Reducing Assaults Against Nursing Home Caregivers

Donna Gates ▼ Evelyn Fitzwater ▼ Paul Succop

- ***Background:*** Nursing assistants (NAs) working in long-term care have the highest incidence of workplace assault among all workers in the United States.
- ***Objectives:*** The objective of this study was to test the effectiveness of a violence-prevention intervention, on the basis of Social Cognitive Theory to increase knowledge, self-efficacy, and skills, and to decrease assaults.
- ***Methods:*** Investigators conducted a quasi-experimental study with 138 NAs in 3 intervention and 3 comparison homes. A baseline questionnaire was used to obtain information on demographics, employment, and violence experience. At pre-, post- and 6 months after the intervention, all participants completed the State Trait Anger Inventory and the Knowledge and Self-Efficacy Survey, carried an Assault log for 80 hr of work, and participated in a simulation exercise to assess violence-prevention skills. Tabulations, analysis of variance, and Poisson regression were used to analyze the data.
- ***Results:*** The intervention participants showed significant increases in knowledge, self-efficacy, and violence-prevention skills. Although the intervention had no significant main effect on the incidence of assaults, there was an interaction effect between the intervention and the number of preintervention assaults. The intervention had a significant effect on those NAs who had fewer than 6 assaults preintervention ($p < .001$) and no significant effect on those who had more than 7 assaults on preintervention. There were significant relationships between assaults and the following covariates: age, state anger, and the number of residents assigned.
- ***Discussion:*** Although the incidence of violence cannot be eliminated, it can be decreased and it should never be tolerated or accepted as "part of the job" because to do so devalues the NA.

- ***Key Words:*** aggression · assaults · elderly · long-term care · nursing assistants · violence

Although there are more than 600,000 nurse assistants (NAs) working in nursing homes (NHs) in the United States, most NHs currently suffer from a shortage of NAs (American Healthcare Association [AHCA], 2003). Because of an increased elderly population, the demand for NAs in long-term care will continue to grow. NAs representing 43% of all employees and 70%–90% of nursing personnel will continue to be the largest group of workers in NHs and the primary providers of direct care (AHCA; Hagen & Sayers, 1995; Wunderlich, Sloan, & Davis, 1996). These health care workers have the least amount of education and training of all health care professionals working in NHs, yet the residents in NHs require some of the most difficult and challenging care because of the prevalence of debilitating medical conditions, dementia, and physical limitations. It is estimated that approximately 4 million Americans have dementia and that many of these individuals will exhibit behavioral problems including agitation, aggression, and combativeness (American Association of Geriatric Psychiatry, 2004).

The NAs in NHs have the highest incidence of workplace assault among all workers (Bureau of Labor Statistics, 2002). In several studies describing NAs and their experiences with violence in NH, it was reported that NAs often experienced harassment, threats, and assaults from residents (Gates, Fitzwater, & Succop, 2003; Gates, Fitzwater, Telintelo, Succop, & Sommers, 2002; Lusk, 1992). Current estimates of such assaults are grossly underestimated because studies indicate that 60%–80% of aggressive incidents in NHs go unreported (Freyne & Wringley, 1996; Gates et al., 2002; Lanza, 1992).

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Abuse by residents against formal caregivers has been termed "aggressive or problem behavior" and was not considered violent, because many of these residents had dementia. However, in previous research by the investigators, it was reported that many NAs do consider such incidents as "violent," suggesting that the emotional, physical, and financial costs to employers, employees, and residents were significant (Gates, Fitzwater, & Meyer, 1999). For the employer, such effects included the costs of medical care for injuries such as black eye injuries, headaches, sore or broken jaws, lacerations or bruising, fractures, bite wounds, and temporary hearing loss. In addition, costs related to lost workdays and turnover, including psychological care, unexplained absenteeism, property damage, decreased productivity, increased security, litigation, increased workers compensation, and personnel changes, were incurred also (Lanza & Milner, 1989; McGovern et al., 2002; Yassi, 1994). Health care workers who experienced physical assaults reported short- and long-term emotional reactions, such as anger, sadness, frustration, anxiety, depression, irritability, fear, apathy, self-blame, and helplessness (Gage & Kingdom, 1995; Gates et al., 1999; Lanza, 1992). Workplace violence also has led to burnout, a type of occupational strain (Evers, Tomic, & Brouwers, 2001; Gates, Fitzwater, & Succop, 2003). Caregivers with burnout suffered from physical and emotional symptoms and lost satisfaction in providing care, often distancing themselves from others and even viewing their patients as objects. It is not surprising that NAs confirmed that they spent less time with those residents who were verbally and physically abusive (Gates et al., 1999). Also, NAs who were not coping with the stressors of resident care were more apt to respond to aggression or abuse (Pillemer & Hudson, 1993; Pillemer & Moore, 1989).

Purpose and Hypotheses

The purpose of this study was to test the effectiveness of a violence-prevention intervention to decrease the physical assaults against NAs working in NHs. The following variables were used to measure effectiveness: perceived knowledge, self-efficacy, skill acquisition, and incidence of assaults. In earlier studies (Gates et al., 1999, 2002), NAs identified that they are not confident in their abilities to manage agitated and aggressive residents and the little training they received on this topic was too didactic and difficult to understand. It was important also to assess whether the NAs could transfer knowledge and skills learned from the intervention by observing them during a simulation exercise with a standardized actress. Because skill acquisition does not always result in behavior change or desired outcomes in real caregiving situations, it was desirable to determine whether the intervention could decrease the incidence of assaults. The following four hypotheses were generated to compare the intervention group to the comparison group 1-week postintervention and 6-month postintervention:

1. *H1*. Intervention NAs will have an increase in perceived knowledge of violence-prevention skills.
2. *H2*. Intervention NAs will have an increase in self-efficacy of violence-prevention skills.
3. *H3*. Intervention NAs will demonstrate an increase in violence-prevention skills.
4. *H4*. Intervention NAs will have a decreased number of assaults.

Methods

Participants and Setting

The study was approved by the institutional review board at the university. Six NHs were selected randomly from all homes with more than 100 beds in one county in Ohio; the homes were randomly assigned to an intervention or comparison group. Characteristics of the six homes included (a) the number of residents ranging from 100 to 156, (b) percentage of residents with dementia ranging from 60 to 76, and (c) the number of staff positions ranging from 28 to 37 for NAs and from 14 to 29 for nurses. All NAs who met the following criteria were invited to participate: (a) full-time employment at the facility as an NA, (b) full-time care provided to residents, and (c) did not work for an outside employment agency.

Instruments

The Demographic and Employment Questionnaire was completed only at baseline measurement and included questions about the following: race, gender, age and education, current and previous employment, previous experiences with workplace assaults, and previous violence-prevention training. *Assault* was defined in the survey to include hitting, biting, throwing things, punching, pulling hair, spitting, and scratching. The NAs were asked to identify the frequency at which they are assaulted by residents in their current job from a list of the following choices: less than once per month, once per month, every couple of weeks, once a week, a couple of times per week, and every day. They were also asked whether they had ever received an injury from a resident while working as an NA, whether medical care was received for that injury, and the usual frequency at which they report assaults (never, seldom, occasionally, often, or always).

The Knowledge and Self-Efficacy Survey was developed by the investigators and consisted of two Likert-type scales. The Knowledge scale measures the NAs' beliefs about their knowledge to prevent aggression and assaults. Item responses range from 0 (*no knowledge*) to 5 (*a lot of knowledge*). The Self-Efficacy scale measures the NAs' beliefs about their confidence to prevent aggression and assaults. Item responses range from 0 (*not at all*) to 5 (*very confident*). Coefficient alphas were .82 for both scales (Gates et al., 2002).

The Violence Prevention Checklist (VPC) was developed by the investigators to use while evaluating a videotaped simulation of a caregiving scenario between the NA and an actress (Gates, Fitzwater, & Deets, 2003; Gates, Fitzwater, & Telintelo, 2001). Although performance on pencil-and-paper tests can assess knowledge, such evaluation is not helpful for assessing skill performance. Because of privacy restrictions in the participating NHs, observation or videotaping caregivers with residents were not allowed. Simulation using standardized patients offered an alternative method to evaluate the participants' use of

violence-prevention skills. The simulations were videotaped in a resident's room at the NH where the NA worked. Before entering the room, each NA was given the following written assignment: prepare a resident for lunch, making sure they change the soiled shirt. Trained raters used the VPC as they viewed the videotapes to determine if the participant demonstrated each of the 12 skills listed on the checklist. Five skills were to be used to prevent the resident from becoming agitated and seven skills were to be used if a resident became agitated or aggressive. The checklist is a criterion-referenced instrument with each item scored as a *yes* (the skill was performed) or as a *no* (the skill was not performed). Gates, Fitzwater, and Deets (2003) provide more information about development and psychometrics of the VPC, and Gates et al. (2001) describe the use of the VPC with simulations and standardized patients. Interrater reliability between the two raters remained high (>.90) for all three measurements.

Hagen and Sayers (1995) developed the Assault log, which was revised, assessed for content validity, and piloted for ease of use prior to use in the current study (Gates, Fitzwater, & Deets, 2003). The NAs used the Assault log to record all assaults from residents during 80 hr of work. When an assault occurred, the following information was recorded: resident's diagnosis, type of assault, caregiving activity being performed when the assault occurred, and whether an injury occurred. The NAs also recorded on the Assault log the hours worked that day and the number of residents assigned for that work shift. Participants also completed a log on those days when no assaults occurred.

Gates, Fitzwater, and Succop (2003) reported significant relationships among resident assaults, NA state anger, and NA trait anger. These findings supported the need for continued investigation into the influence of anger on assaults after the intervention. Anger is a subjective emotional state and this emotional state may provoke aggression, which is a verbal or physical act of violence. Spielberger (1999) stated that whereas persons with high state anger are currently experiencing relatively intense angry feelings, persons with high trait anger frequently experience angry feelings and often feel that they are treated unfairly by others. The STAXI (Spielberger) was used to assess the NA's state and trait anger.

Procedures

Quasi-experimental design was used in lieu of strict randomization to avoid cross contamination between intervention and comparison participants; three homes were randomly assigned to the intervention group and three homes to the comparison group. There were three waves of data collection: baseline, 1 week after the intervention, and 6 months after the intervention. The investigators worked with one intervention home and one comparison home at a time.

At the first meeting the investigators introduced the study and the participants completed the consent forms, Demographic and Employment Questionnaire, the Knowledge and Self-Efficacy Survey, and the STAXI. The investigators also instructed the NAs on the use of the Assault logs. After the initial meeting, all participants carried and completed the Assault log for 80 work hours. A box, envelopes, and extra Assault logs were placed at each of the six NHs. The NAs were instructed to place a completed log each day in an envelope, seal it, and place it in the box. The project director retrieved completed logs daily. After completion of the Assault logs, the NAs participated in the video simulation exercise. The videotapes were scored by registered nurses who had been trained to score the videotapes using the VPC (Gates et al., 2001). After participants completed the simulation exercise, the intervention began.

The Intervention

The intervention consisted of nine 1-hr group sessions with a masters-prepared nurse. The strategies used in this intervention were based on Social Cognitive Theory (SCT) with the belief that the NA's caregiving is influenced by cognitive, affective, and environmental factors, and that the training based on the SCT constructs serves to increase a person's self-efficacy toward performing a particular behavior (Bandura, 1977). Three of the sessions were structured with lectures, discussions, videotapes, role plays, and demonstrations. A "stoplight" theme (proceed, proceed with caution, stop) was used to teach the NAs when to use the 12 violence-prevention skills. These sessions were followed by six problem-solving group sessions where the NAs were encouraged to discuss recent caregiving scenarios that were challenging and describe their emotions about the verbal and physical violence.

After the intervention was concluded, 112 participants in both the comparison and intervention homes again completed the Knowledge and Self-Efficacy Survey and the STAXI, participated in the simulation exercise, and carried an Assault log for 80 hr. Six months after the intervention, 75 participants again completed the surveys, simulation exercise, and Assault log. Participants received monetary incentives for completing each of the three measurement periods. The intervention group received a $50 incentive after the baseline measurement, $250 after the second measurement, and $100 after the third measurement. The comparison group was paid $50 after the baseline measurement, $100 after the second measurement, and $50 after the third measurement. The loss of participants was due primarily to high turnover rates in the facilities.

Statistical Methods

Items on the Demographic and Employment Questionnaire were tabulated to describe the demographics, employment characteristics, and experiences with violence, and participants' mean scores for the Knowledge and Self-Efficacy scales were obtained. For the VPC, a percentage for representing the number of skills demonstrated out of the possible 12 skills was calculated.

The Assault log data were tabulated to describe the frequency of assaults during 80 hr of work, types of assaults and caregiving activities during which assaults occurred, the number of injuries, and the number of residents assigned. The correlation was calculated between the number of assaults recorded by NAs on the logs and their responses to the Likert item on the Demographic and Employment Survey asking, "How often are you assaulted by residents?" The number of assaults correlated

significantly ($r = .32$; $p = .0002$) with the Likert response, indicating validity to the information on the Assault logs.

Analyses of variance (ANOVA) was performed to test the effectiveness of the intervention, and Poisson regression was employed to identify variables that predicted assaults. The Poisson regression has been used to estimate models for count data, such as the number of assaults (Kleinbaum, Kupper, Muller, & Nizam, 1998).

Results

Descriptive Analysis

Sixty-three percent ($n = 138$) of all eligible NAs volunteered to participate in the study. Ninety-four percent of the participants were women (67% African American, 25% White, and 6% Asian). The mean age was 36.0 years ($n = 137$, range = 18–65, $SD = 11.10$) and the mean of years of education for the participants was 11.76 ($n = 137$, range = 10–16, $SD = 1.74$; Table 1). Most participants reported that they had received training on dealing with aggressive behavior and always reported it to their supervisor (56%; Table 1). Tabulations of the Assault logs at baseline show that the most common assault was hitting and punching (51%; Table 2).

On baseline measure, the mean number of assaults for the six NHs ranged from 1.6 to 8.4, with the intervention homes having the three lowest means at preintervention (Table 3). Participants ($N = 138$) reported a total of 624 assaults experienced by 94 (71%) of the NAs. The mean number of assaults for all NAs was 4.52 and for those NAs who were assaulted at least once the mean was 6.64. The number of assaults per NA during 80 hr ranged from 0 to 64. Of the 624 assaults, the most common primary diagnoses for the residents were dementia (87%) and cerebrovascular accident (6.1%). There were 31 injuries reported in the 615 completed logs. Information was not collected regarding the nature of the injuries and whether medical care was received. Gates et al. (2002) reported an in-depth description of the individual knowledge and self-efficacy items. The results for the intervention and comparison groups at baseline, 1-week postintervention, and 6-month postintervention are described in Table 3.

There was a significant positive correlation ($r = .34$, $p = .004$) between the age of the NA and the number of residents assigned each day. On the basis of logistic regression, the participants in the intervention group were more likely ($p < .05$) to remain in their job at completion of the study, which lasted 10 months.

TABLE 1. Questionnaire Results ($N = 138$)

n	%	Responded That They
114	83	reported being responsible for more than 10 residents per shift
86	63	had received training at current or previous job on how to deal with aggressive residents
77	56	reported they *always* report assaults to supervisors
70	51	have received an injury from a resident at current or previous job
62	45	had received training at their current job on how to deal with aggressive residents
48	35	are physically assaulted by residents a couple of times a week
29	21	seldom or never report physical assaults to their supervisor
26	19	have received medical treatment for an injury from a resident at current or previous job
22	16	are physically assaulted by residents every day
13	10	have been physically assaulted by a coworker
7	5	have been physically assaulted by a resident's visitor

Hypotheses Testing

One Week After the Intervention Results from ANOVA (Table 4) showed a significant increase in the intervention group's perceived knowledge ($p < .001$), self-efficacy ($p < .01$), and violence-prevention skills ($p < .05$), thus supporting hypotheses 1, 2, and 3 one week after the

TABLE 2. Types of Caregiving Activities When Assaulted and Types of Assaults Preintervention ($N = 624$)

Type of Activity	*n*	%	Type of Assault	*n*	%
Dressing/changing	268	43	Hitting or punching	318	51
Turning/transferring	162	26	Grabbing/pinching/pulling hair	250	40
Bathing	118	19	Kicking	168	27
Feeding	75	12	Scratching or biting	143	23
Toileting	56	9	Spitting	69	11
Other	56	9	Throwing/hitting with object	56	9

Note. The percentages do not add up to 100, because incidents sometimes included more than one type of assault and activity.

TABLE 3. Pre- and Postintervention Means for the First, Second (*N* = 95), and Third Measurements (*N* = 75)

		Preintervention			Postintervention			6-Month Postintervention		
	n	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
Knowledge										
Intervention	51	3.56	0.84	1.6–5.0	4.33	0.58	2.6–5.0	4.32	0.59	2.8–5.0
Comparison	44	3.68	0.67	1.8–5.0	3.93	0.66	2.8–5.0	3.89	0.67	2.4–5.0
Perceived self-efficacy										
Intervention	51	3.74	0.83	1.3–5.0	4.28	0.66	2.0–5.0	4.04	0.72	2.0–5.0
Comparison	44	3.54	0.60	2.5–5.0	3.77	0.73	2.0–5.0	3.91	0.57	3.0–5.0
Violence-prevention skills										
Intervention	53	47[a]	18[a]	12–97[a]	60[a]	20[a]	21–100[a]	52[a]	15[a]	17–83[a]
Comparison	47	47[a]	16[a]	22–87[a]	54[a]	18[a]	12–100[a]	47[a]	14[a]	21–79[a]
Assaults										
Intervention	53	3.41	4.21	0–14	2.58	3.56	0–13	1.65	2.77	0–10
Comparison	49	7.44	12.62	0–67	4.32	6.6	0–38	3.06	3.43	0–15

[a]Percentage of the 12 skills that the nursing assistant performed correctly.

intervention. For Hypothesis 4, the intervention had no significant main effect on the number of assaults ($p = .61$). An interaction effect between the intervention and the number of preintervention assaults was found. The intervention significantly reduced the assaults for those NAs who had five or fewer assaults preintervention ($p < .001$), but was not effective for those who had six or more assaults during preintervention. In the regression analysis the following covariates predicted the incidence of assaults: age ($p < .01$), the number of assigned residents ($p < .001$), and state anger ($p < .001$). Assaults were associated with lower NA age, higher number of assigned residents, and higher state anger scores (Table 5). Other covariates entered into the regression included the following: race, duration of employment, previous violence-prevention training, current training, trait anger, and the number of assaults preintervention.

Six Months After the Intervention

Results from ANOVA (Table 6) showed a significant increase in the intervention group's perceived knowledge ($p < .05$) from the preintervention measurement, thus supporting Hypothesis 1. However, Hypothesis 2 was not supported because there was no significant difference in the group's self-efficacy 6 months after the intervention. The intervention group continued to show an increase in

TABLE 4. Analysis of Variance for Knowledge, Self-Efficacy, and Skills 1-Week Postintervention

	df	Type III SS	Mean Square	*F*	*p*
Knowledge					
Preintervention	1	8.175	8.175	27.52	<.001
Intervention	1	4.806	4.806	16.18	<.001
Error	92	27.325	0.2970		
Self-efficacy					
Preintervention	1	8.414	8.4140	21.27	<.001
Intervention	1	4.234	4.2340	10.70	.002
Error	92	36.394	0.3960		
Violence-prevention skills					
Preintervention	1	1.044	1.004	40.30	<.001
Intervention	1	0.116	0.116	4.49	.04
Error	92	2.512	0.026		

TABLE 5. Predictors of Assaults 1-Week Postintervention

Variable	*df*	Estimate	Standard Error	χ^2	*p*
Intercept	1	−0.5336	0.3358	2.25	.13
Number of residents	1	0.0018	0.0005	15.57	<.001
Age	1	−0.0206	0.0067	9.52	.002
State anger	1	0.0219	0.0048	21.11	<.001
Preassault	1	0.2013	0.0190	112.62	<.001
Intervention	1	1.0358	0.2010	26.55	<.001
Preassault Intervention	1	−0.1735	0.0193	80.89	<.001

the use of violence-prevention skills; the change was not significantly different from that in the comparison group ($p = .12$) to support Hypothesis 3.

The intervention continued to reduce significantly the number of assaults for those NAs who had fewer than eight assaults preintervention ($p < .001$), but was not effective for those who had more than seven assaults preintervention. The intervention had no significant main effect on the number of assaults ($p = .61$). An interaction effect between the intervention and the number of preintervention assaults was found. The intervention had a significant effect on those NAs who had seven or fewer assaults preintervention ($p < .001$) and no significant effect ($p > .05$) on those who had eight or more assaults preintervention. Results from the regression analysis also found that the following covariates predicted the incidence of assaults as shown in the results from the regression analysis: age ($p < .0001$), the number of assigned residents ($p < .05$, one-tailed test), and state anger ($p < .001$; Table 7).

Discussion

The results support other studies that indicate that NAs encounter frequent physical assaults from residents and that they occur during common caregiving activities. For the baseline measurement (80 hr of work), there were 624 assaults on 138 NAs ($M = 4.52$) and 31 injuries resulted from these assaults. When these numbers are extrapolated for 1 year, the frequency is projected at 16,224 assaults, 117 assaults per NA, and 806 injuries. These numbers are staggering and have significant implications for the NAs, employers, and residents. The costs related to the injuries are extraordinary in terms of medical or psychological care, time to obtain care, or absences.

The means on the Knowledge and Self-Efficacy scales confirm earlier findings (Gates et al., 1999) that many NAs do not feel confident in their abilities to prevent and manage aggressive behavior. The items on the Knowledge and Self-Efficacy Survey are discussed in an earlier study (Gates et al., 2002). The intervention was effective in its ability to significantly increase the intervention participants' perceived knowledge, self-efficacy, and skill performance as measured 1 week after the completion of the intervention. However, these results were not sustained over the 6-month period. These findings were not surprising and indicate that the care of aggressive residents involves a high level of critical thinking and clinical skills. The effectiveness of the study intervention might be enhanced beyond

TABLE 6. Analysis of Variance for Knowledge, Self-Efficacy, and Skills 6-month Postintervention

	df	Type III SS	Mean Square	*F*	*p*
Knowledge					
Preintervention	1	5.007	5.007	15.30	.001
Intervention	1	3.788	3.788	11.58	.001
Error	72	23.556	0.327		
Self-efficacy					
Preintervention	1	1.895	1.895	4.56	.036
Intervention	1	0.110	0.110	0.27	.608
Error	72	29.903	0.415		
Violence-prevention skills					
Preintervention	1	0.4105	0.4105	25.92	.001
Intervention	1	0.0377	0.0377	2.38	.128
Error	67	1.061	0.0158		

TABLE 7. Predictors of Assaults 6-Month Postintervention

Variable	*df*	Estimate	Standard Error	χ^2	*p*
Intercept	1	−0.2583	0.4860	0.28	.595
Number of residents	1	0.0027	0.0015	3.23	.072
Age	1	−0.0466	0.0101	21.09	<.001
State anger	1	0.0225	0.0063	12.95	<.001
Preassault	1	0.2217	0.0287	59.55	<.001
Intervention	1	1.5906	0.3203	24.66	<.001
Preassault Intervention	1	−0.1936	0.0343	31.93	<.001

the immediate postintervention measurement by including various booster training strategies. There is support in the literature for the use of individualized NA training by using immediate feedback and positive reinforcement (Cohen-Mansfield, Werner, Culpepper, & Barkley, 1997; Maxfield, Lewis, & Cannon, 1996). Such an approach might have the NAs view their own performances in the simulation video with the trainer providing the NA with immediate positive reinforcement on correct use of skills and focused retraining on the skills performed incorrectly or omitted. Another reinforcement strategy includes the use of a training coach to provide "booster" sessions to NAs; the coach could be part of the NH staff, even a peer NA who provides refresher sessions for all NAs or for those who specifically need follow-up training. Several studies (Burgio et al., 2000; Bourgeois, Dijkstra, Burgio, & Allen, 2004) support that using a combination of strategies is effective for maintaining training effects for 2–3 months past the initial postintervention measurement. These included direct observation of skill performance at the bedside, hands-on training, NA self-monitoring, a staff motivational (incentive) system, and staff supervisor monitoring. Hyer and Ragan (2002, p. 227) argue that "the caregiver is the key element of treatment in a LTC facility" and effective training needs to be "technologically apt, simple to use, rewarded, and ongoing."

The intervention had mixed results in terms of its effectiveness in reducing the number of assaults. When comparing the intervention group with the comparison group, there was no significant main effect at the second and third measurements. A possible reason for the lack of *significance* could be due to the fact that the intervention group had a significantly lower mean number of assaults ($p < .05$) at baseline than did the comparison group, making it more difficult for the intervention to show a significant decrease in the number of assaults. The interaction effect at both the second and third measurements with the number of preintervention assaults identifies an important question with implications for practice and policy: Was the inability to decrease the assault incidence due to the number of residents being cared for, the work environment, or characteristics of the NA? The number of residents assigned was related to the number of assaults at the second and third measurements, indicating that workload is likely to be an important predictor of assault. These results could simply be due to the statistical fact that an increase in the number of interactions with residents is likely to result in more chances for assault. The relationship might also suggest that NAs are more apt to deliver care in a more hurried and time-pressured manner when assigned a large number of residents. A rushed and hurried approach is likely to cause residents to become more agitated and aggressive, thus increasing the caregiver's chance of assault. In addition, when one is under extreme time pressure, it becomes very difficult to appreciate the need to apply skills that often require the caregivers to slow their pace. For example, our violence-prevention skills include using distraction, time-out, and validation. These activities are likely to be seen as impossible to the NA with a heavy resident assignment.

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State anger was related to the number of assaults at both the second and third measurements and supports earlier findings of the relationship between assault and the NA's anger (Gates, Fitzwater, & Succop, 2003). Negative moods, such as anger, detract from a person's ability to concentrate fully on a job task, making him or her more

vulnerable to accidents and poor performance (Barling, 1996; Duffy & McGoldrick, 1990). Spielberger (1999) states that persons with high state anger are currently experiencing relatively intense, angry feelings. Angry persons are often frustrated and such frustration is likely to influence the type of care the NA delivers to the residents. For example, frustrated and hostile NAs' voices might be louder and their movements might be rougher, causing a resident to respond in an aggressive manner.

The inverse relationship between age and the number of assaults also indicates that the NAs' characteristics are important for understanding the interactions that take place between caregiver and resident. The duration of employment as an NA or duration of employment at the current facility did not predict assaults or the number of residents assigned. In addition, there was a significant positive relationship between age and the number of residents assigned. Questions to consider include the following: How do older NAs provide care for a greater number of residents, but encounter fewer assaults? And why do some managers assign more residents to older NAs? It would be beneficial to compare the caregiving approaches of NAs of different age groups to identify variables that increase the risk of assault (Gates, Fitzwater, & Succop, 2003).

It was encouraging to see that those NAs in the intervention group were more likely to remain in their job at study completion than those in the comparison group. During informal discussions throughout the study, the intervention participants described how the "attention from the researchers made them feel that persons were interested in their work" by offering them education and support. The intervention strategies dictated by SCT provided opportunities for individual and group support. Support at work has been found to be a major predictor of job satisfaction and commitment and appears that turnover in NHs might also be moderated by support at work (Ellis & Miller, 1993; Frone, 2000; Kickul & Posig, 2001; Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2003).

The major limitation of this study is the quasi-experimental design that prevented random assignment of subjects to either the intervention or comparison group. And although the NHs were randomly chosen to participate and randomly assigned as either intervention or control home, the baseline differences in their assault means suggest that there are environmental conditions influencing the incidence of assault. In addition, quasi-experimental design made it impossible to control for those things that are occurring in the environment. Another limitation is the fact that the analysis combined NAs from NHs and did not use the NH as the unit of analysis. However, on a positive note it was beneficial to see how the intervention would work in real work situations.

Implications from this study are important for workplace practice and policy. Nursing homes continue to suffer high turnover rates, ranging from 40% to 400% (AHCA, 2002). If the staffing issues in NHs are to be adequately addressed, it is imperative that the links between violence and adverse outcomes, such as occupational strain, lowered job satisfaction, and anger be embraced and addressed by the NH industry. Although it is not likely that all violence against the staff can be eliminated, it is critical that all NHs maintain a zero-tolerance level for violence. Along with efforts to prevent violence, there should also be policies and procedures in place to be followed when a violent incident occurs against the staff. Health care professionals, administrators, and policymakers need to understand and appreciate that caring for our NAs will result in better resident outcomes and that their leadership is mandatory to make a difference for the care of both the NAs and the residents. ▼

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