AN INTERACTIVE MODEL OF ASSAULT ON STAFF MEMBERS IN INPATIENT
TREATMENT FACILITIES

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A Dissertation

Presented to

The Faculty of the Department

of Psychology

University of Houston

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In Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Philosophy

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By

Alicia L. Pardee

December, 2014

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ABSTRACT

Effectiveness of psychosocial treatment programming in inpatient treatment facilities is limited by violence against staff members perpetrated by seriously mentally ill residents. The goal of this study was to analyze a model in which characteristics of staff members interact with aversive staff-resident interactions to predict assault in inpatient treatment facilities. Data were analyzed from 541 staff members who worked at a forensic psychiatric hospital between 1997 and 2007. Bootstrapping analyses revealed that older staff members and nurses who engaged in higher rates of negative nonsocial responses to appropriate resident behavior were at increased risk of assault. Staff members who were younger, male, psychiatric aides, nurses, and less experienced and who also engaged in higher rates of negative nonsocial responses to inappropriate resident behavior were also at increased risk of assault. Finally, engaging in lower rates of negative verbal responses to resident behavior placed staff members who worked in the Rehabilitation Services department and staff members who were more experienced at increased risk of assault. Characteristics of staff members that have previously been found to predict assault, such as age and length of employment, did not do so in this study; however, the variance accounted for by each of the models tested was significant, ranging from 13 to 16 percent. These results suggest that staff training should focus on negative nonsocial and negative verbal responses to resident behavior, teaching staff members how to set limits and deny requests in a way that minimizes the potentially negative impact on residents. Staff members should be taught how to respond to inappropriate resident behavior in a way that is consistent with the treatment programs in which they work.

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Chapter 1: Introduction

In 2011, an estimated 11.5 million adults in the United States suffered from a serious mental illness, defined by the Substance Abuse and Mental Health Services Administration (2012) as "a diagnosable mental, behavioral, or emotional disorder…that has resulted in serious functional impairment, which substantially interferes with or limits one or more major life activities." This number represents approximately 5.0 percent of all adults in the country. Because they are poor or they quickly deplete their own resources, a great majority of seriously mentally ill adults depend on the public mental health system for services. Of the services provided by this system, inpatient treatment facilities are the most expensive in terms of time, money, and social costs (Paul & Menditto, 1992). Ensuring the effectiveness of psychosocial treatment programming offered by these facilities, therefore, should be a top priority for mental health administrators.

Unfortunately, effectiveness of psychosocial treatment programming in inpatient treatment facilities is limited by a number of factors, including violence against staff members perpetrated by seriously mentally ill residents. Assaults on nursing, psychiatric, and home health aides represented nearly 30 percent of the total number of workplace assaults occurring in the United States during the 10-year period from 1995 to 2004 (Bureau of Labor Statistics, U.S. Department of Labor, 2006). This is the highest proportion of assaults against any broad occupational group. Indeed, the average annual rate for nonfatal workplace assaults is more than five times higher among mental health occupations than for the average worker in the United States (Harrell, 2011).

Assaults on staff members not only occur relatively frequently, but also result in a myriad of problems, including: incidences of restraint and seclusion (Evans, Wood, & Lambert, 2003; Foster, Bowers, & Nijman, 2007; LeBel & Goldstein, 2005); physical and psychological trauma to staff members (Bensley et al., 1997; Foster et al., 2007; Langsrud, Linaker, & Morken, 2007; Lanza, 1992); harm to morale, unit atmosphere, and quality of care (Arnetz & Arnetz, 2001; Melchior, Bours, Schmitz, & Wittich, 1997; Omérov, Edman, & Wistedt, 2002); and increased absence and turnover of staff members (Arnetz & Arnetz, 2001; Ito, Eisen, Sederer, Yamada, & Tachimori, 2001; Jackson, Clare, & Mannix, 2002; Melchior et al., 1997). Newbill et al. (2010) assert that, "Effectively, when a staff member is assaulted, harm is done to the individual who was attacked, peers of the staff member, the perpetrator himself, the other patients on the ward, the system in which the incident occurs, and the general public, who ultimately bear system costs."

Much of the research that has been conducted in this area to date has focused on factors (e.g. age, gender, ethnicity, diagnosis, history of violence, history of victimization, and history of substance abuse) that might heighten a resident's risk of perpetrating an assault on a staff member. While a review of the large number of studies in this area is beyond the scope of this study, it is worth noting that few characteristics of residents have emerged as consistent risk factors for violence. In fact, some risk factors that previously seemed to be stable predictors of assaults on staff members now appear to be changing over time. Prior to the advent of managed care, research documented the characteristics of assaultive residents in traditional state mental hospital settings as primarily older, male, psychotic residents with histories of violence toward others and of

substance abuse (Chou Kuei-Ru, Lu Ru-Band, & Mao Wei-Chung, 2002; Flannery, Irvin, & Penk, 1999). Recent studies suggest that the characteristics of assaultive residents may be changing to include younger, more frequently female, residents with personality disorders and histories of personal victimization (Flannery et al., 1999). Similarly, Beck et al. (2008) found that younger, female residents diagnosed with personality disorders were overrepresented among residents with more frequent instances of seclusion and restraint, presumably due to aggression. Nevertheless, these findings are difficult to translate into improvements in practice because there is little that mental health administrators can do to alter the characteristics of residents that predict a heightened risk of assault.

Characteristics of staff members (e.g., age, gender, ethnicity, experience, profession, personality traits, and physical size) have been examined to a lesser extent in order to identify factors that might heighten a staff member's risk of becoming a victim of assault by a resident. Few characteristics of staff members have emerged as consistent risk factors for victimization, perhaps because of a lack of research in this area. Younger, less experienced staff members seem to be more likely than older, more experienced staff members to be assaulted (Chou Kuei-Ru et al., 2002; Cunningham, Connor, Miller, & Melloni, 2003; Flannery, LeVitre, Rego, & Walker, 2011; Flannery, Stone, Rego, & Walker, 2001; Whittington & Wykes, 1994). Most studies examining the gender of staff members suggest that gender is not significantly associated with victimization (Binder & McNiel, 1994; Whittington & Wykes, 1994); however, Flannery, Marks, Laudani, & Walker (2007) found that both female and male staff members are at increased risk of being assaulted by residents of their same gender. Nurses appear to be more likely than

other professionals to be assaulted (Binder & McNiel, 1994; Fottrell, 1980), perhaps because they spend more time in direct contact with residents and, therefore, are more readily available as targets. Personality traits, such as anxiety and authoritarianism, may increase a staff member's risk of being victimized by a resident as well (Chen, Huang, Chen, & Wang, 2011; Ray & Subich, 1998). Clearly, more research is needed in this area. However, in order for such research to occur, researchers must begin to shift the focus of their research efforts from understanding which residents assault staff members to understanding which staff members are victimized and, perhaps even more importantly, why such assaults occur at all. Findings in this area, if replicated, could lend themselves to improvements in practice if mental health administrators use them to inform hiring decisions, assess the risk of staff members being assaulted by residents, educate staff members about this risk, and develop training and supervision for staff members in order to prevent assaults.

Due to the limited applicability of research focused on static predictors of violence, such as characteristics of perpetrators and victims of assault, research into dynamic risk factors has gained attention over the past three decades (Fagan-Pryor, 2003; Nolan et al., 2003; Shepherd & Lavender, 1999; Whittington & Wykes, 1994). Much of this work has been conducted by asking residents and/or staff members what occurred immediately before the assault of the staff member. Despite a reliance on locally developed interviews and idiosyncratic categorization of responses, some consistent findings have emerged from these studies. While staff members perceive that the majority of assaults are directly attributable to symptoms of psychosis (i.e., hallucinations and/or delusions) (Barlow, Grenyer, & Ilkiw-Lavalle, 2000; Duxbury, 2002), residents perceive that

assaults occur as the result of aversive staff-resident interactions, particularly limit setting

(i.e., when a staff member stops a resident from doing what he or she would like to do),

activity demand (i.e., when a staff member tries to get a resident to do something he or

she would not like to do), and denial of requests (i.e., when a residents asks for something

and the staff member refuses) (Duxbury & Whittington, 2005; Newbill et al., 2010;

Papadopoulos et al., 2012; Whittington & Wykes, 1996).

Thus, staff members and residents disagree about the causes of assaults in inpatient

treatment facilities. Because it is unlikely that either is entirely correct about the causes

of assault, several attempts have been made to move beyond studies utilizing only

methods that assess residents' and staff members' perception of blame for assaults.

Quanbeck et al. (2007) considered all available evidence in the resident's medical record,

including the resident's statements about the assault, and arrived at an inferred cause of

each assault on a staff member. They concluded that the majority of assaults on staff

members were attributable to impulsive motivations of residents, including instances

when residents responded to direction or denial by staff members. While the quality of

the evidence provided by this study is improved by the use of third party judges, reliance

on the accuracy and comprehensiveness of the medical record as well as the presumed

impartiality of the judges may have resulted in inaccuracies in the data on which the

conclusion is based.

This impasse led a number of researchers to call for objective observational research

on assaults in inpatient treatment facilities (Chou Kuei-Ru et al., 2002; Daffern &

Howells, 2002; Flannery et al., 2001; Morrison, 1998). Newbill et al. (2010) answered

this call, examining over 26,000 hours of direct observational coding of staff-resident

interactions. They found that aversive staff-resident interactions (i.e., limit setting, activity demand, and denial of requests) occurred more frequently among staff members who had been assaulted than among staff members who had never been assaulted. However, they stopped short of examining how these aversive staff-resident interactions might interact with other previously studied variables to predict assault.

Therefore, the goal of this study was to analyze a model in which characteristics of staff members interact with aversive staff-resident interactions to predict assault in inpatient treatment facilities. Characteristics of staff members (e.g., age, gender, ethnicity, experience, profession, personality traits, and physical size) appear to be prime candidates for inclusion in such a model because few have emerged as consistent risk factors for victimization. Unfortunately, a priori hypotheses regarding which characteristics of staff members will predict assault are precluded by this inconsistency. Aversive staff-resident interactions (i.e., limit setting, activity demand, and denial of requests) may represent the missing link in our understanding of how characteristics of staff members and assault are related. It is expected that high rates of aversive staff-resident interactions will predict assault in the present study.

It also makes sense that a staff member's characteristics could increase the likelihood that he or she will engage in aversive staff-resident interactions that ultimately lead to assault. Indeed, Licht, Paul, and Mariotto (1988a) found that age, gender, and professional status were correlated with staff-resident interactions in such a way that might represent "nattering" custodial caretakers and sex-role stereotypes regarding control of material goods and services. Specifically, they found that older, female, nonprofessionals demonstrated higher rates of one type of aversive staff-resident

interaction (i.e., negative verbal responses to resident behavior) than younger, male, professionals. Males engaged in higher rates of another type of aversive staff-resident interactions (i.e., negative nonsocial responses to resident behavior) than females, irrespective of age and professional status. It is expected that this same pattern of aversive staff-resident interactions will be observed in the present study.

Aversive Staff-Resident Interactions
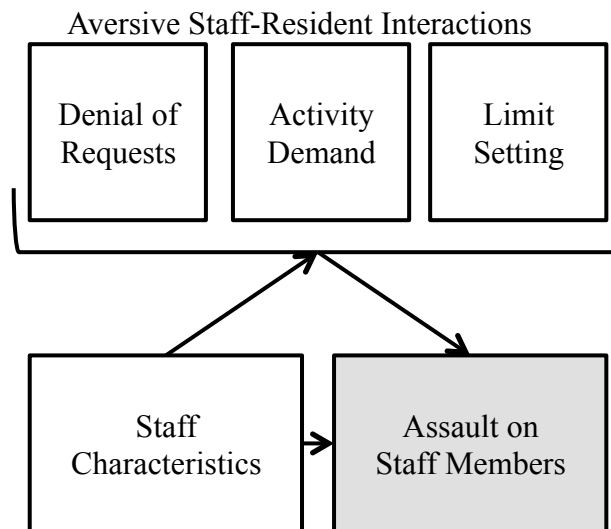
Figure 1. Proposed interactive model of characteristics of staff members, aversive staff-resident interactions, and assaults on staff members

Figure 1 represents the proposed model examined in this study, which includes characteristics of staff members, aversive-staff-resident interactions, and assaults on staff members. The proposed model represents an innovation in the field, as no such model has yet been tested. We expect the results of this study to provide the first evidence that characteristics of staff members (e.g., age, gender, ethnicity, experience, profession, personality traits, and physical size) interact with aversive staff-resident interactions (i.e., limit setting, activity demand, and denial of requests) to predict assault. If the proposed model were supported, mental health administrators would have new information not only about which staff members are at risk for being assaulted, but also about which staff

members are more likely to engage in aversive staff-resident interactions that occur more frequently among staff members who have been assaulted than among staff members who have never been assaulted. This information would allow mental health administrators to provide targeted training about aversive staff-resident interactions to staff members who are likely at risk for such interactions as well as being assaulted. It would empower these staff members by providing information not only about their unique risk of being assaulted but also about how they can keep from being assaulted.

Thus, the purpose of this study it to examine the differential predictive utility of the proposed model, which includes characteristics of staff members, aversive-staff-resident interactions, and assaults on staff members. It is hypothesized that the proposed model will result in higher proportions of variance explained than models that include only characteristics of staff members and assaults on staff members.

Chapter 2: Methods

Data for the present study were collected at Fulton State Hospital (FSH) in Fulton,

MO. Institutional review boards at both FSH and the University of Houston approved the

study. At the time of the study, FSH was a 471-bed forensic psychiatric hospital with

three levels of security: maximum, intermediate, and minimum. The hospital also

accepted civilly committed residents who could not be safely managed in less restrictive

settings. For over 20 years, non-interactive observers have collected data on staff-

resident interactions in order to assess and improve fidelity to the empirically-supported

Social Learning Program model (Paul & Lentz, 1977). Staff members on these units

were expected to engage in certain kinds of interactions with residents (e.g., praising

adaptive behavior), while avoiding other kinds of interactions (e.g., praising bizarre

behavior). Research has shown that staff members trained in Social Learning Program

procedures are much more likely to demonstrate staff-resident interactions reflective of

learning-based interventions (e.g., praising adaptive behavior, ignoring bizarre behavior,

and prompting behavior that fails to meet the requirements of the time, place, and

circumstance) (Jones, Menditto, Geeson, Larson, & Sadewhite, 2001).

Participants

Information about 541 staff members who worked three or more months on any one

of FSH's six Social Learning Program units between 1997 and 2007 was collected. This

length of time was sufficient to ensure representative data on staff-resident interactions.

The residents with whom these staff members interacted are likely best characterized

by the criteria governing admission to the units on which they resided: the presence of

functional psychosis of a severe and persistent nature; continuous hospitalization for one

year or more or repeated hospitalization with failed community placements; severe

deficits in functioning in the areas of self-care, social skills, and/or instrumental role

performance; and exhibition of high rates of bizarre behavior. Residents may have had a

concurrent diagnosis of personality disorder, but that diagnosis must not have been the

primary reason for hospitalization or the primary focus of treatment.

Measures

Identification of Characteristics of Staff Members. Characteristics of staff

members, including age (calculated from date of birth to end of the study period), gender,

position, and length of employment (calculated from date of hire to date of termination)

were identified using records from the Human Resources department.

Staff-Resident Interaction Chronograph (SRIC). Objective measures of staff-

resident interactions were obtained using the Staff-Resident Interaction Chronograph

(SRIC) (Paul, 1986). The SRIC is an observational instrument used by full-time non-

interactive observers to code all behavior of target staff members in functional

relationship to the behavior of residents during 10 sequential one-minute periods for each

observational sample. Observers were trained to a criterion of 100 percent act-by-act

agreement on full-shift observational schedules prior to allowing use of their data (Licht,

Paul, & Mariotto, 1988b).

An hourly time-sampling schedule, stratified with the beginning, middle, and end of

behavior settings, was employed with the SRIC. All staff members with direct care

responsibilities were observed with one or more SRIC observations scheduled on each

unit every hour. The number of observations per staff member and the order in which

staff members were observed across observational sessions was determined by

stratification with balanced-factorial representation of staff in proportion to their actual "on-the-floor" time in the psychosocial treatment program (Paul, 1987).

During each 10-minute observation, all verbal and nonverbal behavior of an individual staff member was coded within a 5 x 21 SRIC matrix, formed by five global categories of resident behavior (appropriate, inappropriate, inappropriate failure, requests, and neutral) and 21 categories of staff responses (positive/negative verbal, nonverbal, nonsocial, statement, prompt, and group reference; reflect/clarify; suggest alternatives; instruct/demonstrate; doing with; doing for; physical force; ignore/no response; announce; and attend/record/observe) (Paul, Licht, Engel, & Power, 1988). Data generated by the SRIC are reported as average hourly rates of a specific class of staff behavior in response to a category of resident behavior. For example, a score of 10.00 on positive verbal to appropriate would indicate that the staff member in question responded to appropriate resident behavior with verbal praise an average of 10 times an hour.

Newbill et al. (2010) convened a panel of SRIC experts, which identified nine of the 94 interactive codes on the SRIC as reflective of aversive staff-resident interactions best characterized by limit setting, activity demand, and denial of requests, or a combination of those constructs. They include negative nonsocial staff responses to appropriate resident behavior; negative verbal, negative nonsocial, and positive statement staff responses to inappropriate failure resident behavior; negative verbal, negative nonsocial, and positive statement staff responses to inappropriate resident behavior; and negative verbal and negative nonsocial staff responses to request resident behavior. See Table 1 for definitions and examples of these SRIC codes.

Table 1. Definitions and Examples of SRIC Codes

	Definition	Example
Negative Nonsocial to Appropriate (NNS_AP)	The behavior of the resident(s) to which the staff member responds is actively performed and of the correct strength, intensity, and content as required by time, place, and situation. The staff member provides negative nonsocial action or events by: taking away positive physical objects or material goods, actively withholding admittance to facilities and services, or applying aversive procedures.	The resident arrives on time for an activity, and the staff member says, "You can't come in now."
Negative Verbal to Inappropriate Failure (NV_INF)	The behavior of the resident(s) to which the staff member responds is inappropriate only as a failure to meet the requirements of time, place, and circumstances. The staff member speaks to the resident(s), indicating a negative evaluation of the individual(s) or their *previous or current behavior*.	The resident walks away while the staff member is speaking to him, and the staff member says, "I'm not finished yet."
Negative Nonsocial to Inappropriate Failure (NNS_INF)	The behavior of the resident(s) to which the staff member responds is inappropriate only as a failure to meet the requirements of time, place, and circumstances. The staff member provides negative nonsocial action or events to the resident(s) by: taking away positive physical objects or material goods, actively withholding admittance to facilities and services, or applying aversive procedures.	The resident eats applesauce with his fingers, and the staff member takes away his plate.
Positive Statement to Inappropriate Failure (PS_INF)	The behavior of the resident(s) to which the staff member responds is inappropriate only as a failure to meet the requirements of time, place, and circumstances. The staff member speaks to the resident(s), indicating that a specific behavior is appropriate or expected to occur *before* the performance of the specified behavior.	The resident remains in bed after being awakened for the day, and the staff member says, "You should get out of bed."
Negative Verbal to Inappropriate (NV_INC)	The behavior of the resident(s) to which the staff member responds is clinically inappropriate, actively performed, and of such strength, intensity, or content to always be maladaptive. The staff member speaks to the resident(s), indicating a negative evaluation of the individual(s) or their *previous or current behavior*.	The resident wears his undershirt on his head, and the staff member says, "You're not supposed to wear your undershirt on your head."
Negative Nonsocial to Inappropriate (NNS_INC)	The behavior of the resident(s) to which the staff member responds is clinically inappropriate, actively performed, and of such strength, intensity, or content to always be maladaptive. The staff member provides negative nonsocial action or events to the resident(s) by: taking away positive physical objects or material goods, actively withholding admittance to facilities and services, or applying aversive procedures.	A resident hits another resident, and the staff member takes him to seclusion.

Table 1. Definitions and Examples of SRIC Codes (Continued)

	Definition	Example
Positive Statement to Inappropriate (PS_INC)	The behavior of the resident(s) to which the staff member responds is clinically inappropriate, actively performed, and of such strength, intensity, or content to always be maladaptive. The staff member speaks to the resident(s), indicating that a specific behavior is appropriate or expected to occur *before* the performance of the specified behavior.	The resident stands in the corner rocking back and forth, and the staff member says, "Why don't you stand still?"
Negative Verbal to Request (NV_R)	The behavior of the resident(s) to which the staff member responds is a question or a request for help, favors, or information from the staff member that is of the correct strength, intensity and content for the time, place, and circumstances. The staff member speaks to the resident(s), indicating a negative evaluation of the individual(s) or their *previous or current behavior*.	The resident asks, "May I have a magazine?" and the staff member says, "You're really bugging me."
Negative Nonsocial to Request (NNS_R)	The behavior of the resident(s) to which the staff member responds is a question or a request for help, favors, or information from the staff member that is of the correct strength, intensity and content for the time, place, and circumstances. The staff member provides negative nonsocial action or events to the resident(s) by: taking away positive physical objects or material goods, actively withholding admittance to facilities and services, or applying aversive procedures.	The resident asks to leave the ward for a walk, and the staff member says, "No."

Because the amount of time that each staff member was assigned to work in the Social Learning Program during the study period could not be ascertained, the total number of SRIC observations and the number of months with at least one SRIC observation for each staff member served as proxies for a staff member's exposure to residents within the Social Learning Program.

Assault Identification. An event-triggered recording form called the Incident and Injury form was used to identify assaults. All staff members who had direct or indirect knowledge of an incident were required to complete an Incident and Injury form as soon as the safety needs of all parties involved were met. The following types of aggression toward staff members, recorded on the Incident and Injury form, were included in the

study: (a) serious physical injury to another that required medical treatment more intensive than minor first aid, such as medical intervention or hospitalization; (b) intentional infliction of physical injury to another that required no more than routine minor first aid, such as disinfection and bandage; and (c) intentional physical contact, such as pushing, hair pulling, pinching, or slapping, that did not result in injury. Information from Incident and Injury forms was compiled to determine the number of times that each staff member was assaulted during the study period.

Statistics Analyses

The independent variables used were characteristics of staff members (i.e., age, gender, position, and length of employment). The interactive variables used were the average hourly rates at which staff members engaged in aversive interactions, as captured by the nine SRIC codes defined above. Because the interactive variables were rate scores, their distributions were skewed and square-root transformations were undertaken to meet the assumptions underlying many statistical analyses. The dependent variable used was the number of times that staff members were assaulted during the study period. The total number of SRIC observations and the number of months with at least one SRIC observation were included as covariates in statistical analyses.

Preacher & Hayes' (2008) strategy for assessing and comparing indirect effects in multiple mediator models was used. This approach utilizes bootstrapping, a nonparametric resampling procedure, to test indirect effects in a way that does not impose the assumption of normality of the sampling distribution. It is a computationally intensive method that involves repeatedly sampling from the data set and estimating the indirect effect in each resampled data set. By repeating this process thousands of times,

an empirical approximation of the sampling distribution of the indirect effect of the independent variable on the dependent variable through the mediators is built and used to construct confidence intervals for the indirect effect. If the confidence intervals do not include 0, then the indirect effect is considered significant.

Chapter 3: Results

The 541 staff members in the sample ranged in age from 19 to 74 years ($M =$ 41.27, $SD = 12.36$ years). Fifty-seven percent ($n = 308$) were women. The majority were psychiatric aides (74.9%, $n = 405$), while the remainder worked in departments of Nursing (11.1%, $n = 60$), Rehabilitation Services (5.5%, $n = 30$), Social Services (5.2%, $n = 28$), Psychology (2.8%, $n = 15$), and Special Education (0.6%, $n = 3$). The average length of employment at FSH was 8.49 years ($SD = 8.98$). The number of times that individual staff members were assaulted during the study period ranged from 0 to 26 ($M = 2.59, SD = 3.71$).

Descriptive statistics for all proposed interactive variables are presented in Table 2. The range of scores for all variables was not only representative but also large enough to show relevant differences.

Table 2. Descriptive Statistics for All Proposed Interactive Variables (N = 541 Staff Members)

	Mean	SD	Min	Max
NNS_AP	0.10	0.19	0.00	1.88
NV_INF	0.87	0.52	0.00	3.14
NNS_INF	0.38	0.26	0.00	1.55
PS_INF	1.19	0.58	0.00	2.93
NV_INC	0.32	0.29	0.00	1.46
NNS_INC	0.15	0.18	0.00	0.68
PS_INC	0.33	0.29	0.00	1.90
NV_R	0.20	0.21	0.00	1.30
NNS_R	0.18	0.19	0.00	0.96

Note. All variables are SRIC code scores.

Before undertaking bootstrapping analyses, bivariate intercorrelations were examined among all variables to ensure that relations reflected proper scoring. Examinations of intercorrelations shown in Table A1 revealed several significant relations between characteristics of staff members and average hourly rates of aversive staff-resident interactions. Age was positively related to average hourly rates of NNS_AP ($r = 0.18, p$

= 0.000) and NV_INF ($r = 0.10$, $p = 0.024$) and negatively related to average hourly

rates of NNS_INF ($r = -0.13$, $p = 0.002$), NNS_INC ($r = -0.09$, $p = 0.028$), and NV_R (r

= -0.09, $p = 0.047$). Male gender was positively related to average hourly rates of

NNS_INF ($r = 0.13$, $p = 0.003$) and NNS_INC ($r = 0.17$, $p = 0.000$). Working as a

psychiatric aide was positively related to average hourly rates of NNS_AP ($r = 0.11$, $p =$

0.015), NV_INF ($r = 0.15$, $p = 0.001$), NNS_INF ($r = 0.27$, $p = 0.000$), NNS_INC ($r =$

0.19, $p = 0.000$), and NNS_R ($r = 0.14$, $p = 0.001$), while working as a nurse was

negatively related to average hourly rates of NNS_AP ($r = -0.12$, $p = 0.000$), NV_INF (r

= -0.18, $p = 0.000$), NNS_INF ($r = -0.22$, $p = 0.000$), PS_INF ($r = -0.16$, $p = 0.000$),

NV_INC ($r = -0.09$, $p = 0.038$), NNS_INC ($r = -0.21$, $p = 0.000$), and PS_INC ($r = -0.11$,

$p = 0.014$). Working in the Rehabilitation Services department was negatively related to

average hourly rates of NV_INF ($r = -0.11$, $p = 0.008$) and NNS_INF ($r = -0.13$, $p =$

0.002). Working in the Social Services department was positively related to average

hourly rates of PS_INF ($r = 0.11$, $p = 0.015$) and PS_INC ($r = 0.10$, $p = 0.020$) and

negatively related to average hourly rates of NNS_R ($r = -0.10$, $p = 0.035$). Working in

the Psychology department positively related to average hourly rates of NV_INC ($r =$

0.11, $p = 0.011$). Finally, length of employment was positively related to average hourly

rates of NNS_AP ($r = 0.15$, $p = 0.000$). Intercorrelations shown in Table A1 also

reflected the expected positive relations among average hourly rates of aversive staff-

resident interactions and assault, with all nine correlations achieving statistical

significance. Several characteristics of staff members were also significantly positively

related to assault, including male gender ($r = 0.15$, $p = 0.000$) and working as a

psychiatric aide ($r = 0.22$, $p = 0.000$).

Separate bootstrapping analyses were then undertaken to examine the extent to which aversive staff-resident interactions (i.e., the nine SRIC code scores reflecting limit setting, activity demand, and denial of requests, or a combination of those constructs) mediated each of the relations between characteristics of staff members (i.e., age, gender, position, and length of employment) and assault on staff members.

Age

Age significantly predicted average hourly rates of NNS_AP ($B = 0.0024$, $p = 0.0005$), NNS_INF ($B = -0.0040$, $p = 0.0000$), NNS_INC ($B = -0.0023$, $p = 0.0002$), and NV_R ($B = -0.0023$, $p = 0.0002$). Older staff members engaged in higher average hourly rates of NNS_AP, while younger staff members engaged in higher average hourly rates of NNS_INF, NNS_INC, and NV_R.

Average hourly rates of NNS_AP ($B = 1.8183$, $p = 0.0296$), NV_INC ($B = -1.7995$, $p = 0.0244$), and NNS_INC ($B = 6.5229$, $p = 0.0000$) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in higher average hourly rates of NNS_AP and NNS_INC were assaulted more often during the study period, while staff members who engaged in lower average hourly rates of NV_INC were assaulted more often during the study period.

Age alone did not significantly predict the number of times that staff members were assaulted ($B = -0.0245$, $p = 0.0628$), even when aversive staff-resident interactions were controlled for ($B = -0.0128$, $p = 0.3379$). Nevertheless, the variance accounted for by the model was significant ($R^2 = 0.1342$, $p = 0.0000$), as were the indirect effects of average hourly rates of NNS_AP and NNS_INC (95% CIs [0.0000, 0.0121] and [-0.0286, -0.0072], respectively). Thus, older staff members who engaged in higher average hourly

rates of NNS_AP were at increased risk of being assaulted, as were younger staff members who engaged in higher average hourly rates of NNS_INC.

Gender

Gender significantly predicted average hourly rates of NNS_INF ($B = 0.0514$, $p = 0.0197$), NNS_INC ($B = 0.0483$, $p = 0.0012$), and NV_R ($B = -0.0375$, $p = 0.0449$). Consistent with the pattern of aversive staff-resident interactions observed by Licht et al. (1988a), male staff members engaged in higher average hourly rates of NNS_INF and NNS_INC, while female staff members engaged in higher average hourly rates of NV_R.

Average hourly rates of NV_INC ($B = -1.6439$, $p = 0.0403$) and NNS_INC ($B = 6.2239$, $p = 0.0000$) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in lower average hourly rates of NV_INC were more likely to be assaulted during the study period, as were staff members who engaged in higher average hourly rates of NNS_INC.

Gender alone significantly predicted the number of times that staff members were assaulted ($B = 0.9516$, $p = 0.0032$), even when aversive staff-resident interactions were controlled for ($B = 0.6311$, $p = 0.0495$). Male staff members were assaulted more often than female staff members during the study period. The variance accounted for by the model was significant ($R^2 = 0.1390$, $p = 0.0000$), as was the indirect effect of average hourly rates of NNS_INC (95% CI [0.1182, 0.5672]). Thus, male staff members who engaged in higher average hourly rates of NNS_INC were at increased risk of being assaulted.

Position

Psychiatric Aides. Working as a psychiatric aide significantly predicted average

hourly rates of NNS_AP ($B = 0.0453$, $p = 0.0230$), NV_INF ($B = 0.2698$, $p = 0.0000$), NNS_INF ($B = 0.1664$, $p = 0.0000$), PS_INF ($B = 0.1922$, $p = 0.0012$), NNS_INC ($B = 0.0753$, $p = 0.0000$) and NNS_R ($B = 0.0564$, $p = 0.0038$). Psychiatric aides engaged in higher average hourly rates of each of these aversive interactions than staff members who worked in other departments.

Only the average hourly rate of NNS_INC ($B = 6.0534$, $p = 0.0000$) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in higher average hourly rates of NNS_INC were more likely to be assaulted during the study period.

Working as a psychiatric aide alone significantly predicted the number of times that staff members were assaulted ($B = 1.8887$, $p = 0.0000$), even when aversive staff-resident interactions were controlled for ($B = 1.3924$, $p = 0.0004$). Psychiatric aides were more likely to be assaulted than staff members who worked in other departments. The variance accounted for by the model was significant ($R^2 = 0.1527$, $p = 0.0000$), as was the indirect effect of average hourly rates of NNS_INC (95% CI [0.2155, 0.7512]). Thus, psychiatric aides who engaged in higher average hourly rates of NNS_INC were at increased risk of being assaulted.

Nurses. Working as a nurse significantly predicted average hourly rates of NNS_AP ($B = -0.0580$, $p = 0.0288$), NV_INF ($B = -0.3219$, $p = 0.0000$), NNS_INF ($B = -0.1598$, $p = 0.0000$), PS_INF ($B = -0.3526$, $p = 0.0000$), NNS_INC ($B = -0.0946$, $p = 0.0001$) and PS_INC ($B = 0.0806$, $p = 0.0417$). Nurses engaged in lower average hourly rates of each of these aversive interactions than staff members who worked in other departments.

Only average hourly rates of NNS_AP ($B = 1.7211$, $p = 0.0375$), NV_INC ($B = -1.8531$, $p = 0.0209$) and NNS_INC ($B = 6.7321$, $p = 0.0000$) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in higher average hourly rates of NNS_AP and NNS_INC were more likely to be assaulted during the study period, as were staff members who engaged in lower average hourly rates of NV_INC.

Working as a nurse alone did not significantly predict the number of times that staff members were assaulted ($B = -0.5616$, $p = 0.2756$), even when aversive staff-resident interactions were controlled for ($B = 0.2829$, $p = 0.5826$). However, the variance accounted for by the model was significant ($R^2 = 0.1332$, $p = 0.0000$), as were the indirect effects of average hourly rates of NNS_AP and NNS_INC (95% CIs [-0.2534, -0.5265] and [-1.1269, -0.3286], respectively). Thus, nurses who engaged in higher average hourly rates of NNS_AP and NNS_INC were at increased risk of being assaulted.

Rehabilitation Services. Working in the Rehabilitation Services department significantly predicted average hourly rates of NV_INF ($B = -0.2800$, $p = 0.0030$) and NNS_INF ($B = -0.1469$, $p = 0.0017$). Staff members who worked in the Rehabilitation Services department engaged in lower average hourly rates of NV_INF and NNS_INF than staff members who worked in other departments.

Average hourly rates of NNS_AP ($B = 1.6303$, $p = 0.0468$), NV_INC ($B = -1.8485$, $p = 0.0200$), and NNS_INC ($B = 6.6530$, $p = 0.0000$) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in higher average hourly rates of NNS_AP and NNS_INC were more likely to be assaulted during the study period, as were staff members who engaged in lower average hourly

rates of NV_INC.

Working in the Rehabilitation Services department alone significantly predicted the number of times that staff members were assaulted (B = -1.9989, p = 0.0036), even when aversive staff-resident interactions were controlled for (B = -1.7696, p = 0.0082). Staff members who worked in the Rehabilitation Services department were less likely to be assaulted than staff members who worked in other departments. The variance accounted for by the model was significant (R^2 = 0.1441, p =0.0000), as was the indirect effect of average hourly rates of NV_INC (95% CI [0.0036, 0.4309]). Thus, staff members who worked in the Rehabilitation Services department and engaged in lower average hourly rates of NV_INC were at increased risk of being assaulted.

Social Services. Working in the Social Services department predicted average hourly rates of PS_INC (B = 0.1105, p = 0.0475) and NNS_R (B = -0.0834, p = 0.0227). Staff members who worked in the Social Services department engaged in higher average hourly rates of PS_INC and lower average hourly rates of NNS_R than staff members who worked in other departments.

Only average hourly rates of NV_INC (B = -1.7262, p = 0.0300) and NNS_INC (B = 6.4422, p = 0.0000) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in lower average hourly rates of NV_INC were more likely to be assaulted during the study period, as were staff members who engaged in higher average hourly rates of NNS_INC.

Working in the Social Services department alone significantly predicted the number of times that staff members were assaulted (B = -2.1121, p = 0.0035), even when aversive staff-resident interactions were controlled for (B = -1.8323, p = 0.0093). Staff

members who worked in the Social Services department were less likely to be assaulted than staff members who worked in other departments. The variance accounted for by the model was significant ($R^2 = 0.1437$, $p = 0.0000$); however, the indirect effects of aversive staff-resident interactions were not significant.

Psychology. Working in the Psychology department predicted average hourly rates of NV_INC ($B = 0.1768$, $p = 0.0171$) and NNS_R ($B = -0.0995$, $p = 0.0417$). Staff members who worked in the Psychology department engaged in higher average hourly rates of NV_INC and lower average hourly rates of NNS_R than staff members who worked in other departments.

Average hourly rates of NNS_AP ($B = 1.7583$, $p = 0.0329$), NV_INC ($B = -1.6771$, $p = 0.0365$), and NNS_INC ($B = 6.6036$, $p = 0.0000$) significantly predicted the number of times that staff members were assaulted. Staff members who engaged in higher average hourly rates of NNS_AP and NNS_INC were more likely to be assaulted during the study period, as were staff members who engaged in lower average hourly rates of NV_INC.

Working in the Psychology department alone did not significantly predict the number of times that staff members were assaulted ($B = -1.6849$, $p = 0.0817$), even when aversive staff-resident interactions were controlled for ($B = -1.6002$, $p = 0.0886$). The variance accounted for by the model was significant ($R^2 = 0.1374$, $p = 0.0000$); however, the indirect effects of aversive staff-resident interactions were not significant.

Length of Employment

Length of employment significantly predicted average hourly rates of NNS_AP ($B = 0.0022$, $p = 0.0297$), NNS_INF ($B = -0.0062$ $p = 0.0000$), NV_INC ($B = -0.0039$, p

= 0.0102), NNS_INC (B = -0.0036, p = 0.0001), and PS_INC (B = -0.0039, p = 0.0101).

More experienced staff members engaged in higher average hourly rates of NNS_AP,

while less experienced staff members engaged in higher rates of NNS_INC, NV_INC,

NNS_INC, and PS_INC.

NV_INC (B = -1.7977, p = 0.0245) and NNS_INC (B = 6.7523, p = 0.0000)

significantly predicted the number of times that staff members were assaulted. Staff

members who engaged in higher average hourly rates of NNS_INC were more likely to

be assaulted during the study period, as were staff members who engaged in lower

average hourly rates of NV_INC.

Length of employment alone did not significantly predict the number of times that

staff members were assaulted (B = 0.0035, p = 0.8593), even when aversive staff-resident

interactions were controlled for (B = 0.0226, p = 0.2504). The variance accounted for by

the model was significant (R^2 = 0.1348, p =0.0000), as were the indirect effects of

average hourly rates of NV_INC and NNS_INC (95% CIs 0.0015, 0.0160] and -0.0386, -

0.0141], respectively). Thus, more experienced staff members who engaged in lower

rates of NV_INC were at increased risk of being assaulted, as were less experienced staff

members who engaged in higher average hourly rates of NNS_INC.

Chapter 4: Discussion

The results of the present study represent the first step toward examining how characteristics of staff members (e.g., age, gender, ethnicity, experience, profession, personality traits, and physical size) interact with aversive staff-resident interactions (i.e., limit setting, activity demand, and denial of requests) to predict assault. It provides mental health administrators with new information not only about which staff members are at risk for being assaulted, but also about which staff members are more likely to engage in aversive staff-resident interactions that occur more frequently among staff members who have been assaulted than among staff members who have never been assaulted.

Specifically, older staff members and nurses who engaged in higher average hourly rates of NNS_AP were at increased risk of being assaulted. Younger staff members, male staff members, psychiatric aides, nurses, and less experienced staff members who engaged in higher average hourly rates of NNS_INC were also at increased risk of being assaulted. Finally, engaging in lower rates of negative verbal responses to resident behavior placed staff members who worked in the Rehabilitation Services department and staff members who were more experienced at increased risk of being assault.

Interestingly, some of the characteristics of staff members that have previously been found to predict assault, such as age and length of employment, did not do so in this study; however, the variance accounted for by each of the models tested was significant, ranging from 13 to 16 percent. Thus, the addition of aversive staff-resident interactions as interactive variables to the model tested substantially increased the proportion of variance explained beyond that accounted for by characteristics of staff members alone.

Of all the aversive staff-resident interactions examined in this study, negative nonsocial responses to resident behavior by staff members most often mediated the relations between characteristics of staff members and assault. In negative nonsocial responses, staff members provide negative nonsocial action or events by taking away positive physical objects or material goods, actively withholding admittance to facilities and services, or applying aversive procedures. Such responses may be experienced as particularly aversive to residents, as they reflect both limit setting (i.e., when a staff member stops a resident from doing what he or she would like to do) and denial of requests (i.e., when a residents asks for something and the staff member refuses). This hypothesis is consistent with the perception held by many residents that assaults occur primarily as the result of aversive staff-resident interactions (Duxbury & Whittington, 2005; Newbill et al., 2010; Papadopoulos et al., 2012; Whittington & Wykes, 1996).

Similarly, responses to inappropriate resident behavior by staff members often mediated the relations between characteristics of staff members and assault. Inappropriate resident behaviors are clinically inappropriate, actively performed, and of such strength, intensity, or content to always be considered maladaptive. Residents who engage in these behaviors are likely to be actively experiencing symptoms of psychosis, which could make them more likely to a assault a staff member, regardless of the staff member's response to their behavior. This hypothesis is consistent with the perception held by many staff members that the majority of assaults are directly attributable to symptoms of psychosis (Barlow et al., 2000; Duxbury, 2002).

Surprisingly, negative verbal responses to inappropriate resident behavior mediated several of the relations between characteristics of staff members and assault in such a

way that lower average hourly rates actually predicted assault. This finding is inconsistent with results presented by Newbill et al. (2010), which suggested that higher average hourly rates of negative verbal responses to inappropriate resident behavior predicted assault. In negative verbal responses, staff members speak to the resident, indicating a negative evaluation of the individual or their previous or current behavior. Such responses reflect limit setting (i.e., when a staff member stops a resident from doing what he or she would like to do). Findings related to this type of aversive staff-resident interaction may prove to be spurious, an artifact of the methods employed in this study. Alternatively, staff members who rarely engage in this type of response may do so only in relatively extreme circumstances that are likely to lead to assault, whereas staff members who often engage in this type of response may do so in response to less extreme circumstances that may or may not lead to assault. Unfortunately, this hypothesis could not be tested because the methods employed in this study did not capture the temporal contiguity of aversive staff-resident interactions and assaults on staff members.

Characteristics of staff members (e.g., age, gender, ethnicity, experience, profession, personality traits, and physical size) likely influence the rate at which staff members engage in aversive staff-resident interactions in several ways. Staff members may interact with residents differently as the result of watching themselves or others do things differently over time, often in the context of a new role or in response to new role demands. For instance, staff members who become parents may begin interacting with residents in much the same way that they interact with their children. If such a change corresponds to an increase in aversive staff-resident interactions, then such staff members may be at increased risk of being assaulted. Staff members might also change how they

interact with residents in response to role contingencies. For instance, supervisors might reward and punish staff members in an effort to shape their interactions with residents over time. Presumably, long-term exposure to specific reward and punishment schedules could result in differences among staff members, making them more or less likely to engage in aversive staff-resident interactions that could lead to assault. Indeed, experiences in the conventional roles of relationships and work can explain changes in personality characteristics (Roberts, Wood, & Caspi, 2008), which may impact the rate at which staff members engage in aversive staff-resident interactions. Additionally, staff members may be traumatized by violence that they experience in the workplace (Flannery, Farley, Rego, & Walker, 2007). Such experiences may alter the ways in which staff members interact with residents, either increasing or decreasing the rate at which they engage in aversive staff-resident interactions, resulting in an increased or decreased risk of being assaulted.

Due to limited availability of data, this study was unable to directly examine a number of potentially relevant variables, including personality characteristics and trauma histories of staff members. Future research should utilize a conceptual framework that includes all previously studied characteristics of both residents and staff members as variables that interact with aversive staff-resident interactions to predict assault. These variables are also likely affected by characteristics of the setting (e.g., facility characteristics, unit characteristics, staff-resident ratios, demands of activities in which residents and staff participate), which should also be examined in future research. Figure 2 represents an expanded conceptual framework that includes all of these variables.
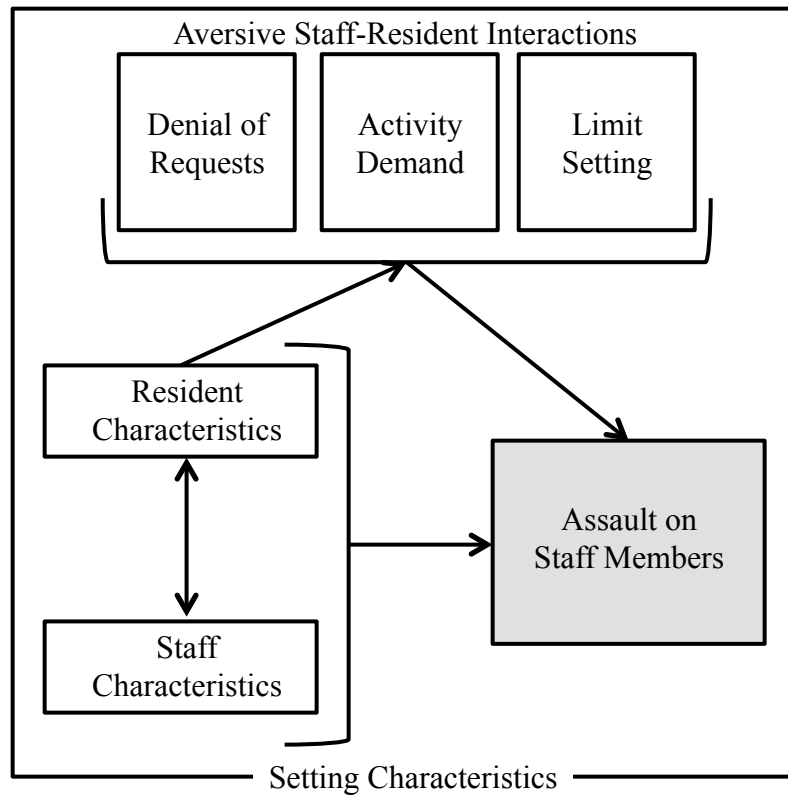
Figure 2. Proposed conceptual framework of characteristics of residents, characteristics of staff members, aversive staff-resident interactions, and assaults on staff members, all of which are likely influenced by characteristics of the setting.

Despite its shortcomings, this study provides valuable information that mental health administrators could use to inform hiring decisions, assess the risk of staff members being assaulted by residents, educate staff members about this risk, and develop training and supervision for staff members in order to prevent assaults. It is important to note that United States law prohibits employers from making hiring decisions on the basis of two of the characteristics of staff members examined in this study, age and gender (*Age Discrimination in Employment Act*, 1967, *Civil Rights Act of 1964*, 1964). Nevertheless, other characteristics of staff members, such as experience, could be used to inform such decisions. The information provided by this study could also be used by mental health administrators to provide targeted training about aversive staff-resident interactions to

staff members who are likely at risk for such interactions as well as being assaulted. Such trainings should focus first on negative nonsocial and negative nonverbal responses to resident behavior, teaching staff members how to set limits and deny requests in a way that minimizes the potentially negative impact on residents. Then, staff members should be taught how to respond to inappropriate resident behavior. The specific therapeutic techniques that staff members are expected to use might depend on the treatment programs in which the staff members work. For instance, staff members might be taught to ignore inappropriate resident behavior in the Social Learning Program, but might be encouraged to validate the emotion behind inappropriate resident behavior when working in a Dialectical Behavior Therapy program (Linehan, 1993).

Meanwhile, mental health administrators cannot monitor aversive staff-resident interactions in treatment programs without the use of evidence-based assessment tools that provide such information. The SRIC is ideally suited for this purpose. Its application to the training and supervision of staff performance is well documented. The Computerized TSBC/SRIC Planned-Access Observational Information System is an approach to ongoing assessment that can provide mental health administrators, program directors, and clinicians with the information needed to implement evidence-based improvements in the quantity and quality of staff-resident interactions (APA/CAPP Task Force on Serious Mental Illness and Severe Emotional Disturbance, 2007; Paul, 2011).

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Appendix A: Bivariate Intercorrelations

Table A1. Bivariate Intercorrelations Among All Variables (N = 541 Staff Members)

	Age	Gender	Psychiatric Aide	Nursing	Rehabilitation Services	Social Services	Psychology
Age	1	-0.01	-0.25**	0.21**	-0.01	0.14**	0.04
Gender	-0.01	1	0.24**	-0.29**	0.00	-0.15**	0.06
Psychiatric Aide	-0.25**	0.24**	1	-0.61*	-0.42**	-0.40**	-0.29**
Nursing	0.21**	-0.29**	-0.61*	1	-0.09*	-0.08	-0.06
Rehabilitation Services	-0.01	0.00	-0.42**	-0.09*	1	-0.06	-0.04
Social Services	0.14**	-0.15**	-0.40**	-0.08	-0.06	1	-0.04
Psychology	0.04	0.06	-0.29**	-0.06	-0.04	-0.04	1
Length of Employment	0.53**	-0.04	-0.21**	0.07	0.07	0.18**	0.03
NNS_AP	0.18**	0.08	0.11*	-0.12**	-0.05	-0.03	0.05
NV_INF	0.10*	0.06	0.15**	-0.18**	-0.11**	0.06	0.02
NNS_INF	-0.13**	0.13**	0.27**	-0.22**	-0.13**	-0.03	-0.03
PS_INF	0.06	0.01	0.06	-0.16**	-0.02	0.11*	0.03
NV_INC	0.00	-0.02	0.03	-0.09*	-0.08	0.08	0.11*
NNS_INC	-0.09*	0.17**	0.19**	-0.21**	-0.07	-0.02	0.03
PS_INC	-0.02	0.00	0.04	-0.11*	-0.07	0.10*	0.07
NV_R	-0.09*	-0.08	0.06	-0.04	-0.02	-0.02	-0.01
NNS_R	-0.01	-0.04	0.14**	-0.04	-0.05	-0.09*	-0.08
Assault	-0.05	0.15**	0.22**	-0.08	-0.13**	-0.12**	-0.07

Note. NNS_AP, NNV_INF, NNS_INF, PS_INF, NV_INC, NNS_INC, PS_INC, NV_R, and NNS_R are SRIC code scores. * *p* < .05. ** *p* < .01. (Table continues next page.)

Table A1. Bivariate Intercorrelations Among All Variables (N = 541 Staff Members) (Continued)

	Length of Employment	NNS_AP	NV_INF	NNS_INF	PS_INF	NV_INC	NNS_INC
Age	0.53**	0.18**	0.10*	-0.13**	0.06	0.00	-0.09*
Gender	-0.04	0.08	0.06	0.13**	0.01	-0.02	0.17**
Psychiatric Aide	-0.21**	0.11*	0.15**	0.27**	0.06	0.03	0.19**
Nursing	0.07	-0.12**	-0.18**	-0.22**	-0.16**	-0.09*	-0.21**
Rehabilitation Services	0.07	-0.05	-0.11**	-0.13**	-0.02	-0.08	-0.07
Social Services	0.18**	-0.03	0.06	-0.03	0.11*	0.08	-0.02
Psychology	0.03	0.05	0.02	-0.03	0.03	0.11*	0.03
Length of Employment	1	0.15**	0.08	-0.08	0.05	-0.01	-0.03
NNS_AP	0.15**	1	0.19**	0.11*	0.16**	0.10**	0.17**
NV_INF	0.08	0.19**	1	0.40**	0.69**	0.39**	0.23**
NNS_INF	-0.08	0.11*	0.40**	1	0.44**	0.35**	0.44**
PS_INF	0.05	0.16**	0.69**	0.44**	1	0.45**	0.31**
NV_INC	-0.01	0.10**	0.39**	0.35**	0.45**	1	0.56**
NNS_INC	-0.03	0.17**	0.23**	0.44**	0.31**	0.56**	1
PS_INC	-0.01	0.20**	0.38**	0.41**	0.57**	0.70**	0.54**
NV_R	-0.01	0.05	0.10*	0.15**	0.04	0.03	0.06
NNS_R	0.04	0.15**	0.10*	0.21**	0.12**	0.19**	0.24**
Assault	0.06	0.15**	0.10*	0.18**	0.13**	0.12**	0.32**

Note. NNS_AP, NNV_INF, NNS_INF, PS_INF, NV_INC, NNS_INC, PS_INC, NV_R, and NNS_R are SRIC code scores. * p < .05. ** p < .01. (Table continues next page.)

Table A1. Bivariate Intercorrelations Among All Variables (N = 541 Staff Members) (Continued)

	PS_INC	NV_R	NNS_R	Assault
Age	-0.02	-0.09*	-0.01	-0.05
Gender	0.00	-0.08	-0.04	0.15**
Psychiatric Aide	0.04	0.06	0.14**	0.22**
Nursing	-0.11*	-0.04	-0.04	-0.08
Rehabilitation Services	-0.07	-0.02	-0.05	-0.13**
Social Services	0.10*	-0.02	-0.09*	-0.12**
Psychology	0.07	-0.01	-0.08	-0.07
Length of Employment	-0.01	0.04	0.04	0.06
NNS_AP	0.20**	0.05	0.15**	0.15**
NV_INF	0.38**	0.10*	0.10*	0.10*
NNS_INF	0.41**	0.15**	0.21**	0.18**
PS_INF	0.57**	0.04	0.12**	0.13**
NV_INC	0.70**	0.03	0.19**	0.12**
NNS_INC	0.54**	0.06	0.24**	0.32**
PS_INC	1	0.00	0.17**	0.16**
NV_R	0.00	1	0.23**	0.10*
NNS_R	0.17**	0.23**	1	0.11*
Assault	0.16**	0.10*	0.11*	1

Note. NNS_AP, NNV_INF, NNS_INF, PS_INF, NV_INC, NNS_INC, PS_INC, NV_R, and NNS_R are SRIC code scores. * $p < .05$. ** $p < .01$.