperedness among the BAQ [ $t(41) = 2.40, p < 0.05$ ] (Table 1).

A significant difference among NO, PA, and HI of the IPC-PC was observed, suggesting the effects of the characteristics of nursing care (IPC-PC) and ATAS on positive attitudes toward patient aggression. NO showed a significantly greater change to a positive attitude in the effective group) than in the ineffective group [ $t(40) = 2.28, p < 0.05$ ]. PA showed a significantly greater change to positive attitude in the effective group [ $t(40) = 2.33, p < 0.05$ ] than in the ineffective group [ $t(40) = 2.33, p < 0.05$ ], while HI showed a significantly greater change to

positive attitude in the ineffective group [ $t(40) = -2.15, p < 0.05$ ] than in the effective group [ $t(40) = -2.15, p < 0.05$ ] (Table 1).

*[Table 1 near here]*

There were no observable differences in other indices between the effective and ineffective groups.

## **Discussion**

### ***Program effects***

The CVPPP participants showed increased confidence in care, reduced negative attitudes toward patient aggression, increased positive attitudes, and significantly decreased anger toward patient aggressive behavior compared to before and one month after training. Moreover, the effect size and testing power were quite large. Previous studies in training programs for aggressive behavior across various countries have reported an increase in self-confidence (Allen & Tynan, 2000; de la Fuente et al., 2019; Fitzwater & Gates, 2002; Richter et al. 2006), with the increase in self-confidence following CVPPP being as effective as other training modalities. Previous studies examining the effects of a training program on patient attitudes toward aggression have reported positive perceptions (Björkdahl et al., 2012), while others reported no change (Hahn et al., 2006). Hahn et al. (2006) stated that training needs to consider the “quality of education,” “support of the organization,” and “impact of patient perceptions,” but the purpose of CVPPP training also emphasizes “patient care” rather than “restraint method.” It is reasonable to assume that the CVPPP training that emphasizes patient perceptions and considers caring had a positive impact on staff attitude toward patient aggression. Therefore, CVPPP has also been considered to have shown some quality of education. Participants of the CVPPP training contribute to calm and

attentive care rather than escalating patient emotions, which carries practical significance. Studies on how such training affects the incidence of aggression in the ward have provided unclear results (Richter et al., 2006). However, being able to provide patients with more collaborative and recovery-oriented care may help reduce the number of incidents.

Physical restraint in Japan is legally defined as strictly mechanical, with no formal legal requirement for manual restraint. However, many staff members agree that nurses may use manual restraint in an emergency, such as during the need for emergency evacuation (Hasegawa, 2013). Noda et al. (2014) reported that negative attitudes toward patient aggression significantly correlated with coercive intervention. The present study revealed a decrease in the staff's negative feelings and attitudes toward patient aggression, suggesting that CVPPP could decrease behavioral restrictions by decreasing users' approval of restraint. The use of restrictive measures, such as restraints, has also been identified as a factor that increases the incidence of violence (Jansen et al., 2005). It may be due to the dominance and aggression of the staff. Moreover, CVPPP training recommends being uncritical during risk assessment and having a dialogue regarding life. As such, decreasing nurses' approval of restraint may also play a role in decreasing violence.

Kashiwagi et al. (2020) found that the patients consider hope for life as a protective factor against violence, whereas professionals use indicators, such as understanding medical conditions. When dealing with patient aggression and violence, mutual verbal and nonverbal dialogue is essential given the possible divergence between users and staff. A more positive attitude toward patient aggression among staff members may help curb such incidents.

### ***Personal characteristics of staff who were highly effective in training***

Of those who attended CVPPP training, the female staffers were significantly more effective

than the males in their anger levels anger toward physical aggression and had higher BAQ temper scores. Although the male staff generally tended to respond when physical intervention was required, the CVPPP recommends that the same gender respond whenever possible (Shimosato, 2019). The fact that the male staff members were the first to respond when physical intervention was required first assumes a reliance on forceful engagement, which may cause fear among vulnerable patients. Therefore, lowering the anger level of female staff toward patients' physical aggression may help them provide considerably better care when in crisis mode. Moreover, the ability of short-tempered staffers to avoid negative attitudes in trigger situations may prevent them from reacting negatively.

According to Kinoshita and Shimosato (2020), PA is a dominant helping characteristic with a strong, managerial aspect, while HI is a subordinate helping characteristic. Meanwhile, NO is a positive helping trait with an affinity component added to PA. Staff members who take a dominant position in an aggressive situation and provide staff-driven responses that lack consideration for the other person further heightens patient emotions (Moylan, 2009). The fact that a high propensity for PA and NO and a low propensity for HI were involved in the training effects on positive attitudes toward aggression is considered a positive sign.

In this study, years of work experience and direct changes in staff attitudes did not affect training outcomes possibly due to the small sample size. Nakahira et al. (2009) found that those with higher positive attitudes toward aggression had more clinical experience and higher positions, suggesting that less experienced staff may be less likely to have positive attitudes. Therefore, if less-experienced staff can be involved with confidence, it will have the effect of showing a positive attitude.

Although the current study had a high effect size, ranging from 0.67 to 0.90, its power was low, ranging from 0.54 to 0.65, indicating an insufficient sample size for paired t-test and cross-tabulation, which could induce a type II error. Further research with larger sample sizes is needed to determine which individual characteristics influence change.

### ***Limitations***

This study was a novel attempt at examining the effects of the Japanese version of the CVPPP, a training program for aggression management, on staff confidence in helping and their attitudes toward aggressive patient behavior. A comparison of before and after results supported the effects of the CVPPP training. However, the following points are some of the study's limitations.

Concerning nonrespondent bias, the number of questions was examined and reduced to limit the burden on respondents. However, given that this was an arbitrary survey, nonrespondents could not be avoided, possibly leading to nonresponse bias. We also asked about the motivation for attending the training, which may have introduced self-selection bias. The numbers for active and passive motivation were almost the same. No significant difference was evident in the outcome. However, this survey used a pretest–posttest design, and training was conducted across various parts of Japan. Therefore, establishing a control group was not possible, which constituted another limitation of this study. Given that no control group was included, we could not determine the magnitude of the effect that may lead to the Hawthorne effect. Although the training was limited because of COVID-19, including a control group in the future would be helpful.

Another limitation was that the CVPPP had the same instructor to ensure program homogeneity. The CVPPP is typically administered according to the manual (Shimosato, 2019), ensuring the homogeneity of the instructional content. We believe the same effect is achievable

even with another CVPPP instructor. However, this needs verification in future studies.

Although this study was limited by the amount of available data in 2020 due to COVID-19, in the future, we would like to establish a control group and investigate the impact of the CVPPP on more subjects and staff ratings, and changes in the number of incidents of post-training violence.

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## Tables

Table 1 Basic attributes and characteristics of nurses according to effective and ineffective groups for each training indicator: Level of Anger (Physical and ATAS [Positive])

			Level of Anger (Physical)				ATAS (Positive)							
			Eff	Inef	p	t	Eff	P	Eff	Inef	p	t	Eff	P
			ctiv	fecti	va	va	ect	o	ctiv	fecti	va	va	fe	o
			e	ve	lu	lu	siz	w	e	ve	lu	lu	ct	w
			gro	gro	e	e	e	er	gro	gro	e	e	si	er
			up	up					up	up			ze	
Demographic data	Gender	Male	18	8	0.				18	8	0.			
					01						17			
					5*						9			
	Female	16	0					8	8					
Motivation group	Active	14	5	0.				10	8	0.				
				16						35				
				4						1				
		Passive	19	2				14	7					
		motivation group												
Age			39.4	35.2	0.	1.	0.4	0.	39.0	38.7	0.	0.	0.	0.
			6±9.	5±8.	25	16	7	21	8±8.	5±9.	91	11	0	05
			32	70	1	5			94	82	2	1	4	
		Years of work	11.4	9.75	0.	0.	0.2	0.	9.88	11.5	0.	-0	0.	0.

	experience		3±8.	±8.0	61	50	0	08	±6.6	0±9.	51	.6	2	07
			59	3	7	4			7	16	6	55	0	
Charac	B	Short-	13.9	10.7	0.	2.	0.9	0.	12.8	12.6	0.	-0	0.	0.
teristic	A	temperedness	4±3.	5±3.	02	39	0	61	2±3.	7±3.	39	.8	0	05
s	Q		32	73	1*	8			46	67	6	59	4	
		Hostility	16.2	17.3	0.	-0	0.3	0.	16.1	16.6	0.	-0	0.	0.
			6±3.	8±2.	40	.8	7	15	2±3.	9±2.	57	.5	1	09
			57	39	6	40			50	60	6	69	8	
		Verbal	14.8	14.6	0.	0.	0.1	0.	14.6	15.5	0.	0.	0.	0.
		aggression	6±2.	3±1.	82	22	0	06	8±2.	0±2.	65	44	1	08
			73	77	1	8			70	35	9	5	7	
		Physical	13.6	14.5	0.	-0	0.2	0.	13.8	13.5	0.	-0	0.	0.
		aggression	0±3.	0±3.	52	.6	4	09	5±3.	0±3.	51	.6	0	06
			51	96	6	40			92	73	9	51	9	
IP	PA		4.11	4.41	0.	-1	0.5	0.	4.27	3.86	0.	2.	0.	0.
C-			±0.5	±0.4	18	.3	9	31	±0.5	±0.4	02	33	7	65
PC			9	2	1	61			9	8	5*	2	6	
	BC		4.01	3.94	0.	0.	0.1	0.	4.13	3.89	0.	1.	0.	0.
			±0.5	±0.5	70	37	4	06	±0.4	±0.4	11	63	5	37
			2	0	7	9			6	4	0	4	3	
	DE		2.96	2.72	0.	0.	0.3	0.	2.90	2.97	0.	-0	0.	0.
			±0.6	±0.5	35	94	9	16	±0.7	±0.7	74	.3	1	06
			9	3	2	0			3	2	8	24	0	

FG	2.94	3.06	0.	-0	0.2	0.	2.91	3.23	0.	-1	0.	0.
	±0.7	±0.5	61	.5	0	08	±0.7	±0.6	15	.4	4	30
	0	1	3	10			2	4	1	63	7	
HI	3.17	2.78	0.	1.	0.6	0.	2.96	3.42	0.	-2	0.	0.
	±0.6	±0.5	13	53	5	36	±0.6	±0.7	03	.1	6	54
	6	4	2	6			2	4	7*	53	7	
JK	3.34	3.35	0.	-0	0.0	0.	3.24	3.36	0.	-0	0.	0.
	±0.5	±0.4	92	.0	2	05	±0.4	±0.4	43	.7	2	12
	2	6	7	92			7	7	9	82	6	
LM	3.36	3.13	0.	1.	0.5	0.	3.26	3.28	0.	-0	0.	0.
	±0.4	±0.4	20	30	1	25	±0.4	±0.5	88	.1	0	05
	8	2	1	0			4	1	4	46	4	
NO	4.99	4.97	0.	0.	0.0	0.	5.09	4.72	0.	2.	0.	0.
	±0.5	±0.3	90	12	4	05	±0.4	±0.5	02	27	7	60
	3	9	4	1			8	5	8*	5	2	

BAQ: Japanese version of Buss–Perry Aggression Questionnaire; IPC-PC: Interpersonal circumplex for psychiatric care; Anger Level: Staff anger level in response to anger-generating situations created by service users; ATAS: Attitude Towards Aggression Scale.

For p values, Fisher’s personality test was used for gender and motivation to take the course, while independent t-test was used for age, years of work experience, IPC-PC, and BAQ.

p < 0.05\*, p < 0.01\*\*

## Figure Legends

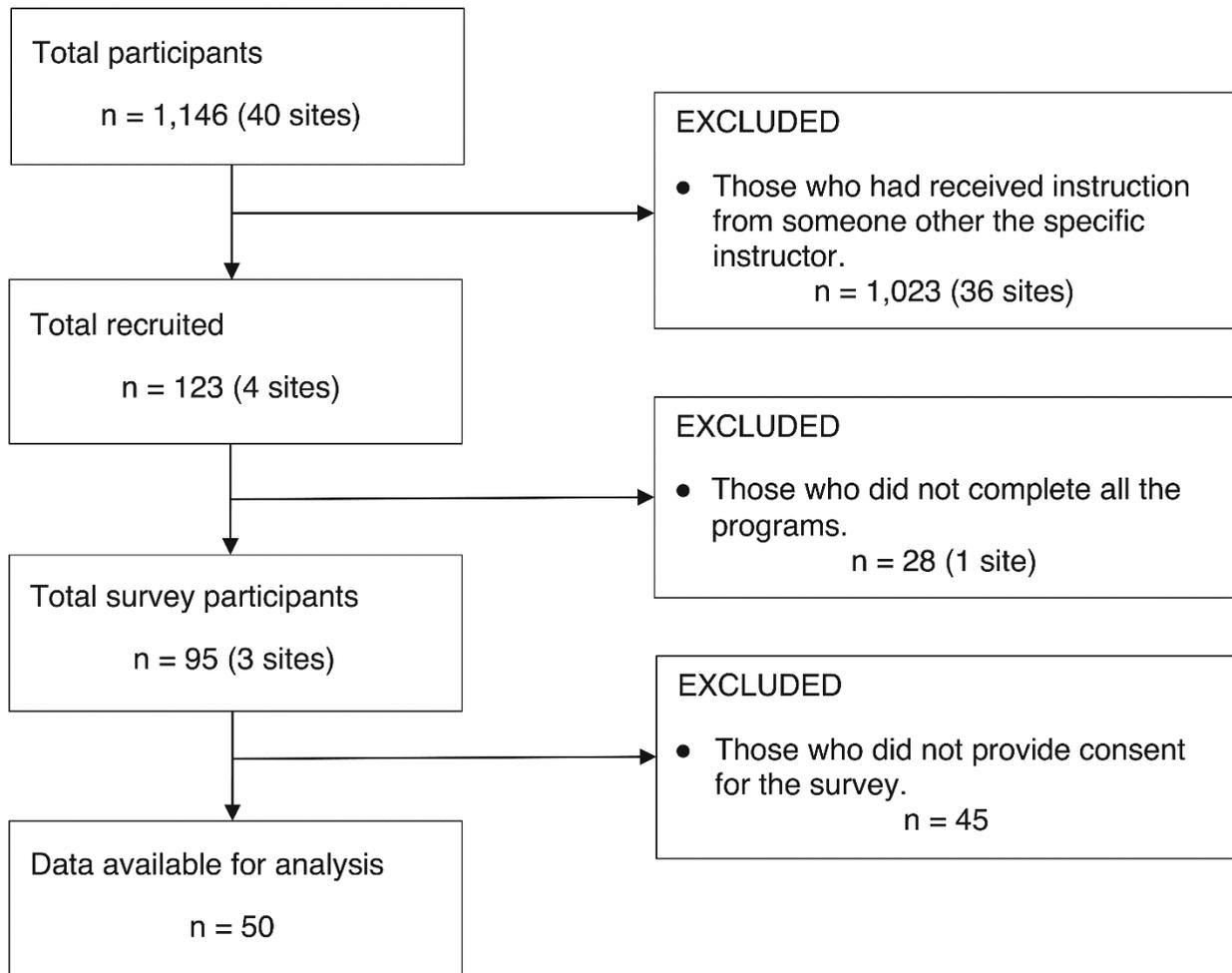


Figure 1. Overview of setting

Fifty cases were available for analysis. However, for each measure, cases with missing values were excluded, and valid cases were analyzed for comparison. Therefore, the number of cases for each test differed.

	Before training	Immediately after training	One month after training
The basic demographic data	<input type="radio"/>		
Attitude Towards Aggression Scale (ATAS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The degree of anger toward patients physical aggression	<input type="radio"/>		<input type="radio"/>
Buss-Perry Aggression Questionnaire (BAQ)	<input type="radio"/>		
Interpersonal Circumplex for Psychiatric Care (IPC-PC)	<input type="radio"/>		

Figure 2. Program satisfaction and utilization

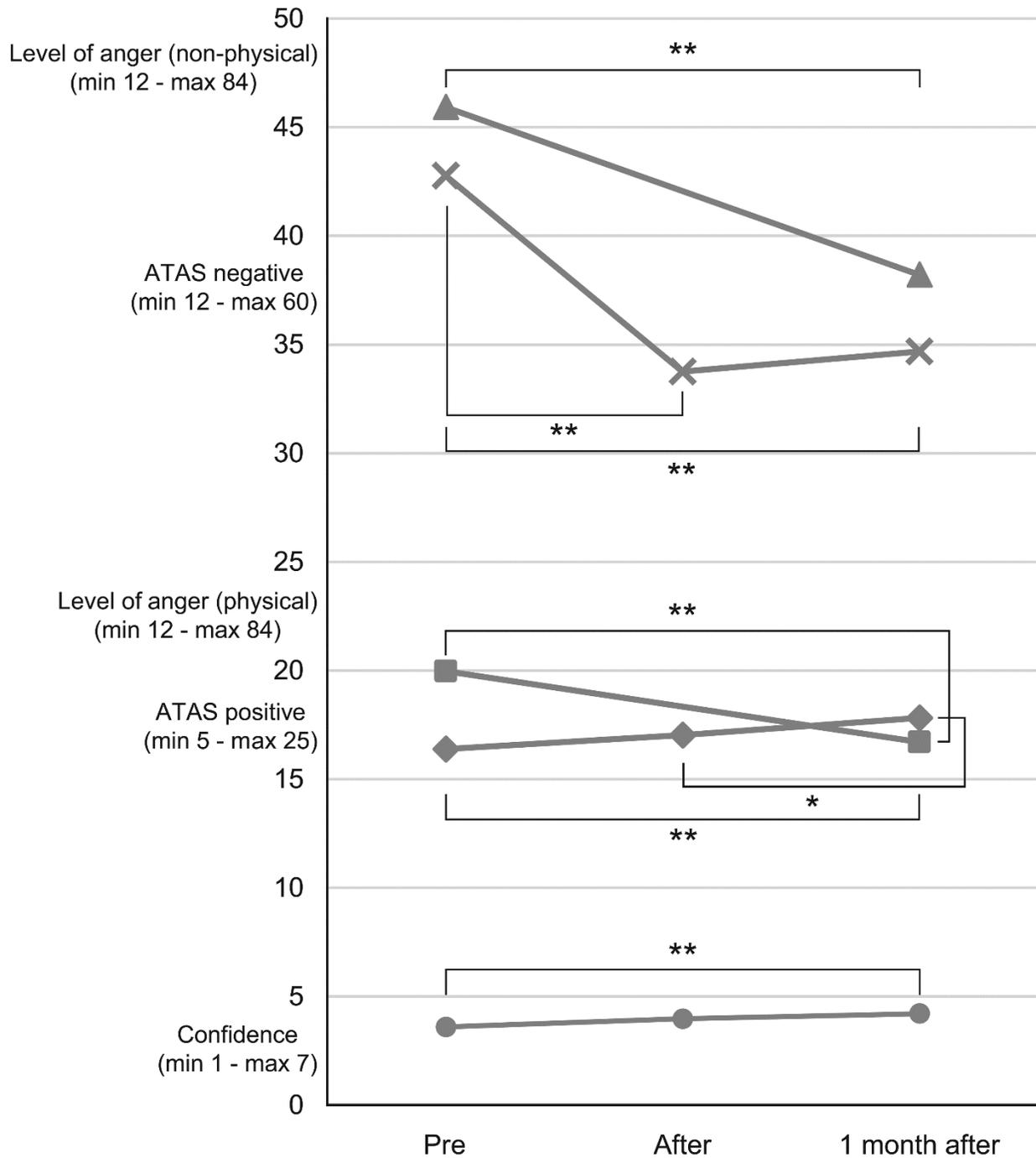


Figure 3. Comparison before and after training

$p < 0.05^*$ ,  $p < 0.01^{**}$

Change in confidence: [effect size  $f = 0.40$ ,  $(1 - \beta) = 1.00$ ]

ATAS (Attitude Towards Aggression Scale): Positive [effect size  $f = 0.39$ ,  $(1 - \beta) = 1.00$ ],  
Negative [effect size  $f = 0.88$ ,  $(1 - \beta) = 1.00$ ]

Anger level (Staff anger-generating situations created by patients: Nonphysical [effect size  $d = 0.59$ ,  $(1 - \beta) = 0.98$ ], Physical [effect size  $d = 0.61$ ,  $(1 - \beta) = 0.97$ ]