

Development and Analysis of the Effects of Caregiver Training Program on Aggressive Behavior in Elders with Cognitive Impairment

Heeyoung Oh, PhD, RN¹, Myung-Haeng Hur, PhD, RN², Miran Eom, PhD, RN¹

Purpose. The purposes of this study were to 1) describe the type and frequency of aggressive behavior of cognitively impaired nursing home resident, 2) develop a caregiver training program on prevention and management of aggressive behavior, 3) examine the effects of caregiver training program on the incidence of aggressive behavior of cognitively impaired nursing home resident, and 4) examine the effects of caregiver training program on nursing staff's aggressive behavior management skills.

Methods. One-group, time series, quasi-experimental design with a pre-test and two post-tests was used. Data were collected from cognitively impaired home residents (N = 32) and nursing staff (N = 36) in a proprietary nursing home using Ryden Aggression Scale I, II, and Aggressive Behavior Management Scale. Data were entered and analyzed by descriptive statistics and repeated measures ANOVA.

Results. Incidence of aggressive behavior was high with a mean score of 3.09 (SD = 3.11) at baseline. Caregiver training program was developed based on Progressively Lowered Stress Threshold (PLST) model and gerontological and psychiatric literature. The mean scores of aggressive behavior at baseline, Post I, and II did not differ significantly although the difference approached to the significant level ($F = 2.925, p = .066$). Nursing staff's aggressive behavior management skills increased at Post I, and at Post II when compared to baseline, and the difference was significant ($F=12.736, p<.001$).

Conclusion. Caregiver training program showed potential impact on reduction of aggressive behavior in elders with cognitive impairment and was effective in increasing nursing staff's aggressive behavior management skills.

Key Words : Aged, Aggression, Dementia

INTRODUCTION

Background and Significance

Aggressive behavior frequently occurs among nursing home residents, particularly those with cognitive impair-

ment. The prevalence of aggressive behavior in nursing home residents has been reported as 74-96% (Oh, Eom, & Kwon, 2004; Oh, 1998; Ryden, Bossenmaier, & McLachlan, 1991; Souriel, McCusker, Cole, & Abrahamowicz, 2001). Ryden (1988) defined aggressive behavior as "a hostile action directed towards other per-

1. Associate professor, Eulji University, School of Nursing

2. Assistent professor, Eulji University, School of Nursing

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Corresponding author: Myung-Haeng Hur, PhD, RN, Eulji University College of Nursing, Assistent professor,

Joong Gu Yong Du 2 Dong 143-5, Taejon 305-762, Korea.

Tel: 82-42-259-1714 Fax: 82-42-259-1709 E-mail: mhhur@eulji.ac.kr

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sons or objects or towards oneself." Aggressive behavior is characterized by resistance to care, verbal outburst, and physical combativeness. Aggressive behavior may be caused by frustration arising from lack of ability to perform certain task or inability to understand the purpose of an activity (Neugroschl, 2002). The frustration caused by loss of control, inability to release tension through physical activity, muscular discomfort, and possibly the unmet needs are likely to be expressed in aggressive behavior as a futile attempt to gain control.

There are three types of aggressive behaviors reported in the literature (Marx, Cohen-Mensfield, & Warner, 1990; Oh, 1998; Ryden, Bossenmaier, & McLachlan, 1991). These include physical aggressive behavior (PAB), verbal aggressive behavior (VAB), and sexual aggressive behavior (SAV). Many gerontological nurses find that aggressive behaviors are abusive, distressing, and potentially dangerous and are mostly targeted towards nursing staff or residents. Nevertheless, nursing staff often under report and take it as "just part of the job" (Beck, Robinson, & Baldwin, 1992).

In many nursing homes, nursing assistants provide most of direct care to the residents. Therefore, experiencing aggressive behaviors is often unavoidable. Providing nursing care to aggressive residents can be extremely difficult and stressful to nursing assistants. Nursing staff experience various emotional reactions such as anger, frustration, and fear (Oh, 2000). Negative impact of aggressive behavior is commonly noted in the literature. Nursing staff's inability to cope with the emotional and physical stress from aggressive behavior can lead to dissatisfaction, reciprocal aggression against the residents (Oh, Eom, & Kwon, 2004), low staff morale, and high staff turnover (Hagen & Sayers, 1995). Unfortunately, nursing staff in nursing homes have minimal training on management of aggressive behaviors (Gates, Fitzwater, & Deets, 2003). In a recent study, caregivers reported that 'don't know what do', 'ignore the situation', or 'confront' in the episode of aggressive behavior (Oh, Eom, & Kwon, 2004). The findings provide evidence of lack of caregiver training on how to manage aggressive behaviors.

In the past few years, there has been a growing awareness among gerontological nursing researchers and nursing home staff that many episodes of aggressive behavior may well be related to nursing staff's lack of knowledge regarding aggressive behavior, inappropriate interaction with cognitively impaired residents, and ineffective com-

munication skills. This implies that although a certain degree of aggressive behavior is unavoidable, many episodes of aggressive behavior can be prevented or reduced by educating and training nursing staff. Hagen and Sayer (1995) assert that educational programs are not only needed, but can also be effective in helping staff to prevent many incidences of aggressive behavior from occurring.

In western countries, researchers conducted experimental studies testing caregiver training program under supportive therapeutic milieu (Burgio et al., 2002; DeYoung, Just, & Harrison, 2002; Gormley, Lyons, & Howard, 2001; Hagen & Sayer, 1995) to prevent or reduce the incidence of aggressive behavior. Researchers employed various aggressive behavior management strategies, guidelines, and skills in long term care settings. In a study by DeYoung and colleague (2002), both behavioral and environmental strategies were incorporated in management strategies. Their program was developed based on the fact that modifying environmental demands to create a supportive and less challenging atmosphere would support more adaptive behavior for patients with dementia (Hall & Buckwalter, 1987). In another study by Burgio et al. (2002), in-service classes and hands on training was provided to nursing staff. Researchers taught nursing staff to increase effective nonverbal and verbal communication skills (e.g., appropriate eye contact, announcing single activities, and delaying physical assistance following a verbal prompt) and decrease ineffective communication skills (e.g., announcing multiple activities and using multiple verbal prompts). They also taught to increase the use of effective antecedent and consequent behavioral techniques (e.g., distraction and diversion) and decrease ineffective response (e.g., arguing with residents). Similarly, Fitzwater and Gates (2004) suggested 12 aggression-prevention skills based upon reviews of the literature and their personal experiences. Authors explained that patient, staff, and environmental factors (e.g., anger, poor sleep, or frustration, inadequate training, workload, noise, and crowded spaces) trigger aggressive behavior, so such factors need be removed to prevent aggressive behaviors.

Despite high prevalence of aggressive behavior among Korean demented elders residing in nursing home (Oh, Eom, & Kwon, 2004; Oh, 1998), experimental research testing the effect of caregiver training program on aggressive behavior of demented elders is rare. This study,

therefore, was conducted with Korean demented elders in a nursing home as a continuation of what has been done in western countries.

Purpose of the study

The purposes of this study were to

- 1) describe the type and frequency of aggressive behavior of cognitively impaired nursing home resident.
- 2) develop a caregiver training program on prevention and management of aggressive behavior.
- 3) examine the effects of caregiver training program on the incidence of aggressive behavior of cognitively impaired nursing home resident.
- 4) examine the effects of caregiver training program on nursing staff's aggressive behavior management skills.

METHODS

Design

This study used one-group, time series, quasi-experimental design with a pre-test and two post-tests to evaluate the effects of caregiver training program on incidence of aggressive behavior of nursing home residents and on nursing staff's aggressive behavior management skills.

Setting and Sample

The study was conducted in a proprietary nursing home located in urban in Choongchung providence. The resident subjects were required to meet the following inclusion criteria: (a) 65 years or older (b) have cognitive impairment (MMSE score < 24) (c) stayed in nursing home 1 month or longer (d) demonstrate aggressive behavior more than once per month and (e) agreed to participate. Nursing staff, nurses and nursing assistants, who met the following inclusion criteria were eligible for the study: (a) provide direct care to residents more than 3 days per week and (b) agreed to participate.

Procedure

Data were collected from April, 2003 to August, 2003. Researcher contacted administrator and explained the purposes, procedures, benefits and risks involved in the study. After obtaining agreement from administrator, researcher met potential subjects including residents and nursing staff. Subjects were informed about the study and that their participation was voluntary and assured of anonymity. Consent was sought from families and

guardians for cognitively impaired residents. Written consents were obtained from nursing staff.

Residents were screened to identify resident who demonstrate aggressive behavior more than once per month. One licensed nurse and two nursing assistants were asked to evaluate each residents on their aggressive behaviors using RAS I, the retrospective measure. Of 111 residents evaluated using RAS I, 39 subjects were screened as aggressive at least once per week. Next, baseline data were obtained. Close observation and recording of aggressive behaviors on RAS II were conducted for 3 days. At baseline, characteristics of residents were assessed by researcher and demographic data were obtained from medical records. Upon completion of data collection at baseline, the education part of the training program consisted of a series of four structured educational sessions, each 60 minutes in length, was provided by researchers over a four week period. Then, reinforcement sessions were conducted over an eight week period. Throughout the 12 weeks of the intervention period, researchers stayed at the nursing home, day and evening shift 2 times per week. Researchers assisted caregivers to implement strategies, role modeled effective communications and tried out strategies described in the training program. Caregivers were encouraged to discuss and share their experiences throughout the program. Upon completion of 12 weeks of intervention, aggressive behavior of the subjects was documented for 3 days (Post I). The period between the 13th week to the 16th week was intended to act as a weaning time from researcher guided intervention. Researchers were out at the nursing home once a week to meet caregivers to remind and encourage them to employ strategies learned in previous sessions. Then, aggressive behaviors were documented for 3 days at the end of the 16th week (Post II). Researcher and research assistants were available during the data collection period to provide support, answer questions, and monitor the staff's documentation of RAS II. Nursing staff were asked to complete aggressive behavior management questionnaire at baseline, in the 12th week, and in the 16th weeks.

Measurements

The instruments originally developed in English were translated into Korean by a researcher, then translated back into English by two nursing professors who completed graduate study in the US. Any discrepancies were discussed with two bilingual nursing scholars and the re-

visions were made upon agreement. Aggressive behavior was measured using RAS I and RAS II (Ryden, 1988). The RAS I is a 26 item, 6 point likert scale that has 3 subscales: physically aggressive behavior (PAB), verbally aggressive behavior (VAB), and sexually aggressive behavior (SAB). It is designed as a retrospective measure, score ranges from 0 (none) to 5 (more than once/day) with higher score indicating higher frequency of aggressive behavior. Inter-rater reliability of RAS I was .89 (Oh, Eom, & Kwon, 2004). RAS II include 26 items of aggressive behavior listed in a table form with space for recording the number of times each behavior is observed. Cronbach's alpha of RAS II was .80 (Ryden, 1999). Nursing staff's management skills for aggressive behavior was assessed using Aggressive Behavior Management Scale (ABMS). The ABMS was developed based on aggression prevention skills suggested in the literature (Hagen & Sayers, 1995; Ryden & Feldt, 1992). The ABMS has 10 items with response options ranging from 0(never) to 4(always). For example, nursing staff were asked to respond to the statement, "Use calm voice and attitude at all times", "Allow sufficient time when providing nursing care", "Call name before touching". Total score of ABMS is 40 with higher score indicating better management skills for aggressive behavior. The Cronbach's alpha for this study sample was .86.

Resident's characteristics on cognitive status and functional status were measured using Folstein Mini Mental State Exam (Folstein, Folstein & McHugh, 1975) and Modified Barthel Index (Fricke & Unworth, 1997). The internal consistency of MMSE was .99 (Tombaugh & McIntyre, 1992) and that of Modified Barthel Index was .92 (Oh, Eom, & Kwon, 2004) respectively.

Development of the caregiver training program

Progressively Lowered Stress Threshold (PLST) model (Hall & Buckwalter, 1987) and gerontological and psychiatric literature served as the theoretical framework in development of educational training program. In PLST model, Hall and Buckwalter proposed that behavioral problems result from excess environmental stress. The stress threshold is lower in cognitively impaired persons which increases to cause anxiety and therefore increases dysfunctional behavior. Stress can be caused by numerous factors, for example, fatigue, multiple stimuli, and demand that exceed abilities. This model implies that aggressive behavior can be managed by reducing environmental stress and by modifying caregiver approaches. In

addition, in-depth review of gerontological and psychiatric literature was conducted. Researcher incorporated techniques and strategies suggested in the work of four expert groups of DeYoung, Just, & Harrison, 2002; Mistretta & Kee, 1997; Gardner, Hall, & Buckwalter, 1996; Maas, Swanson, Specht, & Buckwalter, 1994. Researcher obtained consultation from three gerontological nursing experts to ensure the content validity of the program. The program was designed relatively short to optimize the ability of caregivers to complete the training sessions and to maximize the actual adoption of strategies in caregiving settings. The objectives, contents of program and specific management strategies are described in (Table 1) and (Table 2).

Data analysis

Data were analyzed using SPSS/PC 12.0. Descriptive statistics were used to examine demographic characteristics of subjects, frequency, and types of aggressive behavior. The repeated measures ANOVA analysis was used to compare the incidence of aggressive behavior and nursing staff's management skills for aggressive behavior at baseline, at the 12th week (Post I) and at the 16th week (Post II).

Limitations of study

The research sample was a non-random convenient sample in the settings to which the researcher had access for data collection. Thus, generalizability of the findings is limited. Also, interpretation of the study result should be regarded with caution because of relatively small sample size and use of one experimental group without a control group. The lack of a control group made it difficult to state with any confidence that it was the training program per se which was responsible for changes in frequency of aggressive behavior among demented elders or nursing staff's management skills for aggressive behavior.

RESULTS

Characteristics of subjects (N = 32)

A total of 111 residents were screened and 39 elderly subjects were eligible for participation. At the beginning of study, 39 subjects participated. Subjects who transferred to other facility (n = 1) and who had significant decline in physical condition (n = 1) were excluded. Also, data with incomplete/invalid documentation on

RAS II at any measurement point (n = 5) were excluded. The final 32 subjects' data were entered for data analysis.

The mean age of the residents was 79.47 years (SD = 7.12) ranged from 65 to 93 years. Seventy two percent

(n = 23) were female; all were Korean. Forty-seven percent (n = 15) were married and about 59% (n = 19) had no education. All subjects had cognitive impairment. The MMSE score ranged from 0 to 23 with the mean score of 10.75 (SD = 5.95). About 16% (n = 5) were totally dependent for physical functioning and the majority had severe (21.9%, n = 7) to moderate (21.9%, n = 7) dependency.

At baseline, 46 nursing staff participated. Of 46 nursing staff, those who did not complete Aggressive Behavior Management Scale at post I, and II (n = 3) were excluded. Also nursing staff who failed to attend more than one of four educational training sessions (n = 7) were excluded. Data from 36 nursing staff were entered for final analysis. The age of the nursing staff ranged from 22 to 53 with the mean age of 34.9 years (SD = 7.67). About 61% (n = 22) were female. Mean length of nursing experience was 25.2 months (SD = 21.7). The demographic characteristics of resident and nursing staff subjects are shown in (Table 3).

Table 1. Management Strategies for Aggressive Behaviors of Elders with Cognitive Impairment

Aggressive Behavior Management Strategies	
Goal 1: Know your resident, Know aggressive behavior	
Know the resident as an unique individual	
Understand the etiology of aggressive behavior	
Identify and remove trigger factors	
Goal 2: Improve interaction & communication skills	
Increase resident's self-choice, opportunity, sense of control	
Preserve patient's dignity	
Provide unconditional positive regard	
Redirect and distract	
Reassure	
Be flexible	
Validate the patient's emotions("I see you are angry " e.g.)	
Use soft, calm voice at all times	
Use soothing behavior	
Call name before touching	
Use distraction or timeouts	
Goal 3: Resident experience optimal stress	
Do not force food, bathing, or toileting	
Provide consistent routines and caregivers	
Give simple (one step) direction	
Give but limit the choice	
Control pain if any	
Avoid hunger, thirst	
Avoid fatigue	
Avoid noise, excessive light	
Maintain optimum room temperature	
Avoid overstimulation or understimulation	
Stay one step away on first approach	
Do not request to complete the task beyond patient's capability	
Assign semi-private rooms	
Leave the doors unlocked	
Avoid physical restraint	
Little staff and visitors traffic(avoid overcrowded places)	

Type and frequency of aggressive behavior observed for 3 days at baseline

At baseline, 99 aggressive behaviors were documented on RAS II. The most frequently observed form was PAB (n = 54, 54.5%) followed by VAB (n = 41, 41.4%), and SAB (n = 4, 4.4%). Four most frequently observed aggressive behaviors were making verbal threats (n = 17, 17.1%), cursing/obscene/vulgar languages (n = 11, 11.1%), hostile language (n = 9, 9%), and making threatening gesture (n = 9, 9%). Frequency and types of aggressive behavior occurred at baseline are presented in (Figure 1) and (Figure 2).

Effect of caregiver training program on frequency of aggressive behavior of cognitively impaired nursing home resident (N = 32)

The mean score of aggressive behavior was 3.09 (SD =

Table 2. Objectives and Content Areas of Educational Sessions of Training Program

Session	Objectives	Content Area
1	Understanding cognitive impairment	1) Cause, incidence, symptoms, stages of dementia 2) Functional behavioral changes with cognitive loss
2	Understanding Aggressive behavior	1) Etiology & types of aggressive behavior 2) Trigger factors of aggressive behaviors
3	Improve Interaction/Communication Skills	1) Basic strategies for effective interaction 2) Communication with cognitively impaired elders
4	Know strategies	1) Specific strategies designed to reduce internal and external negative stimuli

3.11) at baseline. When compared to baseline, the mean score of aggressive behavior decreased to 2.94(SD = 2.72) at Post I and to 2.56(SD = 2.66) at Post II, but the difference did not reach significant level ($F = 2.925, p = .066$). The changes in mean score of aggressive behavior overtime are presented in (Figure 3).

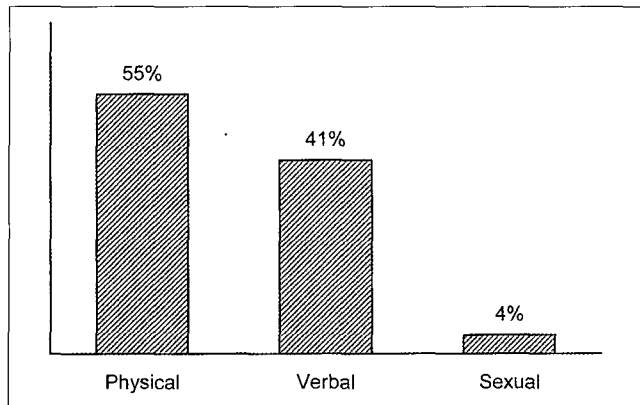


Figure 1. Frequency of aggressive behaviors by nature occurred for 3 days at baseline (N = 32)

Effect of caregiver training program on nursing staffs' aggressive behavior management skills.

(N = 36)

The mean score of nursing staffs' management skills for aggressive behavior increased at Post I (M = 21.83, SD = 4.53), and at Post II (M = 22.25, SD = 4.36) when compared to that of baseline (M = 18.75, SD = 3.56).

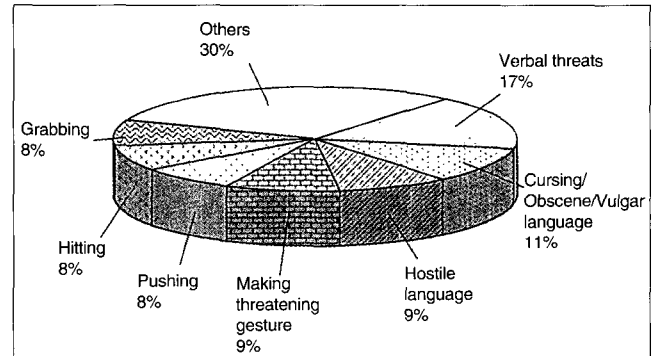


Figure 2. Types of aggressive behaviors occurred for 3 days at baseline (N = 32)

Table 3. Characteristics of Subjects

		Nursing home residents (N = 32)			
		n	%	n	%
Gender					
Male	9	28.1	Marital status	15	46.9
Female	23	71.9	Married	13	40.6
			Widowed	1	3.1
			Not married	3	9.4
			Other/Unknown		
Age			MMSE		
65-69	3	9.4	0-10	13	40.6
70-79	16	50	11-20	17	53.2
80-89	10	31.2	21-23	2	6.2
90-93	3	9.4	Mean (SD) = 10.75(5.95)		
Mean (SD) = 79.47(7.12)			Physical function		
Education			Totally dependent	5	15.6
No education	19	59.4	Severely dependent	7	21.9
Elementary	8	25.0	Moderately dependent	7	21.9
Middle School	2	6.3	Slightly dependent	6	18.7
High School & over	0	0	Independent	7	21.9
Unknown	3	9.4			
		Nursing staff (N = 36)			
		n	%	n	%
Gender					
Male	14	38.9	Education	17	47.2
Female	22	61.1	High school	19	52.8
Age			College & over		
22-30	11	30.6	Length of nursing experience (months)		
31-40	16	44.4	2-6	6	16.7
41-50	8	22.2	7-12	4	11.1
51 & over	1	2.8	13-23	8	22.2
Mean (SD) = 34.92(7.67)			24-36	11	30.6
			37 & more	7	19.4
			Mean(SD) = 25.19(21.7)		

The mean scores on aggressive behavior management skills among three test points were significantly different ($F = 12.736, p < .001$). The changes of mean scores on nursing staffs' aggressive behavior management skills are shown in (Figure 4).

DISCUSSION

The descriptive data that depicted baseline status of subjects add important information to our knowledge base about aggressive residents. It is not surprising to find out that 99 aggressive behaviors occurred for 3 days at baseline. Consistent with findings in previous studies the prevalence of aggressive behavior among cognitively impaired nursing home residents is high (Feldt & Ryden, 1992; Oh, 1998; Oh, Eom, & Kwoh 2004). As reported in other studies, the most common type of aggressive behavior was physical aggression followed by verbal ag-

gressive behavior.

The mean scores of aggressive behavior among baseline, Post I, and II did not differ significantly even though the difference approached to the significant level ($F = 2.925, p = .066$). The complex nature of aggressive behavior may account for this result. As discussed in the work of Gormley and colleagues (2001), the complex nature of aggressive behavior is the result of an interaction of neuro-biological, psychological and environmental factors and may have contributed to the training program's modest impact. Previous research studies have shown that a variety of factors including internal and external patient factors and environmental factors can trigger aggressive behavior (Hoeffler, Rader, McKenzie, Lavelle, & Stewart, 1997; Bridges-Parlet, Knopman, & Thompson, 1994). Considering the main focus of this study being nursing staff education and training, it is possible that the adverse effect from non-intervention variables such as residents' deteriorating conditions, unexpected environmental stimuli, and non-nursing staff's inappropriate approach contributed to aggressive behaviors and may have in turn led to the effect of training program being too small to be detected. Limited effects of the educational training program on behavioral problem has been reported in previous studies testing training programs that focused mainly on education and support (Brodaty, Roberts, & Peters, 1994; Coen, O'Boyle, Coakley, & Lawlor, 1999). In view of the complex nature of aggressive behavior, intervention in future research needs to be institution-wide with multi-scoped input, and not be limited to nursing staff. In addition, comprehensive intervention encompassing both resident and staff behavioral modification is recommended.

Another factor limiting the potency of the treatment was difficulty of nursing staff to attend the educational training sessions. Because most of aggressive behaviors occur during direct patient care (Oh, 1998; Ryden, Bossenmaier, & McLachlan, 1991) it is essential to educate all the nursing staff. However, ensuring voluntary participation of the subject conflicted with institution-wide nursing staff education. Despite the widespread advertising of the classes and verbal encouragement by the administrator, having nursing staff participate in research and attend all four sessions of educational training was most challenging. Staff's heavy work assignments and caregiving burdens hindered them from class attendance. For successful implementation of a training program, creative strategies to enhance nursing staff's class atten-

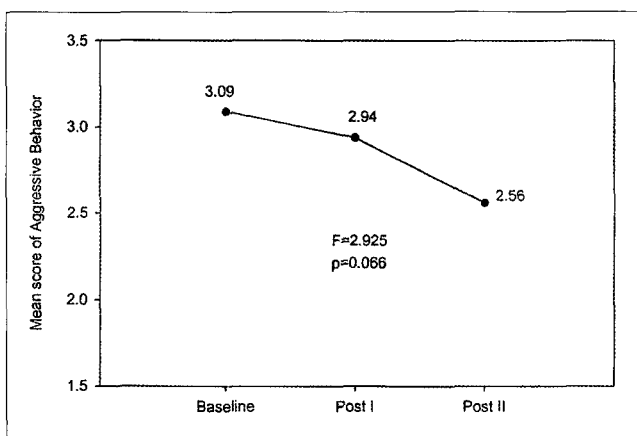


Figure 3. Changes in mean scores of aggressive behavior (N = 32)

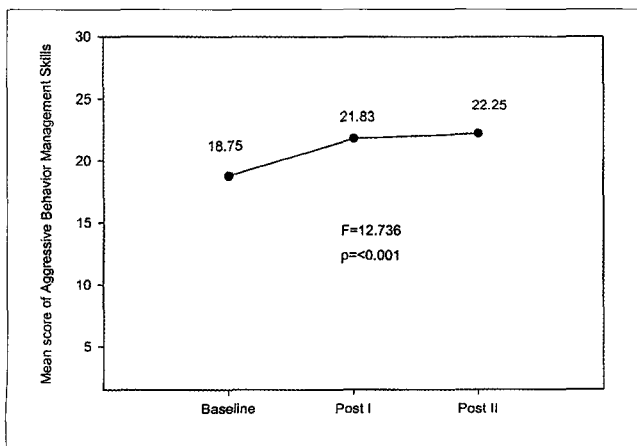


Figure 4. Changes in mean scores of nursing staff's aggressive behavior management skills (N = 36)

dance are needed for future research. Designing the session concise and brief (15 minutes or less in length) may facilitate the nursing staff to attend class while on their duty. Small group (2–3 persons), face to face, individualized teaching might be an alternative way to train nursing staff in clinical setting.

Significant increase in aggressive behavior management skills of nursing staff is an encouraging result. Many of the nursing staff stated that the knowledge that they had gained from the training program improved their way of approaches in dealing with aggressive residents. Several nursing staff reported that not all but some aggressive behaviors could be prevented by using certain strategies and skills demonstrated in the training sessions. Staff also had become more aware of the influence of their interaction with residents. Along with nursing staff's responses, the researcher noted significant improvements in the staff's ability to deal with aggressive behavior. Nursing staffs were more likely to validate resident's emotions and to use soft, calm voices and soothing behavior. Nursing staff used more of one step command, gave choices to residents and tried to minimize environmental stressors.

Providing the training program was therapeutic not only for improving interaction and communication skills of the nursing staff but also in ventilating nursing staff's negative feelings and frustrations. Throughout intervention period, nursing staff described aggressive behaviors they had experienced, and discussed what was done to manage them and whether the strategy was successful. Initially, some nursing assistants were wary perhaps fearing their care would be criticized but soon were pleased to have someone helping them to make caregiving less onerous. In some cases they expressed "it did not work". However, nursing staff had a chance to discuss caregiving issues, and collaborated with researchers to find out what approaches to use in difficult situations. Conversation with nursing staff reflected that the training program has provided the ground work of problem solving for aggressive behavior and have empowered nursing staff.

CONCLUSION

The question of whether aggressive behavior is preventable or reducible by nursing staff training could not be fully answered in this study. However, results indicate potential impact of training program on aggressive be-

havior in elders with cognitive impairment. The modest reduction in frequency of aggressive behavior is likely due partly to the methodological limitations of this study as well as a reflection of the complex and enduring nature of aggressive behavior. In long term care settings, nursing staff need to be trained to have understanding of resident behavior and see how their approaches can affect these behaviors. Future research is required to evaluate the effect of educational training programs using experimental study design with control groups having larger sample. The effect of family caregiver training program on incidence of aggressive behavior and caregiver burden in a community setting should also be evaluated. In conclusion, caregiver training program with aggressive behavior management strategies are likely to play an important role in acquisition of management skills among nursing staff and, to some extent, as a non-pharmacological intervention for demented elders.

References

- Beck, C.M., Robinson, C., & Baldwin, B. (1992). Improving documentation of aggressive behavior in nursing home residents. *J Gerontol Nurs*, 18(2), 21-24.
- Bridges-Parlet, S., Knopman, D., & Thompson, T. (1994). A descriptive study of physically aggressive behavior in dementia by direct observation. *J Am Geriatr Soc*, 42, 192-197.
- Brodsky, H., Roberts, K., & Peters, K. (1994). Quasi-experimental evaluation of an educational model for dementia caregivers. *Int J Geriatr Psychiatry*, 9, 195-204.
- Burgio, L., Stevens, A., Burgio, K., Roth, D.R., Paul, P., & Gerstle, J. (2002). Teaching and maintaining behavior management skills in the nursing home. *The Gerontologist*, 42(4), 487-496.
- Coen, R.F., O'Boyle, C.A. & Coakley, D., Lawlor, B.A. (1999). Dementia care education and patient behavior disturbance. *Int J Geriatr Psychiatry*, 14, 302-306.
- DeYoung, S., Just, G., & Harrison, R., (2002). Decreasing aggressive, agitated, or disruptive behavior: Participation in a behavior management unit. *J Gerontol Nurs*, 26(6), 22-31.
- Feldt, K., & Ryden, M.B. (1992). Aggressive behavior: Educating nursing assistants. *J Gerontol Nurs*, 18, 3-12.
- Feldt, K.S., Warne, M. A., & Ryden, M.B. (1998). Examining pain in aggressive cognitively impaired older adults. *J Gerontol Nurs*, 24(11), 14-22.
- Folstein, M. F., Folstein, S.E., & Mchugh, P.R. (1975). 'Mini-mental State'. A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res*, 12, 189-198.
- Fricke, J., & Unsworth, C.A. (1997). Inter-rater reliability of the original and modified Barthel Index, and a comparison with the Functional Independence Measure. *Australian Occupational Therapy Journal*, 44(1), 22-29.
- Fitzwater, E., & Gates, D. M. (2004). How do you manage the aggressive behavior of cognitively impaired patients? *Rehab Nurs*, 29(1), 5.

- Gardner, L.A., Hall, G.R., & Buckwalter, K.C. (1996). Caregiver training for people with Alzheimer's based on a stress threshold model. *Image; J Nurs Schol*, 28(3), 241-246.
- Gormley, N., Lyons, D., Howard, R. (2001). Behavioral management of aggression in dementia: a randomized controlled trial. *Age and Aging*, 30(2), 141-145.
- Gates, D., Fitzwater, E., & Deets, C. (2003). Development of instrument to assess: Assaultive behavior in nursing homes. *J Gerontol Nurs*, 29(8), 37-45.
- Hagen, B., & Sayers, D. (1995). When caring leaves bruises. The effects of staff education on resident aggression. *J Gerontol Nurs*, 21(11), 7-16.
- Hall, G.R., & Buckwalter, K.C. (1987). Progressively lowered stress threshold model: a conceptual model for care of adults with Alzheimer's disease. *Arch Psych Nurs*, 1, 399-406.
- Hoeffler, B., Rader, J., McKenzie, D., Lavelle, M., & Stewart, B. (1997). Reducing aggression during bathing cognitively impaired nursing home residents. *J Gerontol Nurs*, 23(5), 16-23.
- Mistretta, E., & Kee, D. (1997). Caring for Alzheimer's residents in dedicated units. *J Gerontol Nurs* 23(2), 41-46.
- Maas, M., Swanson, E., Specht, J., & Buckwalter, K. (1994). Alzheimer's special care units. *Nurs Clin Nor Am*, 29(1), 173-194.
- Marks, M.S., Cohen-Mensfield, J., & Werner, P. (1990). A profile on the aggressive nursing home residents. *Behavior, Health, and Aging*, 1(1), 65-73.
- Neugroschl, J. (2002). Agitation: How to manage behavior disturbance in the older patient with dementia. *Geriatrics*, 54(4), 33-38.
- Oh, H., Eom, M., & Kwon, Y. (2004). A study on aggressive behavior among nursing home residents with cognitive impairment. *J Korean Acad Nurs*, 34(8), 1451-1459.
- Oh, J. (1998). A study on the aggressive behavior of the demented elderly in a nursing home. *J Korean Comm Health Nurs Acad Soc*, 12(2), 172-184.
- Oh, J. (2000). The experience of nursing staff on the demented patient's aggressive behavior. *J Korean Acad Nurs*, 30(2), 293-305.
- Ryden, M.B. (1988). Aggressive behavior in persons with dementia who live in the community. : *Alzheimer Dis Assoc Disord: An Int J*, 2, 342-355.
- Ryden, M.B., Bossenmaier, M., & McLachlan, C. (1991). Aggressive behavior in cognitively impaired nursing home residents. *Res Nurs Health*, 14, 87-95.
- Ryden, M.B., & Feldt, K.S. (1992). Goal-directed care: Caring for aggressive nursing home residents with dementia. *J Gerontol Nurs*, 18(11), 35-41.
- Souriel, R., McCusker, J., Cole, M., & Abrahamowicz, M. (2001). Agitation in demented patients in an acute care hospital: Prevalence, disruptiveness, and staff burden. *Int Psychogeriatr*, 13(2), 183-97.
- Tombaugh, T., & McIntyre, N.J. (1992). The Mini-mental State Examination: A comprehensive review. *J Am Geriatr Soc*, 40, 922-935.