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I am submitting herewith a dissertation written by Kimberly McClure Cassie entitled “The Effects of Nursing Home Organizational Culture and Climate on Employee and Resident Outcomes.” I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Social Work.

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The Effects of Nursing Home Organizational Culture and Climate
on Employee and Resident Outcomes

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Kimberly McClure Cassie

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DEDICATION

In loving memory of Lula Mae Pennington, my great-grandmother, a nursing assistant and the first nursing home resident I ever visited and Robert D. Welsh, Jr., my “Papaw,” who I miss more than words can say.

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ABSTRACT

The organizational context of nursing homes is examined through a comprehensive review of scholarly literature and an original study of the association between organizational social context and outcomes in a sample of 27 nursing homes, 1,114 nursing home employees, and 3,927 nursing home residents. The study hypothesizes that nursing homes with more positive cultures and climates will have: 1) better employee morale; 2) less staff turnover; and 3) better resident health and psychosocial functioning. This research confirms the existence of particular culture and climate profiles in the nursing home industry. Results of Hierarchical Linear Modeling analyses reveal that nursing homes with more positive climates enjoy higher employee morale and better resident outcomes. Findings from this study have implications for organizational change strategies to create organizational social contexts that contribute to improved services for nursing home staff and residents.

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

We know that human service organizations affect the quality and outcomes of the services they provide, but there is very little empirical evidence about organizational context of nursing homes and the impact of organizational context on resident outcomes. There is anecdotal evidence of the link between the social contexts created by nursing homes and the services they provide. For example, consider two typical nursing homes in a metropolitan area. Both facilities were built within the last 5 years and are aesthetically pleasing with modern furnishings. Both facilities serve 130 residents with similar characteristics and acuity levels. Both facilities have the same number and type of staff, with similar benefit packages, and both facilities adhere to the same state and federal regulations regarding resident care. Yet each has a very different reputation in the community. One facility receives positive feedback from residents and their families, while the other is bombarded with complaints. One facility is more attentive to the needs of residents and their families, while the other is more concerned with making sure paperwork is in order. Staff at one facility are generally happy and content, while the other facility has staff turnover rates in excess of 100% in a given fiscal year. What is different about these two facilities that are providing the same service, to the same type residents? Grau and Wellin (1992) conducted a qualitative study of two skilled nursing facilities in the Midwest to address the question of how two facilities, providing the same services, to the same type of residents, can have such different cultures. The authors concluded that the organizational context of the two facilities and the relationship among family members,

residents, and nursing assistants, affected the facilities responses to regulations, and the quality of life and quality of care provided to residents.

The experiences of older adults in nursing homes should be of particular concern to social workers. Disabled older adults dependent upon the care and services provided in nursing homes are among the most vulnerable population in our society. The social work code of ethics emphasizes several core values including the dignity and worth of individuals and the importance of human relationships (NASW, 1999). The organizational context in which care and services are provided in nursing homes can enhance the dignity of residents and build stronger relationships among nursing home staff, residents, and their family members. Moreover, social workers are well positioned to become change agents (Iecovich, 2000) to improve the organizational context of American nursing homes.

Because the historical framework of nursing homes forms a basis for understanding the organizational culture and climate that has prevailed in nursing homes, a brief historical review of the emergence and development of nursing homes in the American society is presented first. Next, the current state of nursing homes across the country is reviewed with emphasis on how the historical context has contributed to current nursing home practices. A discussion of the organizational context of nursing homes, including organizational culture, psychological climate and organizational climate, with attention to how these constructs affect outcomes for nursing home employees and residents concludes the introduction.

A Historical Review of Nursing Homes in America

For centuries, Americans provided food, shelter, personal care and health care to older adults in need of assistance due to poverty, declining health, and increasing physical and mental

health needs. While only about three percent of the population in early colonial America were older adults, the aged tended to be honored and revered (Fischer, 1977). Older adult males who owned property often provided shelter and financial security to adult children residing with them (Barrow, 1986; Fischer, 1977) and in return, adult children cared for aged family members when health declines made them dependent upon others (Haber & Gratton, 1994). At death, property was transferred to adult children and specific provisions were generally written into wills to ensure the aged matriarch was cared for, if she was still alive (Haber & Gratton, 1994). These practices often guaranteed older adults with offspring and property would receive care in later life, if necessary.

Poorhouses

Unfortunately, not every aged member of colonial America was a property owner. The aged poor were looked at with scorn and contempt (Barrow, 1986), but colonists provided food, wood, and money for shelter in the form of outdoor public relief to those in need (Haber & Gratton, 1994). In the 18th century, outdoor public relief was replaced with the provision of food and shelter for the “worthy poor,” a status readily bestowed on the aged poor in community poorhouses (Haber, 1993; Haber & Gratton, 1994). Poorhouses were integrated institutions providing shelter to individuals of all ages and all levels of physical and mental health (Haber, 1993). Juvenile delinquents, the aged, orphaned children, the sick, and the mentally ill shared poorhouse accommodations and suffered the public shame of being poor (Haber, 1993). Some have suggested poorhouses were precursors to the concept of long-term residential care, like that provided in modern nursing homes (Thomas, 1996).

In the 1800's attitudes toward older adults in general began to change. For the most part, families continued to cohabitate and sacrificed to care for older family members (Haber, 1993; Moen & Gratton, 1999), but with the onset of industrialization, young men were no longer dependent on their aging parents for their livelihood and financial means (Barrow, 1986). Young men moved from family land in rural areas to urban cities where they could create their own destiny and pursue the "American dream." Meanwhile, many older adults suffering with declining health and the absence of family support retired from manual labor in rural areas (Barrow, 1986). Industrialization shifted the focus from the extended family to the immediate family (Haber, 1993; Moen & Gratton, 1999) leaving many older adults neglected, without an income (Barrow, 1986), and in fear of the poorhouse (Haber & Gratton, 1994), despite the fact that only about two percent of all older adults resided in poorhouses at that time (Haber, 1993).

The fear and shame associated with poorhouses contributed to the 19th century movement to reform them. According to Haber (1993) poorhouse reform began with the removal of individuals who were capable of reform and those that could benefit from rehabilitation. The deaf, blind, and mute were transferred to special institutions, juvenile delinquents to reformatories, the ill to hospitals, children to orphanages, and the mentally ill to asylums. The result was a decrease in the general population of poorhouses, but an increase in the percentage of older adults residing in them. Older adults were viewed as biding their time until death and, therefore, not able to be rehabilitated. Haber (1993) indicated that advocates for institutional reform began to refer to poorhouses as concentration camps for the elderly. Private homes for the aged sponsored by churches and ethnic groups emerged in the late 1800s as advocates began

looking for alternatives to the institutionalization of older adults in poorhouses (Haber, 1993; Haber & Gratton, 1994).

The Great Depression of 1929 left many elders in poverty and with few options other than the poorhouse. Politicians, capitalizing on this fear, further perpetuated the idea that life in the poorhouse was a possibility for anyone (Haber & Gratton, 1994). As a result, politicians were able to gain support for a number of programs, such as the Social Security Act of 1935. Social Security was presented as a move toward the deinstitutionalization of some of the aged residing in poorhouses and the answer to aging in an industrial society. Others, however, contend the creation of Social Security contributed to the rapid growth of the private nursing home industry (Emerzian & Stamp, 1993). Stotsky and Stotsky (1983) reported that between 1939 and 1978 nursing homes grew from 1,200 facilities with a capacity to serve 25,000 individuals to 18,722 facilities with a capacity to serve 1.3 million individuals. The rising cost of care and reports of poor care in nursing homes resulted in amendments to the 1950 Social Security Act that created a federal licensing program for nursing homes (Emerzian & Stamp, 1993). Enforcement of the licensing regulations was loosely monitored and became the responsibility of state governments.

“Medicalization” of Aging

With the creation of Medicare and Medicaid in 1965, aging came to be viewed as a medical problem (Estes & Binney, 1989; Azzarto, 1986). Nursing homes that wanted to receive Medicare and Medicaid funding were required to comply with standards of care. Any facility that failed to meet newly created standards faced potential monetary penalties for substandard care. The medical model of aging, or “medicalization,” viewed advanced age as a disease in

need of treatment by the medical community rather than by family members (Lyman, 1989). Medicalization made nursing homes a place for older adults to come for medical treatment as they awaited death. The social aspects of life were largely ignored. For example, a lifetime dog owner might be forced to relinquish a beloved pet in order to maintain a sterile living environment in the facility, children may have been discouraged from visiting to minimize the risk of infection, and residents were required to conform to the schedule of the facility with specific times to sleep and eat.

Estes & Binney (1989) suggested the medicalization and treatment of old age as an acute condition was in conflict with the chronic conditions of many older adults and the ongoing care they needed. They argued that the medical model of care encouraged older adults to become withdrawn and dependent on others due to the biological process of aging without thought to their psychosocial needs. As a result, the medicalization of aging created a new multi-billion dollar medical industry that introduced complicated diagnostic procedures, therapeutic treatment interventions, compliance expectations, and control through medication in nursing homes (Estes & Binney, 1989). Dependency was encouraged and older adults who expressed self-determination were labeled as noncompliant (Lyman, 1989). Family members and health care providers often encouraged the dependence of elders by making decisions on behalf of older adults without their consultation. As a result, power relationships were created between caregivers and older adults that continue to exist in many facilities today.

Nursing Home Reform

In 1972, *Wyatt v. Stickney* resulted in the relocation of individuals with disabilities from state mental health facilities to less restrictive residences (Marchetti, 1983). As a result, only

those who were a danger to themselves or others remained in state mental health facilities. The nursing home industry responded to legal decisions to deinstitutionalize state mental health facilities with political pressure to have older state mental hospital patients transferred to private, for-profit, nursing homes (Donahue, 1978); transinstitutionalization rather than deinstitutionalization. Donahue suggested 50% of the patients discharged from state hospitals were transferred to nursing homes, increasing the number of demented elderly in nursing homes.

While nursing homes might have appeared to be a less restrictive residential option than state mental health facilities, most nursing facilities were not designed to care for people with dementia, mental illness and behavior problems that often accompany such disorders (Streim & Katz, 1994). As a result, nursing homes began to mimic some of the practices that had been criticized in state mental health facilities. For example, nursing homes compensated for their inadequacies with widespread use and abuse of chemical and physical restraints (Streim & Katz, 1994). As a result, the culture of state mental health facilities was imported into nursing homes.

Advocates began to call for nursing home reform and the deinstitutionalization of nursing homes in the mid 1970s (Allison-Cooke, 1982; Streim & Katz, 1994). Allison-Cooke (1982) noted a disproportionate number of nursing home residents were not in need of the skilled services provided in nursing facilities. Instead, many institutionalized older adults could have functioned at a lower level of care commonly found in residential settings and congregate housing sites, or independently with home health assistance. Many families, however, were not willing to assume the responsibility of care for older adults and the nursing home industry was reluctant to discharge residents to the community without family support and few affordable alternatives to institutionalization were available. Where community-based services could be

found, it was unlikely that Medicare and/or Medicaid would reimburse providers for the necessary custodial services to maintain an older adult within the community for an extended period of time.

Federal agencies responded with more regulations. In 1977 the Health Care Financing Administration (HCFA, now the Centers for Medicare and Medicaid, or CMS) expanded nursing home regulations to include provisions for quality of life and resident rights, including the right to form a resident council, right to privacy, and the right to participate in the care planning process. During the Reagan administration of the 1980s, there was a push for the deregulation of many industries, including the nursing home industry. In response to the threat of deregulation, the Institute of Medicine (IOM) and Congress conducted an extensive investigation. The investigation revealed that while Medicare and Medicaid costs were rapidly growing, nursing homes across the country were plagued with poor quality of life, substandard quality of care, inadequately trained staff, and severe individual right violations, including discrimination against Medicaid recipients. Federal regulations appeared to be ineffective at improving life in the nursing home for residents, but the number of federal violations increased. A report released by the IOM in 1986 did not support the Administration's desire to deregulate the nursing home industry. Instead the IOM proposed, and Congress passed, the Omnibus Reconciliation Act of 1987 (OBRA 87).

OBRA 87 resulted in the most stringent regulatory oversight of nursing facilities since the creation of Medicare and Medicaid in 1965 (Emerzian & Stampp, 1993). OBRA 87 created comprehensive performance-based standards that must be met in order for a facility to receive reimbursement from Medicare and Medicaid for services provided to beneficiaries (Lowe,

Lucas, Castle, Robinson & Crystal, 2003; OBRA, 1987; Shankroff, Miller, Feuerber, & Mortimore, 2000; Wiener, 2003). Additional rules regarding the provision of medically related social services, resident assessments, quality of life, quality of care, resident's rights, social services, nurse aide training, and admission/discharge policies to protect against Medicaid discrimination were added as a result of OBRA 87 (Emerzian & Stampp, 1993; OBRA, 1987). Federal regulations now controlled almost every aspect of nursing home care and established the Preadmission Screening & Annual Resident Reviews (PASARR) process to assess the appropriateness of placement for people with mental retardation and/or mental illness in nursing facilities (Streim & Katz, 1994).

These historical developments explain in part the organizational context in which care and services are provided in nursing homes today. The social context (e.g., organizational culture and climate) that was pervasive in poorhouses and state mental health facilities was imported to nursing homes. The result has been the creation of restrictive environments based on authoritarian policies and procedures designed to keep facilities in compliance with basic state and federal regulations. Innovation and excellence are not rewarded and the social context of aging has been largely ignored. Just as poor elders in the 1800s were left with no option other than poorhouses, Medicare and Medicaid provide poor elders today with few alternatives to nursing homes. Nursing homes seem to have become a dreaded place of residence for numerous poor elders as many would prefer to receive care and services in their home (Eckert, Morgan & Swamy, 2004) and a dreaded place of employment for many health care professionals as evidenced by high staff turnover rates and staff vacancies (American Health Care Association,

1999; Cohen-Mansfield, 1997; Gruss, McCann, Edelman, & Farran, 2004; National Association of Geriatric Nursing Assistants, 2001.)

The Current State of Nursing Homes

It is estimated that over 40% of older adults will spend some time in a nursing home (Weiner & Stevenson, 1997). According to CMS (2006), most nursing home residents are female (67%), Caucasian (84%) and aged. At any given time, a little over 7% of those over the age of 65 and almost 25% of those over 85 are in a nursing home (CMS, 2006).

While the majority of nursing home beds today are occupied by individuals residing in the facility on a long-term basis, almost 92% of nursing home residents are discharged from the facility within three months (Decker, 2005). High discharge rates can be attributed to the emergence of Medicare sub-acute units providing intensive clinical care to short-stay residents. Because of restrictive Medicare guidelines, Medicare only reimburses providers for up to 100 days of skilled nursing or skilled rehabilitative care per resident, following a qualifying hospital stay. When a resident no longer requires skilled nursing or skilled rehabilitation, the resident is discharged to a lower level of care. High discharge rates suggest nursing homes are providing short-stay residents with intensive clinical care and social workers are likely to spend a great deal of time involved in admission assessments, care planning and discharge planning activities.

In 2005, almost one third of nursing home residents had no impairments in their activities of daily living (bathing, dressing, grooming, toileting, eating), 26% had one to three impairments, and 42% had four to five impairments (CMS, 2006). A little over a third of nursing home residents were also incontinent of bowel and/or bladder. In addition to providing care and services to aid residents with physical limitations, nursing homes must also attend to the needs of

residents with memory disorders. CMS (2006) reported that 30% of residents had no cognitive impairments, 26% had mild cognitive impairments, 24% had moderate cognitive impairments, and about 20% had more than moderate to severe cognitive impairments. These statistics suggest residents are dependent upon staff for a variety of needs and resident satisfaction has been linked to care needs. In a study of over 77 nursing home units in 51 Wisconsin nursing homes, Kruzich, Clinton and Kebler (1992) found that residents with higher care needs reported lower levels of satisfaction with nursing homes than those with less care needs.

While residents share a number of common characteristics, such as those mentioned above, it is important to recognize the individual nature of each resident. Personality traits and life experiences make each resident unique. As such, an intervention that works well for one resident may not be effective with others. Some residents may be early risers, others might be night owls. Some may get along well with other residents and staff, others may be more reclusive. Care and services provided in an assembly-line fashion fail to recognize the individual nature of each resident and cannot enhance the dignity and well-being of individuals receiving care in nursing homes.

Nursing home staff typically include administrators, nursing staff, social workers, skilled physical, occupational and speech therapists, dietitians, recreational therapists, housekeepers, dietary aides, administrative assistants, and accountants. Most nursing home employees are nursing staff. Sheridan, White and Fairchild (1992) estimated that 71% of nursing staff was comprised of nursing assistants and others have estimated that nursing assistants provide 80-90% of all direct care to residents (Galloro, 2001). The compensation for nursing assistants ranges from \$5.45/hour to \$12.00/hour with an average compensation of \$7.00/hour, placing many near

the national poverty level (Fitzpatrick, 2002). This is important because nursing assistants are the primary employees with whom most residents spend the greatest amount of time, yet most nursing assistants have only a minimum amount of education and training to prepare them for their job responsibilities.

Job responsibilities of nursing assistants can be physically and mentally challenging (Fitzpatrick, 2002; Gruss et al., 2004; Trinkoff, Johantgen, Muntaner & Rong, 2005). The provision of personal care to residents can require a great deal of lifting and bending as they provide perineal care to incontinent residents, assist residents with dressing, change soiled linens, and transfer dependent residents from bed to chair or chair to toilet. Caring for the terminally ill and dealing with behavior problems that can accompany dementia disorders, such as resistance to care, paranoia, wandering, and repetitive questions or statements can take a toll on the mental and emotional state of many nursing assistants. According to the Bureau of Labor Statistics (1998) nursing homes ranked third among all industries for workplace injuries, behind truck drivers and laborers. In addition, nursing assistants have a high risk of becoming the victims of workplace violence (Bureau of Labor Statistics, 1994). In a study by Gates, Fitzwater and Succop (2003), during 80 hours of work in six Ohio nursing homes, 71% of nursing assistants surveyed reported 624 assaults by residents with 31 injuries incurred as a result of these assaults. Assaults included hitting, pinching, grabbing, pulling hair, kicking, scratching, biting, spitting, and throwing objects. Most assaults occurred during the provision of daily care. Eighty-seven percent of residents who perpetrated assaults suffered from dementia. Nursing assistants who were assaulted reported increased amounts of job strain and anger, but it is unknown whether these feelings contributed to the assault in the first place or emerged as a result of the assault.

Authors speculated that the delivery of care and services in a rushed, assembly-line manner may have contributed to incidents of resident assault (Gates et al., 2003).

The staffing ratio of nursing assistants to residents has been reported to be between 1:10 and 1:30 (Riggs & Rantz, 2001). While a ratio of 1:10 might be manageable, with a ratio of 1:30 it is not likely that nursing assistants can provide individualized care to residents under such heavy workloads. Routinized, assembly-line care may be efficient in some industries, but residents have unique personalities, life experiences and needs that require individualized care. Trinkoff and colleagues (2005) reported that the injury rate for staff decreased by almost 16% with every one hour increase in nursing care. This suggests that if staff are able to provide unrushed, individualized care, residents may respond better to staff. For example, if a staff member is trying to provide incontinent care to a person with dementia in a rushed manner, the person with dementia may construe the employee's attempt to provide personal care as an act of aggression or sexual assault. In this case, the person may fight back or resist care. If, however, the employee is able to take their time with the resident, and explain what they are doing while slowly and gently assisting the resident, the interaction between the resident and the staff member can be interpreted as a helpful, positive interaction with little to no resistance to the care the staff member is attempting to provide.

Job satisfaction among nursing home employees has received considerable attention regarding its relationship with staff turnover. A number of variables have been associated with decreased job satisfaction and increased turnover. Among these variables are inadequate compensation, benefits, respect, recognition, opportunities for career advancement, resources, autonomy, and role clarity (Alexander, Lichtenstein, Oh & Ullman, 1998; Banaszak-Holi &

Hines, 1996; Gruss et al., 2004; Quadagno & Stahl, 2003; Remsberg, Armacost & Bennett, 1999). Other variables associated with high turnover and dissatisfaction include excessive demands, workloads and work hazards, as well as poor work environments characterized by rudeness and uncooperativeness among coworkers and supervisors (Alexander et al., 1998; Cohen-Mansfield, 1989; Quadagno & Stahl, 2003; Remsberg et al., 1999).

There is an estimated shortage of approximately 200,000 nursing assistants (National Association of Geriatric Nursing Assistants, 1999), making it easy for an employee to leave one nursing home and begin working in another facility that they perceive to have a better working environment immediately, or seek a job outside of the medical field that may compensate them at comparable rate with less demands (Quadagno & Stahl, 2003). There is a great deal of disagreement in the scholarly literature on the actual turnover rate among nursing assistants. Turnover rates ranging from 71% to 400% have been reported (American Health Care Association, 1999; Cohen-Mansfield, 1997; Fitzpatrick, 2002; Gruss et al., 2004; Maas, Buckwalter & Specht, 1996). These excessive turnover rates can have economic consequences for providers (Kazemek & Shomaker, 1990; Riggs & Rantz, 2001; White, 1995). The estimated cost to replace one nursing assistant is between \$3,000 and \$7,500 (Gruss et al., 2004). Excessive turnover rates can also result in heavier workloads and increased job strain for remaining employees until replacements can be recruited and trained. As a result, resident care and dignity can be compromised (Riggs & Rantz, 2001). In addition, staff turnover has been associated with decreased satisfaction among residents (Banaszak-Holi & Hines, 1996; Kruzich et al., 1992). In a study of 55 Wisconsin nursing homes, high turnover rates among the director

of nursing, registered nurses and social workers was found to be associated with lower resident satisfaction (Kruzich, et al., 1992).

Efforts to Improve Nursing Homes

The goal of many is to improve care and services provided in nursing homes today. A variety of efforts to improve life in nursing homes for residents and staff have been attempted. Wiener (2003) of the Urban Institute categorized attempts at improving nursing home outcomes into three types of strategies: regulations, internal incentives, and external incentives.

Regulations

The first strategy Wiener (2003) discussed was the use of regulations establishing minimum standards of care that nursing homes must provide to residents. Today, the nursing home industry is one of the most regulated industries in America (Zhang & Grabowski, 2004). OBRA 87 remains in effect. However, in response to a 1996 report to Congress, HCFA reported that resident care needed to be improved. As a result, the Nursing Home Initiative of 1998 was put into place requiring surveyors to more thoroughly scrutinize the prevalence of pressure ulcers, malnutrition, and resident abuse during survey inspections (Shankroff et al., 2000). The Nursing Home Initiative also requires state agencies to vary survey schedules to decrease the predictability of unannounced inspections and at least 10% of all surveys must be initiated in the late evening, early morning, or weekends. State agencies are also required to survey poor performing facilities more frequently than others and complaints against any facility alleging harm must be investigated by state agencies within ten days. Additional requirements that emerged from the Nursing Home Initiative include continuing education of surveyors and evaluation of state agency performance (Shankroff et al., 2000).

Facilities undergo a full standard survey every nine to fifteen months (OBRA, 1987). Full surveys are unannounced and conducted on-site by a team of state surveyors. During survey inspections, teams of nurses, dietitians, pharmacists, and social workers visit facilities for several days. Surveyors conduct additional inspections when formal complaints are made to the state survey agency (OBRA, 1987).

To assess facility compliance with federal and state regulations, surveyors observe staff providing care, interview residents, their families and staff, and review medical records and facility policies (OBRA, 1987). Among the consequences for failing to meet minimum standards mandated by OBRA 87 are state directed training, monetary penalties, suspension of admissions, or closure of a facility (OBRA, 1987). Facilities that repeatedly harm residents are referred for immediate sanctions. Between January, 2000 and March, 2002, close to 3,000 facilities were referred for an immediate monetary penalty, over 1,200 were denied payment for new admissions, 345 received directed training, 26 were terminated from the Medicare and Medicaid programs, 2 were denied payment for all residents, and one facility was closed (Government Accounting Office, 2003).

While federal regulations have not established minimum staffing ratios, some states have implemented more stringent staffing requirements for nursing homes. Florida, for example, has passed two major pieces of legislation aimed at improving nursing home care. In 1999, Florida House Bill 1971 allocated \$32 million in Medicaid funding to increase nursing home staffing. Funds were also to be spent on efforts to recruit and retain direct care staff in nursing homes. In 2001, Florida passed additional legislation requiring an increase in the frequency of state regulatory surveys and more stringent penalties for facilities not in compliance with regulatory

requirements (FL SB 1202). The bill also required nursing home staff and regulators to receive additional training.

Polivka, Salmon, Hyer, Johnson, and Hedgecock (2003) conducted an exploratory study to see what effects, if any, Florida's legislation had on quality of care and quality of life in Florida nursing homes. Using secondary data collected during state inspections and facility self-report, Polivka and colleagues (2003) measured quality of care and quality of life based on the number of deficiencies identified during state inspections. Those with fewer deficiencies were thought to provide a better quality of care and quality of life for residents than those with higher numbers of deficiencies. Researchers hypothesized that facilities meeting minimum staffing levels would have fewer deficiencies than facilities that did not meet the minimum staffing standards. Researchers considered facilities with a deficiency in the area of staffing as being out of compliance with minimum staffing levels.

Polivka and colleagues (2003) found that facilities with higher numbers of residents suffering with dementia or feeding tubes had fewer deficiencies, while those with higher numbers of residents suffering from incontinence or pressure ulcers were more likely to have increased deficiencies. Researchers also found that an increased ratio of Medicaid residents was strongly associated with increased deficiencies. In other words, facilities with more Medicaid residents were more likely to have a deficiency than those with fewer Medicaid residents. It is important to note that while in the human service sector, not-for-profit agencies may tend to serve higher numbers of Medicaid recipients, in the long-term care industry the reverse seems to be true. Many not-for-profit nursing homes tend to be private organizations catering to affluent elders who are able to pay privately for long-term care.

Staffing deficiencies as a measure of adequate staffing is a particular concern. The Code of Federal Regulations (CFR § 483.30) provides the following instructions to surveyors:

§ 483.30(a) and (b) [sufficient staff and registered nursing regulations] are to be reviewed during the standard survey whenever quality of care problems have been discovered...In addition, fully review requirement for nursing services during an extended survey...

An extended survey is only conducted when quality of care or quality of life deficiencies are cited that result in immediate jeopardy to the residents' health or safety or widespread actual harm to residents. In other words, a facility will not be cited for a staffing violation unless a significant number of quality of care or quality of life deficiencies have been observed. While relying solely on deficiency data from state inspections is a convenient data source, it is an insufficient and incomplete measure of quality and staffing in nursing homes.

Regulations have improved the care and services provided in nursing homes. The incidence of pressure sores, resident abuse and restraint usage have decreased in recent years (CMS, 2006). Despite these improvements, the quality of life in nursing homes remains poor for many residents. It is important to emphasize that regulations are not typically based on evidence-based best practices and tend to emphasize process and paperwork over resident outcomes (Wiener, 2003). Some have suggested that regulations stifle innovation by failing to provide facilities with an incentive to do more than comply with minimal standards (Wiener, 2003). The efforts of facilities that perform above minimum thresholds are not rewarded or recognized. Additionally, as Wiener (2003) points out, monetary penalties against nursing

homes take money away from staffing, resident care and general operating costs, which seems contrary to the original intent of the regulations.

Internal Strategies

Another strategy to improve nursing home outcomes is the use of internal strategies (Wiener, 2003). Internal strategies are efforts made by individual facilities to improve nursing home care and services. Three popular internal strategies include the creation of evidence-based practice protocols, culture change movements and efforts to improve staffing issues.

Practitioners, advocacy groups, and academics have attempted to develop evidence-based practice protocols to deal with issues such as incontinence, restraints, pressure ulcers, and pain (Wiener, 2003). While progress toward the development of quality of life protocols that facilities can implement are lacking, several culture change models have gained popularity with policy makers, advocacy groups and practitioners in the past several years. Movements such as the Eden Alternative, the Wellspring Model, and the Pioneer Network have done much to further the awareness of nursing home cultures.

The Eden Alternative attempts to combat loneliness, helplessness, and boredom with the infusion of living organisms, such as plants, animals, and children, into facilities by creating human habitats (Thomas, 1996). The Wellspring Model seeks to create a family atmosphere in nursing homes where staff are empowered to make key decisions about the delivery of care to residents. A key component of the Wellspring model involves the use of permanent staff assignments to particular residents and the use of teams (Kehoe & Van Heesch, 2003). The Pioneer Network advocates for systemic change in nursing home cultures to move facilities from medical models of care that are focused on the provision of treatments and rigid routines, to

community models of care focused on spontaneous activity, relationships and individualized care (Fagan, 2003). Evidence-based studies of such interventions are limited and are often conducted by facility staff without the use of stringent research methods.

Some nursing homes have tried to improve life in their facilities by increasing staffing ratios. Kramer and Fish (2001) reported the findings of a study on staffing ratios and the provision of quality care. With an increase in staff, some improvements in quality were noted up to a certain threshold, but staffing above the identified threshold had no effect. Similarly, Zhang and Grabowski (2004) were unable to identify an association between quality and staffing ratios except in poor performing facilities. These findings suggest increasing staffing ratios alone will not achieve the highest possible quality in nursing homes (Kramer & Fish, 2001; Zhang & Grabowski (2004).

In an effort to enhance relationships between residents and staff, some facilities have chosen to make permanent staff assignments where the same staff members are assigned to provide care on the same units, to the same residents week after week. Other facilities make rotating staff assignments where employees are randomly assigned to different units and the burden of caring for residents with greater care needs or behavior problems is distributed among staff. Burgio, Fisher, Fairchild, Scilley and Hardin (2004) found no significant differences in the quality of care provided in facilities with permanent staff assignments and those with rotating staff assignments. The authors did, however, find that staff with permanent assignments tended to have greater job satisfaction.

External Strategies

The final strategy discussed by Wiener (2003) was the use of external incentives to improve nursing homes. Wiener explains that external incentives include activities such as increasing Medicare and Medicaid reimbursements to nursing homes in order to increase wages and improve staffing ratios. Another external strategy can be found in amendments to the Older Americans Act in 1978. These amendments required each state to create a nursing home ombudsman program to advocate for the rights of residents and negotiate the resolution of resident complaints without penalties to the nursing home industry. Complaints that cannot be successfully negotiated by the state ombudsman program can be referred to state survey agencies for investigation. External incentives also include educating consumers. An example of this can be found in the creation of Medicare.gov, a website where consumers can compare nursing homes based on specified characteristics of the resident population, such as the prevalence of incontinence, depression, and pressure sores. The website also allows consumers to compare facilities based on deficiencies found during state inspections. Provision of such information allows consumers to make more educated decisions when choosing a facility.

Regulations, internal strategies and external strategies appear to have improved nursing home quality somewhat (CMS, 2006; Kramer & Fish, 2001), but more can be done to improve nursing home care and to create caring relationships among employees, residents and their families. Reform efforts to date have failed to consider options that might improve the organizational social context of nursing homes. As you will see, many of the issues discussed to this point, including the prevalence of burdensome regulations, the depersonalization associated with the medicalization of aging, the transference of organizational cultural values and practices

from mental health facilities into nursing homes, and the presence of stressful workloads, factor into the organizational social context of nursing homes. Many of the reasons for high turnover rates and poor employee job satisfaction, including the absence of respect, recognition, opportunities for advancement, role clarity, and team work, are components of a nursing home's organizational social context. The assessment of the organizational social context of nursing homes and its relationship with employee and resident outcomes is the focus of the study described here. After learning more about the organizational context of nursing homes we can begin to develop improvement efforts aimed at creating work environments for staff and living environments for residents that promote optimal service outcomes.

The Organizational Social Context of Nursing Homes

Organizational social context includes the culture, climate and work attitudes that characterize an organization. We know that organizational social context varies among organizations providing similar services in various human service areas, such as child welfare, juvenile justice, mental health, and health, and there is evidence that several dimensions of social context effect service quality and outcomes (e.g., Glisson & Hemmelgarn, 1998; Glisson, Landsverk, et al., 2008; Glisson, Schoenwald, et al., 2008). However, very little empirical research has been conducted on the social context of organizations providing nursing home care, and little is known about the relationship between social context and service outcomes in these facilities.

Organizational Culture

Organizational culture dictates how a facility responds to a variety of factors, such as state and federal regulations, threats of litigation, negative media attention and the expectations

of key stakeholders (governing board, residents and their families, staff, etc). In recent years culture change movements in nursing homes have gained momentum among policy makers, advocacy groups, and nursing home administrations (Barkan, 2003, Fagan, 2003; Kehoe & Heesch, 2003; Thomas, 1996); but, researchers have failed to arrive at a commonly accepted definition of culture within nursing homes. Indeed, some have not even defined the concept at all, but instead launch into discussions of what needs to be done in order to change this undefined concept (Boyd, 2003; Brennan, Brancaccio, & Brecanier, 2003; Hagy, 2003; Holmes & Ramirez, 2003; Kehoe & Van Heesch, 2003; Norton, 2003; Rader & Semradek, 2003; Ronch, 2003; Vladeck, 2003). Some have turned to the dictionary for a definition of culture (Fahey, 2003), while others have talked about culture change in terms of competency and diversity issues that go into shaping an individual's identity (Levine, 2003; Martin & Bonder, 2003). Others have defined culture from an anthropological perspective (Barkan, 2003; Redfoot, 2003; Tobin, 2003), while some have turned to organizational literature for a conceptualization of culture in nursing homes (Gibson & Barsade, 2003; Hegeman, 2003).

Definitions of culture from an anthropological perspective appear to focus more on the environment's relationship to nursing home residents. Redfoot (2003), for example, discusses culture based on a definition provided by Keith (1982) whom Redfoot describes as an anthropologist. Keith defines culture as a "design for living," "a filter of patterns and meanings which defines the environment – physical, social, and cognitive – in which we live" (Keith, 1982, p. 111). Similarly, Tobin (2003) speaks about the desire to create *humanistic cultures* in nursing homes, which the author defines as "environments in which all elements enhance the humanity, the essential individuality, of its inhabitants" (p. 54). Barkan (2003) advocates for the

development of *living cultures* where, “people who are an integral part can achieve their greatest possible potential, by bringing past, present and future into harmony” (p. 198-199).

Definitions of culture in nursing homes from an organizational perspective focus more on the shared values, beliefs, and expectations of employees that determine how job responsibilities are accomplished (Gibson & Barsade, 2003; Hegeman, 2003). Even within the organizational literature experts have struggled to arrive at a commonly accepted definition of organizational culture. In a comprehensive review of organizational culture and climate studies, Verbeke, Volgering and Hessels (1998) found 54 different definitions of culture among published works. Most seem to agree culture is a property of an organization, not of an individual within the organization (Verbeke et al., 1998). Many researchers also agree that definitions of organizational culture involve the shared beliefs, expectations, and values that guide behavior in an organization (Glisson, 2002; Glisson, Dukes & Green, 2006; Glisson & James, 2002; Hemmelgarn, Glisson & Dukes, 2001; Hofstede, Neuijen, Ohayv, & Sanders, 1990; Verebeke et al, 1998; Wilkins, 1984). These shared beliefs, expectations, and values can be seen in symbols used by the organization to communicate approval, rituals used by the organization to measure success, and heroes, real or imagined, who personify a good employee (Wilkins, 1984; Hofstede et al., 1990). Organizational culture is defined here as the norms and expectations that drive behavior within an organization.

Dimensions of Organizational Culture

A number of organizational culture measures have been developed, but few have been developed and tested specifically for human service organizations. The Organizational Social Context (OSC) was developed over 30 years to assess organizational culture in a variety of

human services agencies (Glisson, 1978; Glisson & Durick, 1988; Glisson, Dukes, & Green, 2006; Glisson & James, 2002). The OSC identifies three dimensions of organizational culture: proficiency, rigidity and resistance. Staff members in proficient cultures are expected to be competent, place the well-being of the client first and to be responsive to the needs of each client. This includes the expectation that staff members will be up-to-date on knowledge in their area in order to best serve their clients.

Rigid cultures are characterized by the expectation that employees will make few decisions and closely follow bureaucratic rules and procedural specifications (Glisson & Green, 2006). Staff members are not expected to make decisions or act without the express permission of a supervisor. In rigid cultures work activities tend to be prescribed based on strict policies and procedures that do not allow employees to deviate in their execution of tasks. Most work activities in rigid cultures are likely to follow highly specific policies and procedures that allow little opportunity for individualized care.

In resistant cultures staff members are expected to be apathetic and suppress change within the organization. According to Glisson, Landsverk and colleagues (2008), rather than taking the lead, employees in resistant cultures tend to wait for others to act, they are expected to be critical of change and to maintain the status quo. Resistant cultures are characterized by consensus, subservience, and conformity (Glisson, 2006).

The Relationship between Outcomes and Organizational Culture

Because culture determines the expectations of how job responsibilities are approached, the culture of a facility is expected to affect outcomes for resident and employees. Given that nursing homes must comply with a large number of regulations, they can develop rigid work

environments with strict policies and procedures guiding employee behavior. However, the result can be assembly-line care provided with strict adherence to facility policies and procedures without consideration of the unique needs of each resident. Rigidity in nursing homes can also be observed in the excessive documentation required of nursing home staff. Because of the punitive nature of the nursing home survey process, some facility practices may emphasize documentation in order to provide evidence of facility compliance with regulations (Colon-Emeric, Lekan-Rutledge, Utley-Smith, Ammarell, Bailey, Liven, Corazzini, & Anderson, 2007). Paper work and documentation can be valued above the delivery of individualized care and attention (Colon-Emeric et al., 2007).

The emphasis on documentation and regulation can contribute to less proficient cultures that are not likely to place an emphasis on responsiveness to the individualized needs of residents. In more proficient cultures, care is expected to be more attentive to the unique needs of each resident. There is evidence that staff turnover in nursing homes may be lower in nursing homes with proficient cultures and higher turnover has been linked with poor nursing home quality (Castle, Engberg & Men, 2007).

According to a study on culture change conducted by Gruss and colleagues (2004) on nursing home units where staff were empowered with education, resources, autonomy, decision-making responsibilities and greater access to resident information, staff were more likely to focus on resident needs, than on their own needs. On empowered units, primary employee stressors revolved around resident issues such as falls, accidents, behavior problems, death and dying issues and depression, whereas on non-empowered units, stressors revolved around poor wages, heavy workloads, staffing issues and conflict with coworkers. These findings suggest that more

proficient cultures may be more employee and results oriented. Proficient cultures may also be more likely to provide better services to residents than traditional nursing home cultures that may be more resistant.

Organizational Climate

Unlike organizational culture, which is a characteristic of the organization, climate is a characteristic of the employee (Brown & Leigh, 1996; Sparrow & Gaston, 1996; Verbeke et al., 1998). Climate can be measured at two levels: psychological climate and organizational climate (James & James, 1989; Glisson & James, 2002). Psychological climate refers to the employee's perception of the impact of the work environment on the employee's own personal welfare.

When employees' in an organization or work unit agree on their perceptions of the impact of their work environment, their shared perceptions represent their "organizational climate."

However, their perceptions remain a property of the individuals in that work environment (James & James, 1989; Glisson & James, 2002; Sparrow & Gaston, 1996). Because climate is a characteristic of the individuals in a work environment, i.e., their perceptions of the psychological impact of that environment on their own well-being, an organizational climate does not exist unless there is agreement among employees on their perceptions. Climate has been found to mediate the relationship between culture and work attitudes and behaviors (Aarons & Sawitzky, 2006).

Dimensions of Organizational Climate

A number of organizational climate measures have been developed, but few have been tested with human service organizations. The OSC includes measures of three dimensions of climate (engagement, functionality, and stress) that have been tested in social service and mental

health service organizations and linked to both service quality and outcomes (Glisson, Landsverk et al, 2008). Engaged climates are distinguished by employee perceptions of personal accomplishment and personalization in their work with clients. Employees in engaged climates perceive that they are doing positive and worthwhile work that positively affects the lives of others. Employees in engaged climates perceive those they serve as individuals with unique needs and indicate that they care about what happens to the clients they serve. Employees in less engaged climates remain emotionally detached from their work and describe their work as depersonalized.

Functional climates are characterized by employee perceptions of cooperation, personal growth, advancement and role clarity in their job responsibilities (Glisson, Landsverk et al, 2008). Perceptions of cooperation develop when coworkers depend on and assist one another in the workplace. Perceptions of growth and advancement develop when employees believe they have the opportunity to move up in the organization and expand their knowledge and expertise. In functional climates, employees believe experience, dedication and hard work are rewarded and opportunities for growth and development are readily available. The roles and responsibilities of employees in functional climates are clearly defined and understood. Employees are clear on the expectations of their superiors, as well as the goals and objectives of their organization. Employees in functional climates are kept informed and up to date about policies and procedures within their organizations. Functional climates exist when employees perceive their organization as a “well-oiled” machine capable of getting the work done and rewarding employees who do their work well.

Emotional exhaustion, role conflict, and role overload are characteristics of stressful climates (Glisson, Landsverk et al, 2008). Emotionally exhausted employees perceive that their work environment is contributing to their fatigue and that they have to work too hard at their jobs. Employees experiencing role conflict feel as though they cannot complete the contradictory demands associated with their job. Employees feel as though things should be done differently at their workplace and, at times, they must bend the rules in order to do their job. Employees experiencing role conflict also feel that their job interferes with their family life. Employees perceive role overload when they feel there are not enough employees or time to do their job.

The Relationship between Outcomes and Climate

Because climate is the employee's perception of the impact of the work environment on his or her own well-being, climate affects an employee's attitudes and behavior at work (Aarons & Sawitzky, 2006; Brown & Leigh, 1996). Nursing assistants who work in positive climates should feel better about their jobs and the residents they serve. Healthy, positive relationships are more likely to exist between staff and clients in engaged or functional climates. Positive employee climates in human service agencies have been positively correlated with more positive employee work attitudes, decreased employee turnover and improved employee involvement, effort, and outcomes (Brown & Leigh, 1996; Glisson & Hemmelgarn, 1998; Glisson & James, 2002; Glisson, 2009; Hemmelgarn et al., 2001).

Because of the tremendous emotional and physical burden that many nursing assistants feel, traditional nursing home work environments are at risk of being stressful work environments. As a result, nursing assistants may be less satisfied with their job or more likely

to prematurely quit their job. An employee in a stressful climate may also be more likely to provide poor care or contribute negatively to the resident's living environment through impatience or neglect.

Chou, Boldy, and Lee (2003) found that staff satisfaction influenced resident satisfaction. Since turnover rates in excess of 400% a year have been reported in some facilities among direct care staff (Riggs and Rantz, 2001), and 43% a year among administrators (Castle, 2001), the role of climate in nursing homes is worthy of consideration. High turnover has been linked with harmful resident outcomes, including increased use of physical and chemical restraints, and increased incidents of pressure sores (Castle, 2001).

Sheridan and colleagues (1992) conducted a study of organizational climate in 25 long-term care facilities in Texas and Florida. Their study included responses from 558 direct nursing staff to a survey of organizational commitment, job tension, cohesion, and perceived interactions with residents. Findings revealed that more positive climates were associated with more successful outcomes. In homes that failed to pass annual state inspections, climates were found to be unsupportive and disdainful of staff. In addition, poor climates created a cycle of unsatisfied employees, decreased quality of care, (Tellis-Nayak & Tellis-Nayak, 1989), and fostered, "...cold, and impersonal feelings and interactions among care providers and the elderly residents" (Sheridan et al., 1992, p. 340).

Knowledge Gaps

Much of the literature discussing culture in nursing homes is theoretical or anecdotal (Fahey, 2003; Gibson & Barsade, 2003; Levine, 2003; Martin & Bonder, 2003; Redfoot, 2003; Ronch, 2003; Tobin, 2003; Vladeck, 2003) or reports on the efforts of only a few facilities with

limited statistical assessments (Barkan, 2003; Boyd, 2003; Brennan, Brancaccio, & Brecanier, 2003; Fagan, 2003; Hagy, 2003; Hegeman, 2003; Kehoe & Van Heesch, 2003; Rader & Semradek, 2003; Thomas, 2003). We need much more empirical research on nursing home culture and climate, particularly research that includes a sample of multiple nursing homes and uses appropriate multilevel statistical analyses to link culture and climate at the organizational level with service outcomes at the individual resident level.

Hypotheses

Culture and climate research in other types of organizations has expanded the knowledge base in a variety of areas, but we have much more to learn about how to apply the conceptualization and operationalization of these concepts to the nursing home industry. Empirical research based on reliable and valid measures is needed so that a model of the organizational context for long-term care facilities can be developed and tested. A rigorous empirical assessment of the organizational contexts of multiple nursing homes is needed to assess the variation in nursing home cultures and climates and the consequences for service quality and outcomes. Until we can fully understand the organizational culture and climate of nursing homes, we will not be able to effectively stimulate culture and climate change and we will not be able to develop effective strategies to enhance the quality of life and quality of care for residents. This research seeks to examine the following three hypotheses: In nursing homes with more positive cultures and climates we expect to find: 1) higher employee morale; 2) less staff turnover; and 3) and better resident outcomes.

CHAPTER 2

METHODOLOGY

To test the study's hypotheses, the OSC was administered to 1,114 employees of 27 North Carolina nursing homes. Resident level data from the MDS was acquired from CMS on residents of these facilities as well. The methodology that follows begins with a discussion of sampling techniques employed to recruit participation from nursing homes and their employees and to acquire resident data. A discussion of variables and measurement instruments used follows with details of data collection procedures. This section concludes with an overview of analysis techniques used in this study. Before hypotheses are examined the question of whether or not nursing homes have unique organizational cultures and climates that can be measured is examined. To answer this question two conditions must be met. First, agreement on culture and climate is examined within nursing homes to determine if aggregate scores of culture and climate can be applied to each facility. Second, variation in culture and climate is confirmed between facilities included in the study. Without variation, there is nothing to examine. Once these conditions are discussed, the study's hypotheses are examined using Hierarchical Linear Modeling.

Sample

Nursing Homes

A convenience sample of North Carolina nursing homes, their employees and their residents was selected. North Carolina was selected because of its convenience as the state of residence for the primary researcher. Using public data from the Centers for Medicare and Medicaid's Nursing Home Compare database and US Census data, a list of North Carolina

nursing homes ($n = 421$) was created. Facilities that were not dually certified to receive both Medicare and Medicaid services and facilities that were hospital based or government operated were excluded from consideration because they were not representative of the typical North Carolina nursing home. Hospital based facilities represented less than 10% of the North Carolina nursing home population and tended to serve only short-term rehabilitation residents, many of whom are younger than 65 years of age. Similarly, facilities that were certified for Medicare-only represented less than 3% of the nursing home population. Medicare-only facilities tend to cater to a more elite group of residents who are capable of paying privately for long-term care in continuing care retirement settings. Facilities that were certified for Medicaid-only represented less than 1% of the population. Medicaid-only facilities do not usually provide the skilled nursing and rehabilitation services funded by Medicare or they care for a population that is not aged and, therefore, not eligible for Medicare. Government facilities represented about 3% of the nursing home population in North Carolina. After filtering out these facilities, 365 nursing homes remained for consideration.

The average bed size of the remaining nursing homes ranged from 12 to 460, with a mean of 111 and a standard deviation of 47. In order to examine nursing homes representative of the industry norm in North Carolina, only facilities with a bed size of plus or minus one standard deviation from the mean (64-158 beds) were included in this study. Facilities that did not fall within this range were excluded from the study leaving 271 facilities from which a sample could be selected.

In order to determine the appropriate number of nursing homes to include in this study, software developed by Robert Gibbons and associates at the University of Illinois, Chicago

School of Medicine, labeled SSIZE, was used to conduct a power analysis for clustered data. Based on a t-test with clustered randomization for a one sided test, a significance level of .05, a moderate effect size of .30, and an intra cluster correlation of .05, in order to generate power at .80, it was determined that a sample size of 31 clusters was necessary. To recruit 31 nursing homes, letters were sent to the administrators of all 271 eligible North Carolina nursing homes inviting them to participate in this study. Shortly after letters of invitation were mailed, administrators were contacted. The project was explained along with participation requirements and participation was encouraged. Administrators who agreed to participate were asked to sign a memorandum of understanding indicating a commitment to participation requirements. Participation requirements included arranging for an all-staff meeting with nursing home employees where the researcher could administer a survey to staff, and providing the researcher with follow-up information regarding staff turnover. Thirty two administrators verbally agreed to participate in the study, but only 28 followed through with a written letter of support. One failed to honor their commitment resulting in a final nursing home sample size of 27. A second power analysis was conducted after data collection using Optimal Design version 1.7. This software was designed for use with HLM and other multi-level research. Based on the actual number of participating facilities, the average cluster size ($n=41$), the intra-class correlations computed for each model (.013-.082), the proportion of variance explained by organizational predictors (.588-.999), a significance level of .05 and a moderate effect size (.30), power values ranged from .919 to 1.0.

Employees

All nursing home employees at participating facilities were invited to participate in the study by completing the OSC in onsite staff meetings. As an incentive to participate, each participating employee was entered into a drawing for gift cards. At each participating facility, gift cards worth a total of \$100 were given away in a random drawing. Funds for the gift cards were provided through a dissertation grant from the John A. Hartford Foundation.

Residents

All residents at participating facilities who were admitted within six months of administration of the OSC were included in this study. Medicare residents with a nursing home stay of less than 5 days and Medicaid or private pay residents with a stay of less than 14 days were excluded because MDS data is not captured on these residents. Some of these short stay residents are admitted for respite visits, brief rehabilitation, or they may experience complications requiring that they be discharged expeditiously to another location, making these residents atypical of the average nursing home resident. Because data is not collected on short stay residents, it is difficult to estimate the number of residents who were excluded on this basis, but the number is thought to be nominal. Residents that were comatose had incomplete MDS assessments because several sections of the measurement instrument are not applicable to these residents. As such, comatose residents were excluded from this study, as well as residents suffering from mental retardation or developmental disabilities. According to North Carolina MDS data gathered during the second quarter of 2006, 0.3% of residents were thought to be excluded from this study because they were comatose and about 5% were excluded because of mental retardation or developmental disabilities (CMS, 2006a).

Measurements and Data Collection

The dependent variables of interest in this study are employee morale, employee turnover, resident psychosocial problems and resident physical problems. The primary independent variables are organizational culture and climate. Control variables among employees, residents and nursing homes have also been included and are discussed in greater detail below. Data were collected with two instruments: The Organizational Social Context (OSC) measure was used to assess culture, climate and work attitudes, and the Minimum Data Set (MDS) was used to assess resident psychosocial and physical problems. Information on staff turnover and several control variables were measured with separate instruments.

Organizational Culture, Climate and Work Attitudes

The Organizational Social Context (OSC) is a 105 item scale designed to measure three organizational domains of interest in this study: culture, climate and employee morale. Organizational culture is measured as the norms and expectations that guide behavior in an organization (Glisson, Landsverk et al, 2008). The OSC identifies three dimensions of organizational cultures: proficient, rigid and resistant. Each dimension was discussed in detail in a previous section of this paper.

Psychological climate is measured as the employee's perception of the psychological impact of the work environment on the employee's own well-being (James & James, 1989). When individual employees' perceptions of the work environment agree, the shared perceptions are aggregated to form a measure of organizational climate (Glisson & James, 2002; James & James, 1989; Sparrow & Gaston, 1996). Because climate is a characteristic of individuals, an organizational climate does not exist and cannot be measured unless there is agreement among

the employees. As discussed previously, the OSC identifies three dimensions of climate: engagement, functionality and stress. Finally, employee morale is measured by the OSC based on employee job satisfaction and organizational commitment.

Alpha reliabilities for the OSC ranging from .69 to .93 have been found among children's service agencies, human service agencies and mental health agencies (Glisson, 1978; Glisson, 2000; Glisson, 2002; Glisson, Dukes & Green, 2006; Glisson & Durick, 1988; Glisson & Green, 2006; Glisson & Hemmelgarn, 1998; Glisson & James, 2002; Glisson, Schoenwald et al., 2008; Hemmelgarn, Glisson & James, 2006).

Resident Outcomes

The Minimum Data Set (MDS) is a comprehensive multidimensional standardized assessment instrument that must be completed on each individual residing in a nursing home that is certified to receive Medicare and/or Medicaid funding [42 CFR 483.20 (b)(1)(i)]. As discussed previously the MDS captures a variety of information about residents including demographic information, customary routines, cognitive patterns, communication/hearing patterns, vision patterns, mood and behavior patterns, psychosocial well-being, physical functioning and structural problems, continence, disease diagnoses, health conditions, oral/nutritional status, oral/dental status, skin conditions, activity pursuit patterns, medications, special treatments and procedures, discharge potential and overall status, and supplemental information (Health Care Financing Administration, 1995).

The MDS is completed by an interdisciplinary team of facility staff at least quarterly and transmitted electronically to state agencies. The MDS has been used to identify care plan concerns by facility staff, for reimbursement purposes by Medicare and Medicaid, to identify

potential areas of concern to be examined by nursing home surveyors and as a measure of resident outcomes by researchers (Anderson, Issel & McDaniel, 2003; Arling, Williams & Kopp, 2000; Barry, Brannon & Mor, 2005; Capezuti, Boltz, Rentz, Hoffman & Norman, 2006; Crogan & Pasvogel, 2003; Fries, Hawes, Morris, Phillips, Mor & Park, 1997; Konetzka, Norton, & Stearns, 2006; Langmore, Skarupski, Park & Fries, 2002; Lapane & Hughes, 2004; Lapane, Hume, Barbour & Lipsitz, 2002; Phillips et al., 1997; Rantz et al., 2001). Early testing of the MDS found that 55% of MDS items were reliable at .40 or greater (Morris et al., 1990). As a result 60% of the items were altered or eliminated from the instrument (Morris et al., 1990). In 1995, MDS version 2.0 was introduced (Morris et al., 1997) and remains in use at facilities across the United States. Subsequent testing by Hawes, Morris, Phillips, Mor, Fries and Nonemaker (1995) revealed that 63% of the items on the revised MDS were reliable at .60 or greater and 89% demonstrated an adequate level of reliability at .40 or greater when assessed by trained nurses. Morris and colleagues (1997) also concluded that most items in the MDS were reliable based on dual assessments made by trained staff nurses. High interrater reliability has also been reported (Morris et al., 1997).

Since these initial tests, many researchers have submitted individual sections of the MDS to further scrutiny with varying results. Phillips and Morris (1997) found the MDS to have internal consistency and predictive validity as a measure of resident cognition and functioning when compared to another database of resident information maintained by the Health Care Financing Administration. The reliability and validity of cognition assessments by the MDS has also been compared to assessments using the Mini-Mental State Exam, the Psychogeriatric Dependency Rating Scale, the Test for Severe Impairment, and the Global Deterioration Scale

(Gruber-Baldini, Zimmerman, Mortimore, & Magaziner, 2000; Hartmaier, Sloane, Guess & Koch, 1994; Hartmaier, Sloane, Guess, Koch, Mitchell, & Phillips, 1995; Lawton, Casten, Parmelee, Van Haitsma, Corn & Kleban, 1998; Morris et al., 1994; Snowden et al., 1999). High consistency and correlation with other measures was found with moderate validity levels (Gruber-Baldini et al., 2000; Hartmaier et al., 1994; Hartmaier et al., 1995; Lawton et al., 1998; Morris et al., 1994; Snowden et al., 1999). Many researchers believe the reliability and validity of the MDS' cognitive assessment is adequate for use in research (Lawton et al., 1998; Morris et al., 1994; Phillips & Morris, 1997; Snowden et al., 1999).

Physical functioning, as measured by the MDS, has also been submitted to further scrutiny and found to be valid and reliable for research purposes (Lawton et al., 1998; Morris, Fries & Morris, 1999; Phillips & Morris, 1997). When Snowden and colleagues (1999), however, examined the criterion validity of the MDS' assessment of activities of daily living among residents with dementia, weaker results were found.

Bates-Jensen and colleagues (2003) found the prevalence or absence of pressure sores, as measured by the MDS to reflect no differences in care provided by nursing homes. No significant differences were observed in wound care, prevention or screening provided in nursing homes reporting high levels of pressure ulcers on the MDS and those reporting low levels. The researchers found that the quality of wound care and preventative wound care services was lacking in both types of facilities.

On the other hand, restraint usage among residents while in bed was indicative of different care practices. Schnelle and colleagues (2004) found that higher restraint use while residents were in bed resulted in residents spending more time in bed and less feeding assistance

from staff. No differences in care practices were noted among residents that were restrained while out of bed.

Some researchers have identified systematic errors in particular sections of the MDS. Some have noted that nursing homes overestimate the bed mobility dependence of residents (Bates-Jensen, Simmons, Schnelle & Alessi, 2005). Stevenson, Moore and Sleeper (2004) also found that nursing home staff completing the MDS tend to overestimate the presence of urinary tract infections (UTIs) among residents. Only 14% of residents identified with a UTI actually had suffered from a UTI. While staff tend to overestimate the presence of UTIs and caution is necessary in interpreting such data, the researchers found that staff reported with 100% accuracy the absence of UTIs among residents leading researchers to be more confident in the absence of UTIs when reported on the MDS.

The MDS also tends to systematically underestimate a number of sections. Bowie, Fallon and Harvey (2006) found that the MDS tends to underestimate hallucinations and thought disorders among residents with schizophrenia. Others have observed that pain tends to be underreported among cognitively impaired residents (Cohen-Mansfield, 2004; Fisher et al., 2002).

Perhaps no section of the MDS has been disputed more than the instrument's depression assessment. When compared with the Hamilton Depression Rating Scale and the Cornell Scale for depression, the majority of MDS depression items were significantly correlated with these instruments (Burrows, Morris, Simon, Hirdes, & Phillips, 2000). Comparison of the MDS depression items with the Geriatric Depression Scale, however, yields different results. The MDS tends to systematically underestimate depression when compared to the Geriatric

Depression Scale (Heiser, 2004; Meeks, 2004; Simmons et al., 2004). Simmons and colleagues (2004) point out that the problem of underreporting depression is especially of concern in facilities reporting no depression among their residents or very low levels of depression. As such, facilities reporting the absence of depression should not be regarded as providing a better quality of care or quality of life to residents (Simmons et al., 2004). When completed by nursing home staff, assessments of depression appear to be less reliable than when completed by highly trained clinicians (Casten, Lawton, Parmelee & Kleban, 1998). Assessments of depression among residents with dementia also tend to be less reliable than among residents who are cognitively intact (Casten et al., 1998). Schnelle, Wood, Schnelle and Simmons (2001) suggest that depression, as assessed by the MDS, is more of an indicator of the nursing home staff's ability to recognize depression than a true measure of depression among residents in nursing homes.

While some urge caution in the use of MDS data (Teresi & Holmes, 1992), others recognize the MDS as the "...national gold standard for nursing home assessment [and] indicators of nursing home quality..." (Ouslander, 1997, p. 976). The MDS is the most comprehensive database of resident specific characteristics available to researchers in the US at this time. Mor, Berg, Angelelli, Gifford, Morris and Moore (2003) pointed out that quarterly estimates based on the MDS can be unstable and that averages of the measure over time can help provide researchers with a more accurate picture of residents in a given facility. Examining measures over time would also allow researchers to control for some of the systematic errors that have been identified in the instrument.

To control for systematic errors, MDS data in this study was obtained for residents in the sampled nursing homes over a 12-month period of time from CMS. Following Internal Review Board (IRB) approval from the University of Tennessee, a written application packet and study protocol was submitted to CMS and the agency designated to handle requests for data, the Research Data Assistance Center at the University of Minnesota. Justification was provided for each requested item on the MDS. Upon approval, data for residents in designated nursing homes was delivered in an ASCII file and imported into SPSS for analysis. Data from January, 2007 through May, 2008 was examined in order to assess resident conditions six months prior to and following the administration of the OSC. Two variables were computed from the MDS data to measure resident health outcomes and psychosocial outcomes. MDS data contains an identification number allowing researchers to track changes in resident conditions over time, while keeping researchers blind to the actual identity of residents.

To measure resident health outcomes, several sections of the MDS were examined. Section G, Physical Functioning and Structural Problems, asks staff to rate each resident's ability to perform a variety of activities of daily living and the amount of support necessary from staff to meet the resident's daily care needs using an ordinal scale and additional nominal measures. Similarly, Section H, Continence, uses an ordinal scale to assess each resident's bowel and bladder status in the past 14 days. Section J, item 2 assesses the amount of pain experienced by residents using an ordinal scale and Section J, item 4 assesses resident falls and fractures within the past 180 days using a nominal measurement. Section K, item 3 assesses recent weight changes using a dichotomous measure and Section M measures resident skin conditions using nominal measures.

A resident health outcome score was computed based on each resident's assessments. The score was computed based on a summation of activities of daily living, range of motion, continence, accidents, weight change, ulcers and urinary tract infections. Table 1 provides a summary of resident characteristics that went into the computation of resident health outcome scores. Scores could range from 0 to 118 with higher scores indicating worse resident health outcomes and lower scores indicating better resident health outcomes. The actual health outcome scores for residents in this study ranged from 0 to 77 with a mean of 33.83 and a standard deviation of 14.31.

To measure resident psychosocial outcomes, data from Section B, Cognitive Patterns, Section E, Mood and Behavior Patterns, and Section N, Activity Pursuit Patterns, of the MDS was analyzed. Cognitive, mood, behavior, and activity patterns were measured using nominal and ordinal measures. These sections capture outcomes related to resident memory, depression, mood, anxiety, and behavior problems such as wandering, verbal and physical abusiveness, socially inappropriate behavior, resistance to care and time involved in activities.

A psychosocial outcome score was created by computing a score based on the following MDS items on each resident assessment that are outlined in Table 2: memory; cognitive skills for daily decision making; indicators of delirium; indicators of depression; sleep cycle issues; sad, apathetic, anxious appearance; loss of interest; behavioral symptoms; hallucinations; and average time involved in activities. Possible scores ranged from 0 to 73 with higher scores indicating worse resident psychosocial outcomes and lower scores indicating better resident psychosocial outcomes. Actual scores ranged from 0 to 38 with a mean of 5.07 and a standard deviation of 4.29.

Staff Turnover

To measure staff turnover, a list of facility staff completing the OCS was maintained. Six months after the onsite visit to the facility to collect OCS data, nursing home administration was contacted to determine which employees were still in employment with the facility and which were not. A dichotomous turnover variable was created to capture this information with “1” indicating the employee was no longer with the nursing home and “0” indicating the staff member was still employed. If a staff member was no longer with the facility a follow-up question was asked to determine whether or not the employee’s leaving was involuntary, meaning he or she was fired, or voluntary, meaning the employee left for another reason. An additional dichotomous variable was created to capture this info with “0” indicating involuntary turnover and “1” indicating voluntary turnover. The overall rate of turnover in this study was lower than reported in other studies of nursing homes (16%). The voluntary turnover rate was only 10%. However, these rates were for six months and would be expected to double for annual rates.

Control Variables

Employee Control Variables

A number of employee control variables were also considered. Employee gender was measured as a dichotomous variable with “0” indicating male and “1” indicating female. Race was measured as a nominal level measurement, including American Indian/Alaska Native, Asian/Pacific Islander, Black, not of Hispanic origin, Hispanic, and White, not of Hispanic origin. Race was also transcribed into a dichotomous variable with “1” indicating whites and “0” indicating not whites. Employee age was computed after asking respondents for the month, date

and year of birth and calculating their age on the day they completed the OSC. Position was measured as a nominal variable including certified nursing assistant, licensed practical nurse, registered nurse, business office staff, social work, admissions or activities, dietary and maintenance, therapy staff, and other. Each of these positions was transcribed into dichotomous variables with “1” indicating yes and “0” indicating no. Work shift was measured as first, second and third. More than one meeting at each facility was conducted to obtain measures from multiple shifts. A demographic questionnaire capturing this information was attached to the OSC that was administered to participating employees

Resident Control Variables

A number of resident characteristics were also considered in this analysis. Drawing from the MDS, the following variables were included as control variables: age, gender, race, marital status, and dementia. Age was calculated from resident date of birth based on the date in which their initial assessment was completed in the selected nursing home. Gender was coded as a dichotomous variable with “0” indicating male and “1” indicating female. Race was a nominal level of measurement including American Indian/Alaska Native, Asian/Pacific Islander, Black not of Hispanic origin, Hispanic, and White not of Hispanic origin. Race was also transcribed into a dichotomous variable with “1” indicating whites and “0” indicating not white.

Marital status was a nominal measure including never married, married, widowed, separated, and divorced. Marital status was also transcribed into a dichotomous variable with “1” indicating currently married and “0” indicating not currently married. Dementia was coded as a “1” or “0” with “1” indicating the presence of dementia. The month, day and year of entry

was used to identify new admissions. Only residents admitted within the six months prior to and following the administration of the OSC were included in this study.

Nursing Home Control Variables

From an organizational perspective there are number of characteristics that could affect nursing home outcomes besides organizational culture and climate. Studies of organizational issues in nursing homes often consider bed size, ownership status, chain status and geographic location as control variables (Bourbonniere, Feng, Intrator, Angelelli, Mor & Zin, 2006; Castle & Engberg, 2006; Forbes-Thompson, Gajewski, Scott-Cawiezell & Dunton, 2006; Hodgson, Landsberg, Lehning & Kleban, 2006; Hughes, Wright & Lapane, 2006; Scott-Cawiezell, Jones, Moore & Vojir, 2005; Trinkoff et al., 2005). This study therefore includes these control variables in subsequent analyses.

Nursing Home Compare provides consumers with information about facilities including whether or not the facility is part of a nursing home chain and the number of beds in a given facility. A dichotomous variable was created to capture whether or not a nursing home is part of a chain with “0” indicating the facility was not part of a chain and “1” indicating the facility was part of a chain. A ratio level measure was created as a count of the number of beds in each facility. A dichotomous variable was created to capture nursing home ownership with “0” indicating a not-for-profit facility and “1” indicating for-profit. Finally, a dichotomous variable was created to distinguish between nursing homes in an urban area (coded as “1”) and nonurban area (coded as “0”) based on US Census Bureau classifications. According to the US Census Bureau (2000) an urban area is a location occupied by at least 50,000 individuals with at least

1,000 people per square mile. A list of urban areas in North Carolina was obtained from the US Census Bureau for coding purposes.

Analysis plan

Previous research with the OSC has been conducted in various human service agencies (e.g., Glisson, 1978; Glisson & Durick, 1988; Glisson et al., 2006; Glisson & James, 2002; Glisson, Landsverk et al, 2008; Glisson, Schoenwald et al, 2008), but the instrument has never been used in the nursing home industry. Prior to evaluating the study's proposed hypotheses, the factor validity of OSC measures of organizational culture and climate and employee morale were evaluated. Following factor validity of the instrument, this study assessed the within facility agreement of culture and climate in order to examine facility level aggregate scores of culture and climate. Within facility agreement was assessed based on an index of within group consistency of responses, r_{wg} (James, Demaree & Wolf, 1993). Between facility variation was also assessed by considering the intraclass correlation coefficient (ICC), type 1, computed from a hierarchical linear random intercepts model (Bliese, 2000; Raudenbush & Bryk, 2002). The expectation-maximization (EM) algorithm was computed for missing data on the OSC. If more than 25% of items on a particular scale were missing, all of the participants response for that particular scale were deleted. If more than three complete scales were missing, all data for that participant was omitted.

Once factor validity, within facility agreement and between facility variance was established, norm based OSC profiles of culture and climate were generated. Profiles were based on z scores and T values of culture and climate dimensions. Each facility was assigned to one of three culture profiles. Facilities with T values in the area of proficiency that were one standard

deviation higher than rigidity and resistance scores were assigned into the category of good cultures. Facilities with T values in the area of proficiency that were one standard deviation lower than rigidity and resistance T values were assigned into the category of poor cultures. All other facilities were assigned into the average culture category. Climate profiles were assigned in a similar fashion. Organizations with engagement and functionality T values that were one standard deviation higher than stress T values were assigned into the good climate profile. Facilities with engagement and functionality T values that were one standard deviation lower than stress T values were assigned into the poor climate profile and all remaining facilities were assigned into the average climate profile. Profile categories for culture and climate were used in the analyses of the study's hypotheses.

Because individual staff are clustered within the organizational context of the nursing home and because of the repeated measures used to ascertain resident outcomes, hierarchical linear modeling (HLM) is an appropriate analytic method to use in this study (Raudenbush & Bryk, 2002). As explained by Raudenbush and Bryk (2002), the advantages of using HLM are three-fold. First, HLM provides an improved estimate of individual effects. In other words HLM will provide an estimate of both fixed and random effects whereas traditional methods are likely to provide inaccurate estimates of only fixed effects. Second, HLM models cross-level effects. This is particularly important in this study given the nested effects of individuals (staff and residents) within the same organization. Work attitudes and behaviors among staff are likely to be derived from both individual and organizational characteristics. HLM will be able to differentiate between individual and organizational effects. Finally, HLM separates variance and covariance occurring among the hierarchical levels. HLM analysis can explain the variation in

individual level variables (e.g., staff turnover, resident outcomes) as a function of organizational level variables (e.g., culture, climate). HLM has advantages when studying multi-level data in organizations because overcomes problems with aggregation bias, misestimated standard errors and heterogeneity of regression (Raudenbush & Bryk, 2002).

HLM rests on the same assumptions as OLS regression, but assumptions apply to each hierarchical level. According to Raudenbush and Bryk (2002) HLM assumptions include: 1) Level 1 error is normally distributed with a mean of 0 and a variance of σ^2 ; 2) Level 1 predictors are independent and not related to level 1 error; 3) Error at higher levels is normally distributed with a mean of 0 and a variance of τ ; 4) Higher level predictors are independent and not related to higher level error; 5) Error from one level is not correlated with error from other levels; and 6) Predictors from one level are not correlated with error at other levels. A violation of the independence of error terms at level 1 does not affect estimates of coefficients and variances at subsequent levels (Raudenbush & Bryk, 2002).

To test the first hypotheses which predicts that staff are more likely to exhibit work attitudes that demonstrate job satisfaction and organizational commitment in nursing homes with better organizational cultures and climates, the following two level analytic model was developed:

$$\text{Level 1: } Y_{wa} = a_0 + b_1 (\text{sex}) + b_2 (\text{race}) + b_3 (\text{education}) + b_5 (\text{position}) + b_6 (\text{age}) + b_7 (\text{shift}) + r$$

$$\text{Level 2: } a_0 = g_{00} + g_{01} (\text{culture}) + g_{02} (\text{climate}) + g_{03} (\text{beds}) + g_{04} (\text{urban}) + g_{05} (\text{ownership}) + g_{06} (\text{chain}) + g_{07} (\text{staffing}) + u_0$$

To test the second hypothesis that turnover among nursing home staff is likely to be lower among facilities with more positive cultures and climates, a two level analytic model was considered. Because turnover is measured as a dichotomous variable, a binomial sampling model based on the Bernoulli distribution with logit link was used (Raudenbush & Bryk, 2002). The outcome variable was the log of the odds of turnover.

$$\text{Level 1:} \quad \log[P/1-P] = a_j + b_{1j}(\text{sex}) + b_{2j}(\text{race}) + b_{3j}(\text{education}) + b_{4j}(\text{position}) + b_{5j}(\text{age}) + b_{6j}(\text{shift}) + r_{ij}$$

$$\text{Level 2:} \quad a_j = g_{00} + g_{01}(\text{culture}) + g_{02}(\text{climate}) + g_{03}(\text{urban}) + g_{04}(\text{chain}) + g_{05}(\text{beds}) + g_{06}(\text{staffing}) + g_{07}(\text{ownership}) + u_0$$

To examine the final hypothesis regarding resident outcomes, two models were designed. Both models were identical except one assessed resident health outcomes, while the other assessed resident psychosocial outcomes. To test the hypothesis that residents are more likely to have better outcomes in nursing homes with more positive cultures and climates, the following three level model was developed:

$$\text{Level 1:} \quad Y_{ro} = p_0 + p_{01}(\text{time}) + e$$

$$\text{Level 2:} \quad p_0 = b_{00} + b_{01}(\text{sex}) + b_{02}(\text{age}) + b_{03}(\text{race}) + b_{04}(\text{marital status}) + b_{05}(\text{dementia}) + r_0$$

$$p_1 = b_{10} + b_{11}(\text{sex}) + b_{12}(\text{age}) + b_{13}(\text{race}) + b_{14}(\text{marital status}) + b_{15}(\text{dementia}) + r_1$$

$$\begin{aligned}
 \text{Level 3} \quad b_{00} &= g_{00} + g_{001} (\text{culture}) + g_{002} (\text{climate}) + g_{003} (\text{urban}) + g_{004} (\text{chain}) + g_{005} (\text{beds}) \\
 &+ g_{006} (\text{staffing}) + g_{007} (\text{ownership}) + u_{00} \\
 b_{10} &= g_{100} (\text{culture}) + g_{102} (\text{climate}) + g_{103} (\text{urban}) + g_{104} (\text{chain}) + g_{105} (\text{beds}) + g_{106} \\
 &(\text{staffing}) + g_{107} (\text{ownership}) + u_{10}
 \end{aligned}$$

In both resident outcome models, first level models examined outcomes for residents as a function of time. At level 2, models examined initial resident conditions (the level 1 intercept) and change in health or psychosocial problems (the level 1 slope) as a function of individual level factors and the estimated random effects. At level 3, models examined initial resident conditions (the level 1 intercept) and average change in health or psychosocial problems (the level 1 slope) at each nursing home as a function of organizational culture, climate, and other characteristics, as well as the unique random effects.

CHAPTER 3

RESULTS

Descriptive Statistics

Facility Level Data

Twenty-seven nursing homes participated in this study. Table 3 describes nursing home characteristics. Most facilities ($n = 18$) were located in non-urban areas, based on US census classifications, while the remaining facilities ($n = 9$) were located in urban areas. Twenty-two facilities operated as for-profit organizations, while five were not-for-profit entities. Only eight participating nursing homes identified themselves as free-standing facilities, while the remaining 19 were identified as being part of a larger nursing home chain. On average participating nursing homes could accommodate 104 residents ($SD = 21.7$). The actual bed capacity ranged from 77 to 157. The average nursing staff-to-resident ratios varied by shift. On first shift the average ratio was 1:9.42 ($SD = 1.77$). On second shift the average ratio was 1:12.28 ($SD = 2.53$), and on third shift the average ratio was 1:18.78 ($SD = 3.93$).

Employee Level Data

From 27 nursing homes, 1,114 employees participated in this study. Fifty employees were excluded from analysis because of missing data. Employee characteristics are described in Table 4. Ten percent ($n = 111$) of the employee sample were male, while the majority ($n = 1,001$) were female. Over 45% ($n = 509$) of the employee sample reported having some college education, about 32% ($n = 359$) reported receipt of a high school diploma or GED. Less than 10% ($n = 108$) had not graduated from high school. About 7-8% ($n = 83$) of the sample held a

bachelor's degree, while about 4% ($n = 46$) reported some graduate level education or receipt of a master's degree.

The average age of participating employees was 40.36 ($SD = 12.86$). The majority of employees (64.5%) were Caucasian ($n = 718$). The second largest racial group (27.9%) were African-Americans ($n = 311$), while the remaining participants described themselves as belonging to another racial group ($n = 78$).

Participating employees represented a number of different occupations. The largest occupation represented in this sample was nursing (65.3%) with 505 CNAs, 132 LPNs, and 89 RNs. Dietary, housekeeping and maintenance comprised about 18% ($n = 199$) of the sample, while the remaining 16.6% ($n = 184$) of the sample consisted of other occupations including, but not limited to, business office staff, social workers, activity staff, admission coordinators, and physical, speech and occupational therapists.

Most participating employees reported working on a day ($n = 778$, 69.9%) or evening shift ($n = 816$, 73.3%). Note that percentages will exceed 100% in this category because some employees reported working more than one shift. Less than 10% ($n = 108$) of the sample worked at night, while about 7% reported working as needed ($n = 31$) or on the weekends only ($n = 48$).

Resident Level Data

Resident level data was extracted from 12,904 MDS assessments of 3,927 residents, who resided in the sampled facilities between January, 2007 and May, 2008. Resident characteristics are summarized in Table 5. About two-thirds of the resident sample was female. This is consistent with national figures that report 67% of nursing home residents are female (CMS, 2006). With regard to race, the majority of the sample (86%) was Caucasian. About 12% of the

sample was African American and less than 1% of residents were identified as belonging to another racial group. Comparable national statistics also found that most nursing home residents (84%) are Caucasian (CMS, 2006). Twenty-eight percent of the sample was married. Of the remainder, 8% had never been married, almost 52% were widowed, and almost 10% were separated or divorced. Residents in this sample were more likely to be married compared to national data (19.6%) and less likely to have never been married compared to national data (16.4%). Other marital groups were comparable (CMS, 2006). About 31% of the sample suffered from some form of dementia, a prevalence slightly less than the 38% reported in national figures (CMS, 2006)

Confirmatory Factor Analysis

Following the analytical procedures used by Glisson, Landsverk and colleagues (2008), a confirmatory factor analysis of the OSC was conducted using LISREL 8, maximum likelihood estimation. Because the OSC has not been used in the nursing home industry previously, a factor analysis was necessary to ensure that OSC scales clustered as reported in other human service agencies. As diagrammed in Figure 1, seven factors that make-up the higher order constructs of culture, climate and work attitudes were confirmed. While reliabilities for indicators were lower than desired (.70 or higher), reliabilities for the seven first order factors used in subsequent analysis revealed good internal consistency with alpha measures between .70 and .92.

Fit indices are provided in Table 6. Absolute fit indices and incremental fit indices are included. The comparative fit index (CFI), normed fit index (NFI), and incremental fit index (IFI) fell just below acceptable parameters. Preferred values are .90 or greater (Byrne, 1998). The root mean square error of approximation (RMSEA) exceeded an acceptable fit at .107

(Browne & Cudeck, 1993; MacCallum, Browne, & Sugawara, 1996). The standardized root mean squared residual (SRMR) also exceeded desired parameters at .259 (Hu & Bentler, 1999). Taken together, fit indices indicate a marginal fit.

Within Facility Consistency Analysis

Within-facility agreement regarding culture and climate was examined by computing r_{wg} . As previously mentioned, without agreement within facilities regarding culture and climate, individual employee responses cannot be aggregated to examine organizational level constructs. Table 7 shows means and standard deviations of r_{wg} for each culture and climate construct. The average r_{wg} for all constructs ranged from 0.77 to 0.93. Scores greater than 0.7 are considered an acceptable indication of agreement among respondents (James et al., 1993).

Between-Facility Variance Analysis

A random-intercepts model computed by HLM provided an assessment of culture and climate variation between facilities. The assessment provided several measurements as seen in Table 8. Tau (τ) provided an analysis of variance between groups. Sigma squared (σ^2) provided an analysis of variance within groups and the intraclass correlation coefficient (ICC) and eta squared revealed the proportion of total variance found between nursing homes in this study. Results revealed statistically significant variation between facilities on each culture and climate construct at $p < 0.01$ or less.

Culture and Climate Profiles

Figures 2 and 3 provide examples of different culture and climate profiles that emerged in this study. Seven facilities (almost 27%) had good culture profiles with proficiency T scores being one or more standard deviations higher than resistance and rigidity T scores. Fourteen

facilities (about 54%) had average culture profiles and the remaining five (about 19%) had poor culture profiles. In terms of climate, six facilities (23%) had good climate profiles with engagement and functionality T scores that were one or more standard deviations higher than stress T scores. Fourteen facilities (about 54%) had average climate profiles and the remaining six (23%) had poor climate profiles.

Work Attitudes

To examine the hypothesis that better work attitudes are associated with more positive cultures and climates, several hierarchical linear models were analyzed. To begin, an unconditional model of random effects only was considered. As shown in Table 9, the intraclass correlation revealed that about 8% of the variance in employee morale was found between nursing homes. This variation was statistically significant ($p < .001$). When culture and climate profiles, individual covariates and organizational covariates were added to the model, the incremental proportion of organizational variance explained by the full model was about 70%. Additionally, climate was found to have a statistically significant relationship with employee morale ($p < .008$). More specifically, nursing homes with more positive climates were associated with higher levels of employee morale. At the individual level, age was also related to employee morale ($p < .005$) with older employees expressing greater levels of morale. No other individual or organizational covariates were found to be associated with employee morale. To further understand the relationship between climate and employee morale, the individual dimensions of climate were examined with individual covariates and organizational covariates. The results of this model are described in Table 10. The incremental proportion of organizational variance explained by the full model with climate dimensions was 99.9%. The

dimension of climate most closely associated with employee morale was functionality ($p < .001$). In nursing homes with more functional climates, employees expressed greater levels of morale. Older employees continued to express higher levels of morale in the full model with climate dimensions ($p < .003$). These findings indicated partial support for the proposed hypothesis that more positive climates are associated with higher levels of employee morale.

Turnover

To examine the hypothesis that in nursing homes with better cultures and climates we expect to find less employee turnover, several HLM models were considered. About 16% of nursing home employees surveyed left their employment within six months of completing the OSC. About 10% of this turnover was voluntary in that the employee chose to leave his or her place of employment. Involuntary turnover captures employees who were relieved of their duties or fired by the nursing home. HLM analysis of all turnover revealed no statistically significant associations. Additionally, no statistically significant associations emerged when considering the relationship between voluntary turnover with culture and climate profiles. Low base rates provided very little turnover to examine and is likely to be the reason why no relationship emerged in this area.

Resident Health Outcomes

To examine the hypothesis that better resident health outcomes are expected in nursing homes with better cultures and climates several hierarchical linear models were analyzed. The full model consisted of a three level HLM analysis examining temporal variance at level one. At level two, resident level characteristics were added to the model and at level three organizational profiles of culture and climate and organizational covariates were considered. In looking at

resident health outcomes recall that higher resident health outcomes indicate worse resident health conditions.

As shown in Table 11, the unconditional model revealed that about 5% of the variance in resident health outcomes was between nursing homes. This variation was statistically significant ($p < .001$). When culture and climate profiles, individual covariates and organizational covariates were added to the model, the incremental proportion of organizational variance explained was about 62%. The full intercept model indicated some differences in resident health outcomes upon admission based on age ($p < .019$), race ($p < .001$), dementia ($p < .001$) and marital status ($p < .001$). Older residents, married residents, nonwhite residents and residents with dementia had poorer health outcomes on admission. In looking at the full slope model, the individual characteristics of race ($p < .031$), dementia ($p < .001$) and age ($p < .011$) continued to have statistically significant associations with resident health outcomes. Poorer health outcomes over time were observed among older residents, nonwhite residents and residents with dementia. At the organizational level, only one variable was associated with resident health outcomes. Climate and resident health outcomes were associated at a statistically significant level ($p < .009$). The relationship between climate and resident health outcomes was negative, indicating that in more positive climates, residents had fewer health problems over time.

Figure 4 illustrates the HLM analysis showing how resident health outcomes change over time in different climates. It is important to note that there was no statistically significant difference in resident health outcomes across climates upon admission. Regardless of the climate profile most facilities had similar residents on admission, but over time, climate plays an important role in resident recovery. In facilities with the best climates, resident outcomes were

significantly better than in average and poor climates. Even in facilities with average climates, resident health outcomes over time were better than in facilities with poor climates.

To further understand the relationship between climate and resident health outcomes, the individual dimensions of climate were added to the composition model. No statistically significant associations emerged when all dimensions of climate were entered into the model simultaneously. However, when dimensions of climate were entered into the model separately, engagement was found to have a statistically significant association with resident health outcomes. The results shown in Table 12 are essentially identical to the results found when examining culture and climate profiles. Age ($p < .019$), race ($p < .001$), dementia ($p < .001$) and marital status ($p < .001$) were statistically associated with resident health scores upon admission. Race ($p < .035$), dementia ($p < .001$) and age ($p < .012$) remained statistically significant predictors of resident health scores over time. At the organizational level, engagement was the only organizational level variable associated with resident health outcomes ($p < .009$). In more engaged climates there was a statistically significant improvement in resident health over time. Figure 5 illustrates the effect of engagement on resident health outcomes over time. Higher engagement scores indicate more engaged climates. Again, note that upon admission resident health scores across climates did not differ in a statistically significant manner. In facilities with the worst engagement scores there was essentially no change in resident health outcomes over time. However, the change in resident health outcomes was significantly better in facilities with average engagement scores. In facilities with the best engagement scores, resident health outcomes showed even greater improvement over time.

Resident Psychosocial Outcomes

The final analysis considered in this study examined the effect of culture and climate on resident psychosocial outcomes. We expected to find better resident psychosocial outcomes in nursing homes with better cultures and climates. Only about 1% of the variation in psychosocial outcomes was found between facilities. This variation was not statistically significant ($p < .068$). Although the variance in psychosocial outcomes between facilities was small, an analysis of psychosocial outcomes was conducted as a function of several individual level covariates and of culture and climate along with other organizational level covariates. As shown in Table 13 the intercept model showed that on admission residents with dementia were more likely to have worse psychosocial scores ($p < .001$). The slopes model indicates that over time, older residents ($p < .004$) had worse psychosocial outcomes and residents without dementia ($p < .001$) had better psychosocial outcome scores. At the organizational level the only variable with a statistically significant relationship with psychosocial outcomes was climate ($p < .047$). More positive climates were associated with fewer psychosocial problems. The incremental proportion of organizational variance explained by the full intercept and slopes model was 99.5%.

Figure 6 illustrates the change that occurred in resident psychosocial functioning over time among different types of climates. Upon admission there were no statistically significant differences in resident psychosocial outcomes across various climate profiles. Over time resident psychosocial problems increased across all climates. However, the increase in psychosocial problems in the best climates was very small and significantly less than the increase in average or poor climates.

Further analysis included examination of the individual dimensions of climate to determine which dimension was affecting resident psychosocial outcomes. When all dimensions of climate were entered into the model, a statistically significant relationship between engagement and psychosocial problems emerged. The incremental proportion of organizational variance explained by the dimension model was 97.1%. Results shown in Table 14 demonstrated that over time, in more engaged climates residents experienced less decline in psychosocial outcomes than declines seen in less engaged climates. This variation is illustrated in Figure 7. Again, upon admission, regardless of the level of engagement found in nursing homes, there were no statistically significant differences in resident psychosocial scores. The effects of individual covariates on psychosocial outcomes upon admission and over time were unchanged.

CHAPTER 4

DISCUSSION AND CONCLUSION

This research adds significantly to our understanding of nursing home culture and climate and how these constructs affect resident outcomes. Prior to this research, nursing home culture had been discussed in terms of an abstract concept and the distinction between culture and climate had been largely ignored. Much of the literature to date on the subject within the nursing home industry has been theoretical, conceptual or qualitative. This research confirms that different culture and climate profiles exist and can be quantitatively measured and examined. Significant agreement existed among nursing home employees and it was possible to generate culture and climate profiles for each participating facility. In addition, significant variation was found in culture and climate between facilities.

Findings provide partial support for the study's hypotheses. In terms of employee work attitudes, climate was found to be statistically associated with employee morale when both culture and climate were in the model. In more functional climates, employee morale was higher. This supports the role of climate as more closely associated with work attitudes and suggests that employee perceptions of cooperation, recognition and role clarity are very important to the morale of nursing home employees. When employees function as a team, helping each other complete tasks, functionality is enhanced. Understanding the expectations of superiors also enhances functionality. Open, ongoing clear communication is needed to create role clarity and keep employees apprised of expectations. Functional climates in other industries are often characterized by growth and advancement. However, within the nursing home industry without additional education, the ceiling for advancement is limited. It is likely that in nursing homes,

acknowledgment and recognition for work well done may be sufficient to improve employee morale. Functionality was also linked with employee morale in previous research by Glisson, Landsverk and colleagues (2008).

In terms of turnover, findings in this study did not support our hypothesis. Culture and climate had no effect on the overall employee turnover rates or on voluntary turnover rates. However, when looking at other studies of turnover, the rates of turnover being examined were much higher (e.g., Glisson & James, 2002). Lower base rates for dichotomous variables are difficult to predict. In this study, overall turnover rates were less than 20% and voluntary turnover rates were 10%. If one year turnover rates had been considered instead of six month turnover rates, the variation to be explained could have been much greater. Future research could be enhanced by providing staff with more time to turnover and considering turnover rates at one year.

In terms of resident outcomes, these findings yield partial support to the study's hypotheses. Climate was significantly associated with resident health and psychosocial outcomes. It appears that over time, the rate of improvement was significantly greater in nursing homes with more positive climates. It has been suggested that some facilities might attract residents with more acute needs, while others cater to residents with fewer health needs. This data does not support such an idea. Note that upon admission there were no statistically significant differences in the health scores of residents across various climates. Over time in more positive climates resident health scores improved. Even a slight increase in climate from poor to average resulted in better health outcomes for residents. The climate dimension most closely linked with resident health outcomes was engagement. In facilities with the lowest levels

of engagement, there was no change in the health status of residents, but in facilities with the highest levels of engagement, resident health outcomes were significantly better with a marked decrease in health problems during their stay.

There were similar findings for resident psychosocial outcomes. Over time, resident psychosocial problems increased, but in the most positive climates there was no increase in psychosocial problems. Engagement was again the climate dimension most closely associated with resident psychosocial outcome scores. In looking at the HLM analysis of psychosocial scores over time, it appears that the psychosocial problems of residents in facilities with the highest rates of engagement decreased slightly over time. Glisson (2009) also reported better client outcomes in engaged climates among children.

Assembly line care is not likely to be present in engaged climates because the employees perceive their work as more personalized with each resident and have a greater sense of personal accomplishment in providing services to residents. Employees are confident in their ability to deal effectively with residents and as a result residents thrive. Improvements in resident conditions could be attributed to the psychological attachment between residents and employees, a difference in the care and services provided by more engaged employees, or both.

Hypotheses related to culture could not be confirmed by this research. Indeed no relationships between culture and resident or employee outcomes emerged in this study. Given that the nursing home industry is highly regulated, rigidity may not affect employees in the same way that it might in other organizations. A certain amount of rigidity may be necessary for job satisfaction among nursing assistants with low education levels. Employees with lower levels of

education may not feel that they have the ability to make independent decisions related to the care of others and may actually feel more comfortable in a more rigid work environment.

In other research climate has been linked to outcomes more often than culture (Glisson, Landsverk et al., 2008; Glisson, 2009), so this is not an unprecedented result. In considering the absence of relationships between culture and outcomes, it is important to note that previous research has found climate to be a mediating factor between culture and outcomes. Climate is the construct most closely associated with outcomes. Research has found that while culture is very difficult to change, interventions have been successful at achieving climate change in other types of organizations (Glisson, Dukes & Green, 2006). One such program is the Availability, Responsiveness and Continuity (ARC) organizational intervention that placed change agents into case management teams serving children to improve collaboration, participation and innovation (Glisson, Dukes & Green, 2006). This intervention was successful at improving climate in child welfare and juvenile justice systems. Such a program may be successful at improving the climates and subsequent outcomes for residents and staff of nursing homes and bears further consideration and testing.

Subsequent research is also needed to further explore the relationship between employee turnover and organizational culture and climate in nursing homes. Future research should expand consideration of turnover from 6 month rates to 12 month rates. Doing so may increase the amount of variation in turnover available to examine. Additional research examining the effect of culture and climate on voluntary and involuntary turnover could also greatly expand our understanding.

Some readers may be surprised to find that staffing ratios were not associated with resident or staff outcomes. Much effort has gone into research and advocacy efforts to improve staffing. This research supports the notion that increasing staffing ratios alone is insufficient. Staffing may factor into climate, but further research is needed to validate and explore this idea. In the meantime, efforts to increase staffing ratios without consideration of the broader organizational culture and climate are likely to be unsuccessful.

The strengths of this study can be found in its consideration of multiple nursing homes and its large sample of nursing home employees and residents. In addition, rigorous analytical methods were used to examine nursing home culture and climate based on well documented techniques. Limitations can be found in the use of convenience sampling techniques. Nursing homes that opted to participate in this study could be different from those that did not participate. However, nursing homes that did participate do appear to be fairly representative of nursing homes in general based on national statistics. Despite efforts to provide staff with multiple opportunities to participate in this study, facilities ultimately had control over who could and could not participate in the study. There is no way of knowing if the employees who were able to participate in this study were in any way different from those who could not because of the need to care for residents.

A major contribution of this research can be found in results related to organizational climate. Nursing homes with more positive climates were more likely to have employees who were more satisfied with their jobs and committed to the organization. Climate was also significantly related to resident outcomes, particularly with respect to engagement. Engagement has been found to positively affect outcomes in other human service agencies (Glisson, 2009).

This would suggest that future efforts to improve outcomes should consider strategies to create a more engaged climate within the organization.

This research introduces a method whereby culture change strategies can be quantitatively examined in nursing homes. The OSC was originally designed to be used among employees with at least a bachelor's level education. In nursing homes, many employees do not have this advanced level of education. Some modifications are necessary to improve the model's fit within the nursing home industry. While additional work is needed to improve the CFA, future research could examine differences between the organizational context of different facilities, such as Eden Alternative facilities and Wellspring facilities. Using the OSC we can explore possible differences in these programs and interventions that have been used in other industries, such as ARC, can be applied to the nursing home industry.

The effect of culture and climate on resident family members and interactions between resident families and nursing home employees could be also explored in future research. Resident families can become very aggressive when they perceive that their loved one is not being cared for properly. Rigid and resistant cultures along with less engaged and less functional climates could be associated with increased complaints and dissatisfaction from family members.

The findings of this research have implications for those in the field of social work. Given the impact of a positive climate on employee and resident outcomes, social workers in nursing homes should work to improve their organization's climate. Efforts to reduce employee stress and promote engagement with residents could be beneficial and social workers are well trained to become change agents. Facility social workers could play a major role in creating and maintaining attitudes among the staff that could produce more positive nursing home climates.

Social work researchers should also focus on learning what steps can be taken to improve organizational climates. This research demonstrates that there is variation between facilities so evidence-based practices to produce organizational change are needed.

This research also has cross disciplinary implications and is likely to be of interest to health care administrators, nurses, therapists, social workers and others interested in improving outcomes in today's nursing homes. Culture in nursing homes is receiving a great deal of attention, but more research is needed. Without consideration of organization culture and climate, facilities may be unable to generate significant, lasting changes. This research contributes to our understanding of the organizational context of nursing homes and its effect on employee and resident outcomes. We can now begin to develop change strategies that may contribute to an improved quality of care and quality of life for residents and an improved work environment for staff. No doubt change will be a time consuming process (Boyd & Leutje, 1992) requiring ongoing commitment from state and federal agencies, governing boards, administrators, managers, direct care staff, residents, and family members. Social workers must be concerned with understanding how the quality of care and quality of life of older adults in long-term care facilities can be optimized within an organizational context that is profit oriented, and find ways to improve outcomes for the benefit of older adults residing in America's nursing homes.

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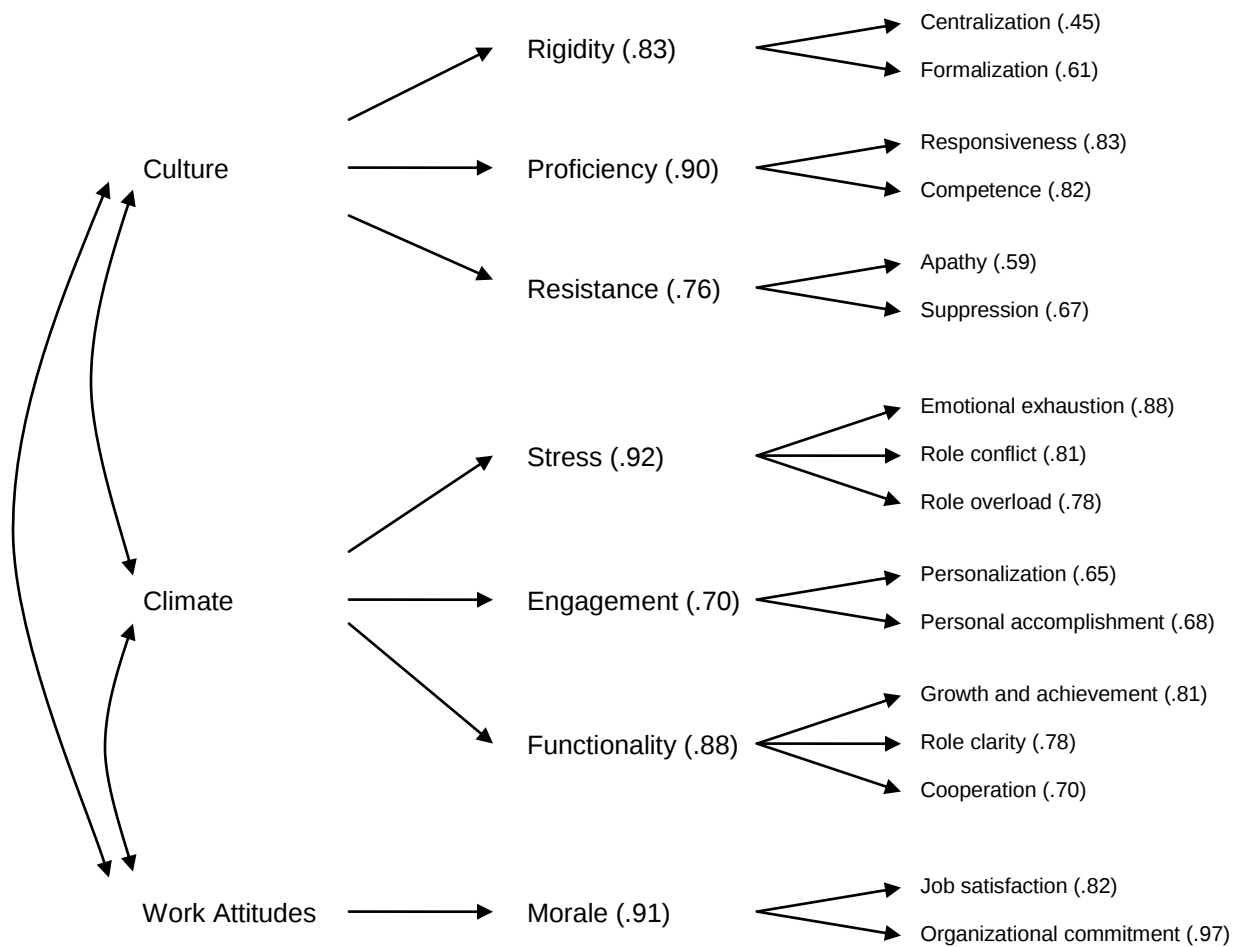
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APPENDICES

APPENDIX A - FIGURES



(alpha reliability coefficients for each scale are in parentheses)

Figure 1. Confirmatory factor analysis (CFA) of Organizational Social Context (OSC)

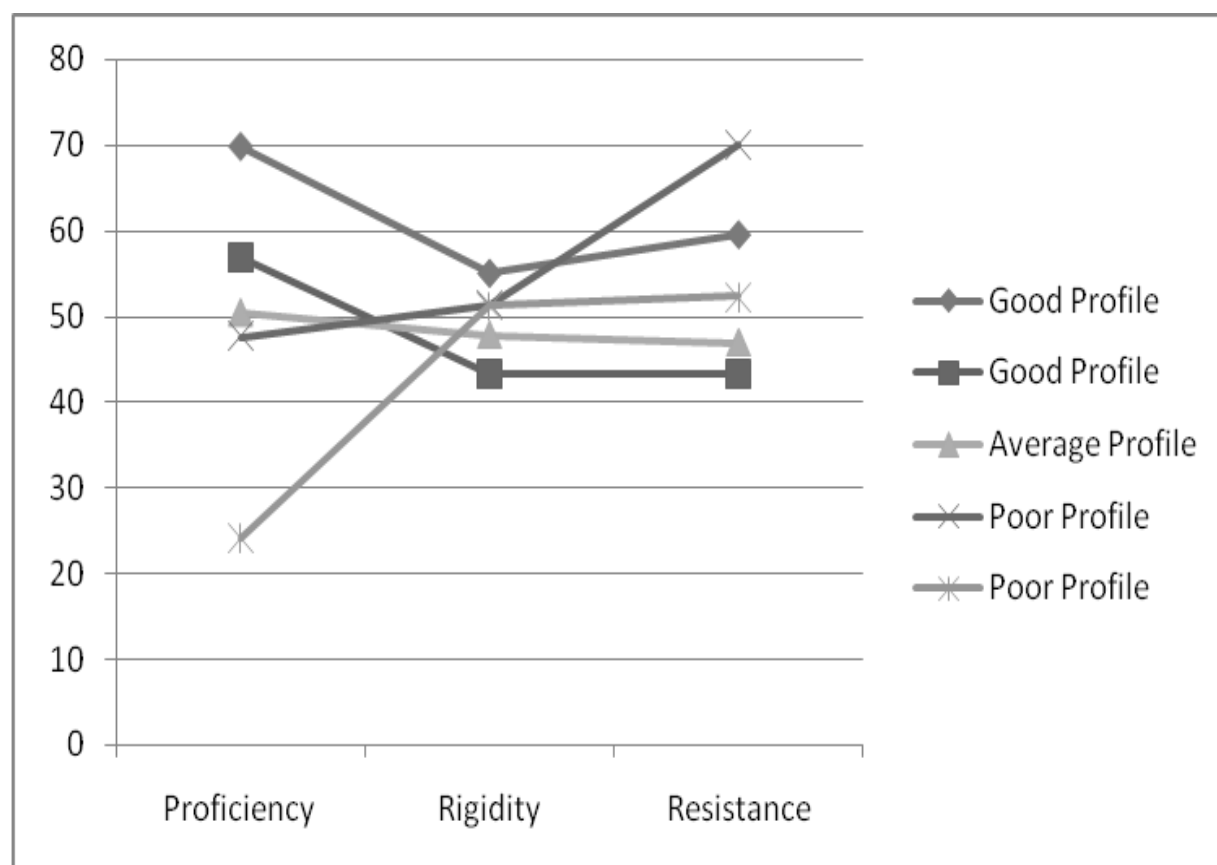


Figure 2. Examples of facility culture profiles

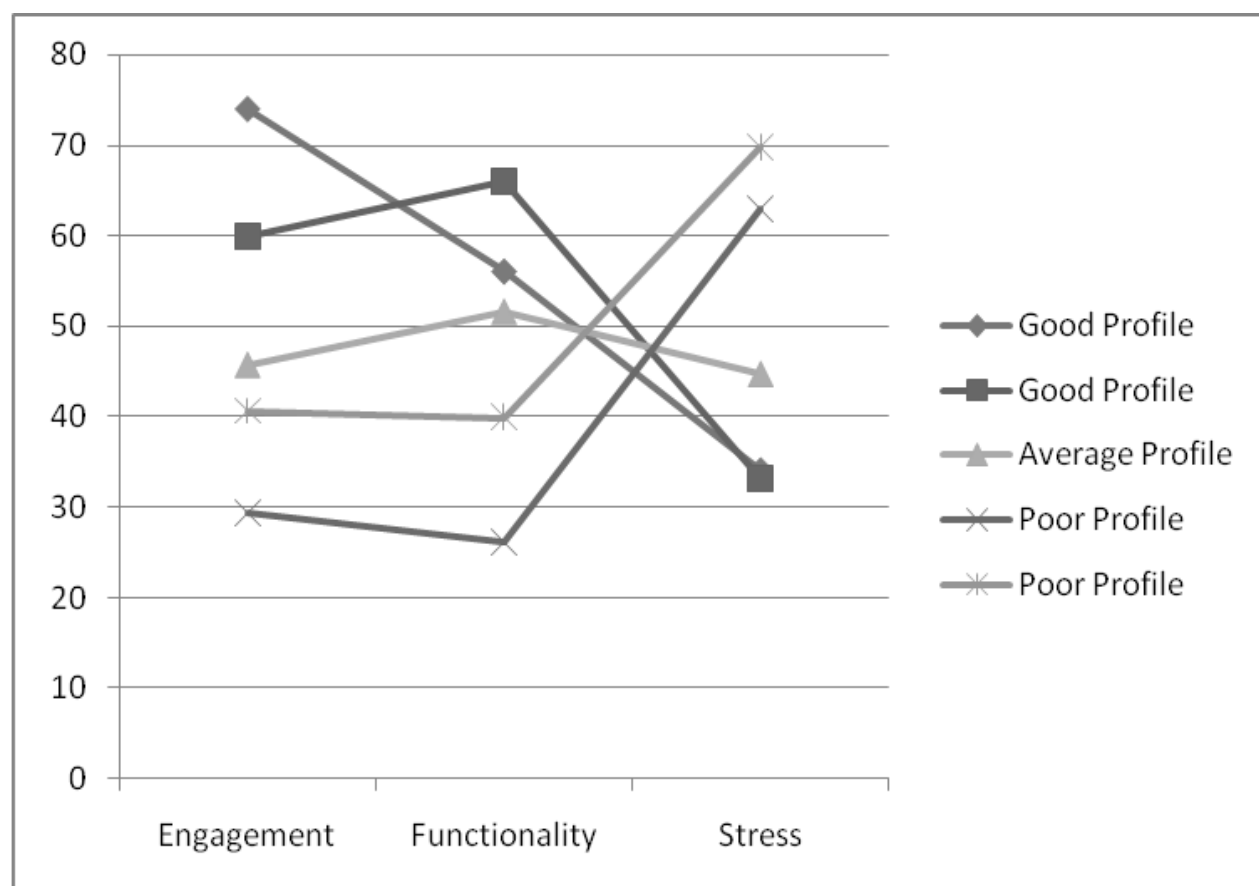
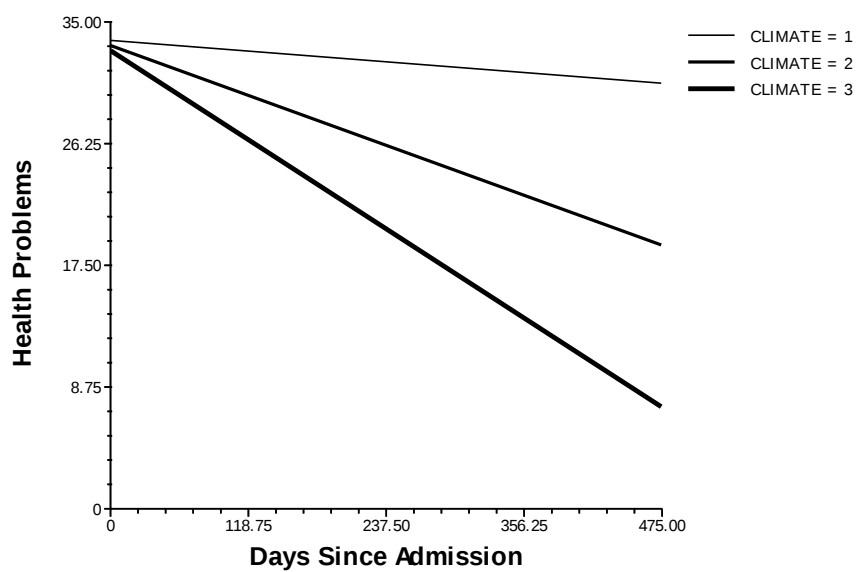
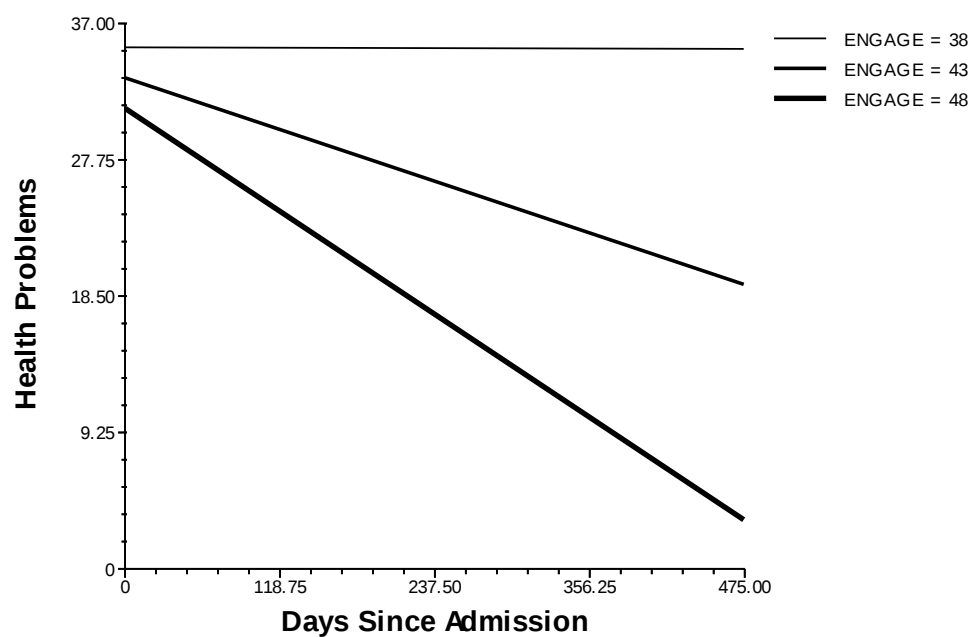


Figure 3. Examples of facility climate profiles



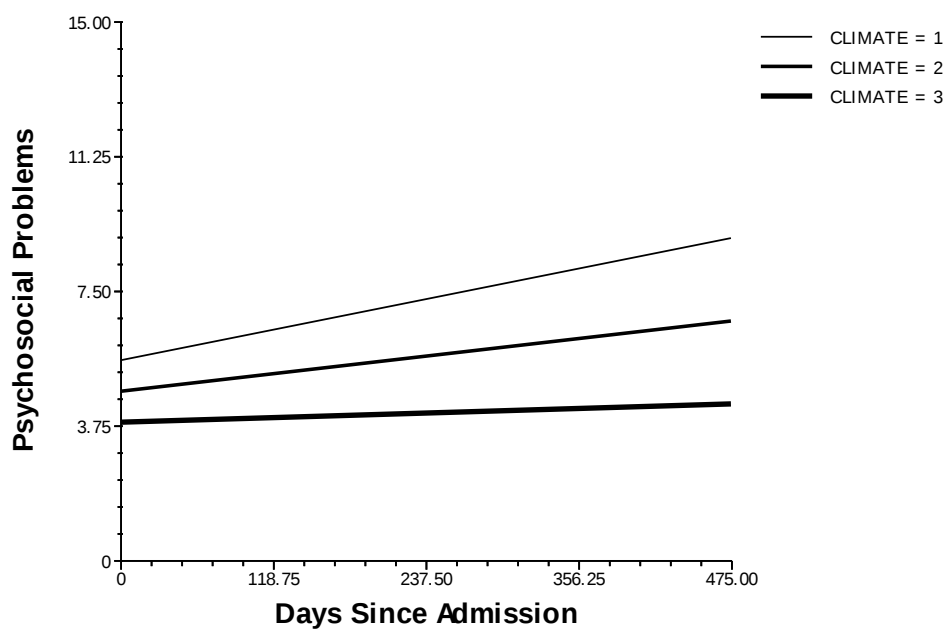
(Climate 1= Poor Profile; Climate 2 = Average Profile, Climate 3 = Good Profile)

Figure 4. HLM analysis of resident health problems over time as a function of climate



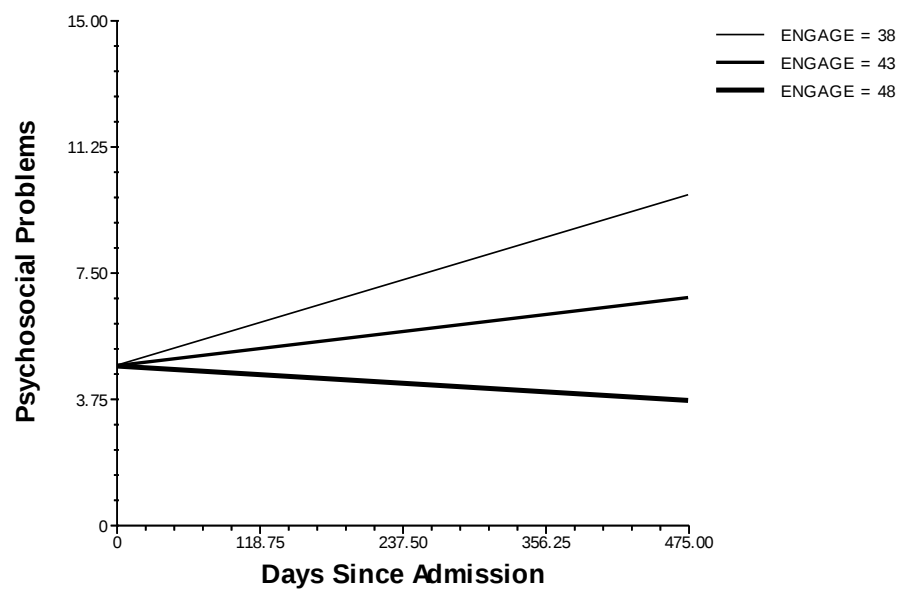
(engagement 38 = low engagement; engagement 43 = average engagement; engagement 48 = high engagement)

Figure 5. HLM analysis of resident health problems over time as a function of engagement



(Climate 1= Poor Profile; Climate 2 = Average Profile, Climate 3 = Good Profile)

Figure 6. HLM analysis of resident psychosocial problems over time as a function of climate



(engagement 38 = low engagement; engagement 43 = average engagement; engagement 48 = high engagement)

Figure 7. HLM analysis of psychosocial problems over time as a function of engagement

APPENDIX B - TABLES

Table 1

MDS items that went into the composition of resident health scores

Activities of Daily Living

Measured using an ordinal scale of 0-4 with “0” indicating the resident is completely independent, “1” indicating supervision needed, “2” indicating limited assistance required, “3” indicating extensive assistance needed and “4” indicating the resident is completely dependent upon others. Specific MDS items include:

Bed Mobility	0	1	2	3	4
Locomotion on Unit	0	1	2	3	4
Bathing	0	1	2	3	4
Toilet Use	0	1	2	3	4
Locomotion off Unit	0	1	2	3	4
Dressing	0	1	2	3	4
Walk in Room	0	1	2	3	4
Personal Hygiene	0	1	2	3	4
Eating	0	1	2	3	4
Walk in Corridor	0	1	2	3	4
Transfer (e.g. from bed to chair)	0	1	2	3	4

Table 1 continued

MDS items that went into the composition of resident health scores

Range of Motion

Measured using an ordinal scale of 0-2 with “0” indicating no limitations, “1” indicating limitations on one side and “2” indicating limitations on both sides. Specific MDS items include:

Neck	0	1	2
Arm	0	1	2
Leg	0	1	2
Hand	0	1	2
Foot	0	1	2

Continence

Measured using an ordinal scale of 0-4 with “0” indicating continence, “1” indicating usually continent, “2” indicating occasionally incontinent, “3” indicating frequently incontinent and “4” indicating total incontinence. Specific MDS items include:

Bowel	0	1	2	3	4
Bladder	0	1	2	3	4

Table 1 continued

MDS items that went into the composition of resident health scores

Accidents

Measured as a dichotomous variable with “0” indicating an accident did not occur and “1” indicating an accident did occur. Specific MDS items include:

Fall past 30 days	0	1
Fall past 31-180 days	0	1

Weight Change

Measured as a dichotomous variable with “0” indicating a weight change of 5% in the last 30 days or 10% in the last 180 days did not occur and “1” indicating a weight change did occur over the same time period. Specific MDS items include:

Weight Loss	0	1
Weight Gain	0	1

Ulcers (Stages 1-4)

Measured as a count of the number of ulcers present with 0 – 8 representing the number of ulcers present and “9” indicating the presence of 9 or more pressure or stasis ulcers

Stage 1:	0	1	2	3	4	5	6	7	8	9
Stage 2:	0	1	2	3	4	5	6	7	8	9
Stage 3:	0	1	2	3	4	5	6	7	8	9
Stage 4:	0	1	2	3	4	5	6	7	8	9

Table 1 continued

MDS items that went into the composition of resident health scores

Urinary Tract Infections (UTI)

Measured as a dichotomous variable with “0” indicating the absence of a urinary tract infection in the last 30 days and “1” indicating the presence of a urinary tract infection over the same time period

UTI	0	1
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Table 2

MDS items that went into the composition of resident psychosocial scores

Memory

Measured as a dichotomous variable with “0” indicating no memory problems and “1” indicating memory problems. Specific MDS items include:

Short Term	0	1
Long Term	0	1

Cognitive Skills for Daily Decision Making

Measured as a single item on an ordinal scale with “0” indicating independence, “1” modified independence, “2” moderately impaired and “3” severe impairment

Indicators of Delirium

Measured on an ordinal scale with “0” indicating the behavior was not present, “1” indicating the behavior was present but of a recent onset, “2” indicating the behavior was present and of a new onset or worse than usual. Specific items include

Easily Distracted	0	1	2
Periods of Altered Perception	0	1	2
Episodes of Disorganized Speech	0	1	2
Periods of Restlessness	0	1	2
Periods of Lethargy	0	1	2
Mental Functions Varies over Day	0	1	2

Table 2 continued

MDS items that went into the composition of resident psychosocial scores

Indicators of Depression

Measured as ordinal variables with “0” indicating behavior not exhibited in the last 30 days, “1” indicating behavior is exhibited up to 5 times a week, and “2” indicating behavior exhibited daily or almost daily. Specific behaviors include:

Verbal Expressions of Distress

Negative Statements	0	1	2
Repetitive Questions	0	1	2
Repetitive Verbalizations	0	1	2
Persistent Anger	0	1	2
Self Deprecation	0	1	2
Unrealistic Fears	0	1	2
Repetitive Health Complaints	0	1	2
Repetitive Anxious Concerns	0	1	2

Recurrent Statements that Something Terrible is About to Happen

0	1	2
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Sleep Cycle Issue

Unpleasant Mood in the Morning	0	1	2
Insomnia/Change in Sleep Patterns	0	1	2

Table 2 continued

MDS items that went into the composition of resident psychosocial scores

Indicators of Depression (continued)

Sad, Apathetic, Anxious Appearance

Crying/Tearfulness	0	1	2
Repetitive Physical Movements	0	1	2
Sad, Pained, Worried Facial Expressions	0	1	2

Loss of Interest

Withdrawal from Activities of Interest	0	1	2
Reduced Social Interaction	0	1	2

Behavioral Symptoms (Frequency & Alterability)

Frequency (F) of symptoms below was measured on an ordinal scale with “0” indicating the behavior was not exhibited in the past 7 days, “1” behavior occurred 1-3 days in the last week, “2” behavior occurred 4-6 days in the last week, “3” behavior occurred daily. Alterability (A) was measured as a dichotomous variable with “0” indicating the behavior was not present or if present it was easily altered and “1” indicating the behavior was not easily altered.

Wandering	F: 0	1	2	3	A: 0	1
Verbally Abusive	F: 0	1	2	3	A: 0	1
Resists Care	F: 0	1	2	3	A: 0	1

Table 2 continued

MDS items that went into the composition of resident psychosocial scores

Behavioral Symptoms (Frequency & Alterability continued)

Physically Abusive	F: 0	1	2	3	A: 0	1
Socially Inappropriate	F: 0	1	2	3	A: 0	1
Problem Conditions	F: 0	1	2	3	A: 0	1
Hallucinations	F: 0	1	2	3	A: 0	1

Average Time Involved in Activities

Measured as a single variable on an ordinal scale with “0” indicating that more than two thirds of one’s time was spent engaged in activities, “1” indicating some time about one to two thirds of time was spent engaged in activities, “2” indicating less than a third of one’s time was spent in activities, and “3” indicating that no time was spent in activities.

Table 3

<i>Nursing home characteristics (n = 27)</i>				
	Nominal variables		Continuous variables	
	Value	Percent	Mean	SD
Location				
Urban	9	33.3		
Non urban	18	66.7		
Ownership				
For profit	22	81.5		
Not for profit	5	18.5		
Affiliation				
Chain	19	70.4		
Non chain	8	29.6		
Bed Capacity			104.07	21.70
Staffing Ratios				
First shift			1:9.42	1.77
Second shift			1:12.28	2.53
Third shift			1:18.78	3.93

Table 4

<i>Employee characteristics (n = 1114)</i>				
	Nominal Variables		Continuous Variables	
	Value	Percent	Mean	<i>SD</i>
Gender				
Male	111	10		
Female	1001	89.9		
Education				
Some high school	108	9.7		
High school/GED	359	32.3		
Some college	509	45.7		
Bachelor's degree	83	7.5		
Some graduate	11	1		
Master's degree	35	3.1		
Race				
Caucasian	718	64.5		
African American	311	27.9		
Hispanic	7	0.6		
Asian	24	2.2		
Other Pacific Islander	18	1.6		
Other Race	29	2.6		

Table 4 continued

<i>Employee characteristics (n = 1114)</i>				
	Nominal Variables		Continuous Variables	
	Value	Percent	Mean	<i>SD</i>
Occupation				
CNA	505	45.4		
LPN	132	11.9		
RN	89	8		
Diet/HSKP/Main	199	17.9		
Business Office	60	5.4		
SW/ACT/Admis	62	5.6		
Therapist	34	3.1		
Other	28	2.5		
Shift				
Days	778	69.9		
Evenings	816	73.3		
Nights	108	9.7		
PRN	31	2.8		
Weekends only	48	4.3		

Table 4 continued

<i>Employee characteristics (n = 1114)</i>				
	Nominal Variables		Continuous Variables	
	Value	Percent	Mean	<i>SD</i>
Experience (months)			108.29	90.57
Tenure (months)			58.53	66.9
Age (years)			40.36	12.86

Table 5

<i>Resident characteristics (n = 3927)</i>				
	Nominal Variables		Continuous Variables	
	Value	Percent	Mean	<i>SD</i>
Gender				
Male	1259	32.1		
Female	2660	67.7		
Missing	8	.2		
Race				
Caucasian	3385	86.2		
African American	485	12.4		
Hispanic	21	.5		
Asian/Pacific Islander	7	.2		
American Indian	8	.2		
Missing	21	.5		
Marital Status				
Widowed	2038	51.9		
Married	1106	28.2		
Divorced	332	8.5		

Table 5 continued

<i>Resident characteristics (n = 3927)</i>				
	Nominal Variables		Continuous Variables	
	Value	Percent	Mean	<i>SD</i>
Marital Status (continued)				
Never Married	320	8.1		
Separated	38	1		
Missing	93	2.4		
Dementia				
Yes	1197	30.5		
No	2677	68.2		
Missing	53	1.3		
Age			78.93	10.31

Table 6

Confirmatory factor analysis fit indices

Index	Value
RMSEA	.107
SRMR	.259
CFI	.877
NFI	.867
IFI	.877

Table 7

Within group analysis of agreement for 27 facilities (n = 1114)

Construct	r_{wg}	
	Mean	SD
Culture		
Rigidity	0.82	0.08
Proficiency	0.93	0.04
Resistance	0.77	0.13
Climate		
Stress	0.81	0.13
Engagement	0.86	0.05
Functionality	0.87	0.08

Table 8

Between facility analysis

Construct	τ	σ^2	η^2	ICC
Rigidity	1.23**	47.73	.05	.03
Proficiency	3.63***	99.76	.06	.04
Resistance	1.42**	47.43	.04	.03
Stress	19.72***	231.00	.09	.08
Engagement	1.41***	38.07	.06	.04
Functionality	8.44***	107.67	.09	.07
Morale	11.94***	143.97	.09	.08

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9

<i>HLM analysis of employee morale with culture and climate profiles</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Random effects only						
	Constant	61.515	.825	74.568	23	<.001
	Organizational variance	12.871				
	Residual variance	143.455				
	χ^2	102.473			23	<.001
	ICC	.082				
Individual-level covariates and facility-level predictors						
	Constant	58.735	6.543	8.977	16	<.001
	Female	.974	1.295	.753	907	.452
	Education	-.447	.472	-.946	907	.345
	Age**	.095	.033	2.850	907	.005
	CNA	.352	1.184	.297	907	.766
	LPN	-.295	1.573	-.187	907	.852
	RN	-2.226	1.828	-1.217	907	.224
	Business Office	3.327	1.952	1.705	907	.088
	SWAAD ^a	1.483	1.970	.753	907	.452
	Therapy	1.275	2.498	.510	907	.609
	Caucasian	1.375	.969	1.418	907	.157

Table 9 continued

<i>HLM analysis of employee morale with culture and climate profiles</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Individual-level covariates and facility-level predictors (continued)						
	First Shift	.294	1.127	.261	907	.794
	Second Shift	1.413	1.305	1.083	907	.280
	Culture	-.924	1.454	-.635	16	.534
	Climate**	4.900	1.600	3.067	16	.008
	Urban	.710	1.463	.485	16	.634
	Chain	-.269	1.471	-.183	16	.857
	Beds	-.063	.032	-1.94	16	.070
	Staffing	-.220	.310	-.709	16	.488
	Ownership	-.396	1.876	-.211	16	.836
	Organizational variance	3.832				
	Residual variance	140.074				
	χ^2	32.143			16	.010
	Incremental proportion of organizational variance explained					.702
	Incremental proportion of residual variance explained					.024

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, a = Social Work, Activity, and Admission Staff

Table 10

HLM analysis of employee morale with climate dimensions

Model	Variable	Coefficient	SE	t-ratio	df	P-value
Individual-level covariates and facility-level predictors						
	Constant	-37.707	26.174	-1.441	15	.170
	Female	1.214	1.281	.947	906	.344
	Education	-.473	.467	-1.012	906	.312
	Age**	.099	.033	3.018	906	.003
	CNA	.313	1.159	.270	906	.787
	LPN	-.223	1.549	-.144	906	.886
	RN	-2.296	1.807	-1.271	906	.204
	Business Office	3.601	1.927	1.868	906	.062
	SWAAD ^a	1.499	1.948	.770	906	.442
	Therapy	.913	2.473	.369	906	.712
	Caucasian	1.090	.942	1.157	906	.248
	First Shift	.364	1.108	.328	906	.742
	Second Shift	1.355	1.288	1.052	906	.294
	Stress	.196	.156	1.256	15	.229
	Engagement	.670	.400	1.676	15	.114
	Functionality***	1.090	.260	4.187	15	.001
	Urban	.685	1.146	.598	15	.559

Table 10 continued

HLM analysis of employee morale with climate dimensions

Model	Variable	Coefficient	SE	t-ratio	df	P-value
Individual-level covariates and facility-level predictors (continued)						
	Chain	-2.268	1.204	-1.883	15	.079
	Beds	-.043	.023	-1.821	15	.088
	Staffing	.381	.257	1.481	15	.159
	Ownership	.449	1.307	.343	15	.736
	Organizational variance	.017				
	Residual variance	138.590				
	χ^2	6.026			15	>.500
	Incremental proportion of organizational variance explained					.999
	Incremental proportion of residual variance explained					.034

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, a = Social Work, Activities and Admission Staff

Table 11

<i>HLM analysis of resident health outcomes with culture and climate profiles</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Random effects only						
	Constant	33.461	.802	41.703	23	<.001
	Organizational Variance	<.001				
	Individual Variance	.007				
	χ^2	74.965			23	<.001
	ICC	.046				
Full Intercept Model						
	Constant	21.360	6.743	3.168	16	.006
	Culture	-.039	1.542	-.025	16	.981
	Climate	-.365	1.578	-.231	16	.820
	Urban	-.924	1.558	-.593	16	.561
	Chain	-.144	1.699	-.085	16	.934
	Beds	.030	.036	.814	16	.428
	Staffing	.445	.350	1.271	16	.222
	Ownership	2.139	2.239	.956	16	.354
	Caucasian***	-4.676	.681	-6.770	3803	<.001
	Married***	1.751	.498	3.514	3803	.001
	Dementia***	4.808	.485	9.906	3803	<.001

Table 11 continued

<i>HLM analysis of resident health outcomes with culture and climate profiles</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Full Intercept Model (continued)						
	Gender	.441	.488	.902	3803	.367
	Age**	.051	.022	2.356	3803	.019
Full Slope Model						
	Culture	.012	.008	1.499	16	.153
	Climate**	-.024	.008	-2.978	16	.009
	Urban	.001	.008	.087	16	.932
	Chain	.009	.009	.956	16	.354
	Beds	<.001	<.001	-.417	16	.681
	Staffing	.003	.002	1.457	16	.164
	Ownership	.010	.012	.785	16	.444
	Caucasian*	-.016	.008	-2.150	3803	.031
	Married	.008	.006	1.199	3803	.231
	Dementia***	.030	.005	5.674	3803	<.001
	Gender	-.002	.006	-.367	3803	.713
	Age*	.001	<.001	2.551	3803	.011
	Organizational variance	<.001				
	Individual variance	.007				

Table 11 continued

HLM analysis of resident health outcomes with culture and climate profiles

Model	Variable	Coefficient	SE	<i>t</i> -ratio	df	<i>P</i> -value
Incremental proportion of organizational variance explained						.618
Incremental proportion of individual variance explained						.046

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12

<i>HLM analysis of resident health outcomes with engagement</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Full Intercept Model						
	Constant	38.572	17.086	2.258	17	.037
	Engagement	-.414	.364	-1.139	17	.271
	Urban	-.830	1.492	-.557	17	.584
	Chain	.039	1.664	.023	17	.982
	Beds	.028	.035	.812	17	.428
	Staffing	.418	.337	1.238	17	.233
	Ownership	2.303	2.188	1.053	17	.308
	Caucasian****	-4.664	.691	-6.751	3803	<.001
	Married***	1.747	.498	3.506	3803	.001
	Dementia***	4.802	.489	9.891	3803	<.001
	Gender	.448	.489	.917	3803	.359
	Age*	.051	.022	2.352	3803	.019
Full Slope Model						
	Engagement**	-.006	.002	-2.991	17	.009
	Urban	.001	.008	.077	17	.940
	Chain	.010	.009	1.033	17	.317
	Beds	<.001	<.001	-.272	17	.789

Table 12 continued

<i>HLM analysis of resident health outcomes with engagement</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Full Slope Model (continued)						
	Staffing	.002	.002	1.110	17	.283
	Ownership	.010	.013	.777	17	.448
	Caucasian*	-.016	.008	-2.102	3803	.035
	Married	.008	.006	1.191	3803	.234
	Dementia***	.030	.005	5.670	3803	<.001
	Gender	-.003	.006	-.417	3803	.676
	Age*	.001	<.001	2.523	3803	.012
	Organizational variance	<.001				
	Individual variance	.007				
	Incremental proportion of organizational variance explained					.588
	Incremental proportion of individual variance explained					.051

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13

<i>HLM analysis of resident psychosocial outcomes with culture and climate profiles</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Random effects only						
	Constant	4.881	.268	18.187	23	<.001
	Organizational Variance	<.001				
	Individual Variance	<.001				
	χ^2	33.773			23	.068
	ICC	.013				
Full Intercept Model						
	Constant	5.196	2.000	2.598	16	.020
	Culture	.409	.461	.887	16	.389
	Climate	-.862	.472	-1.826	16	.086
	Urban	-.068	.466	-.416	16	.886
	Chain	.037	.507	.073	16	.943
	Beds	.006	.011	.545	16	.593
	Staffing	-.061	.104	-.582	16	.568
	Ownership	.365	.669	.546	16	.592
	Caucasian	-.086	.191	-.452	3803	.651
	Married	.198	.138	1.436	3803	.151
	Dementia***	3.860	.134	28.846	3803	<.001

Table 13 continued

<i>HLM analysis of resident psychosocial outcomes with culture and climate profiles</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Full Intercept Model (continued)						
	Gender	.060	.135	.447	3803	.654
	Age	-.011	.006	-1.794	3803	.073
Full Slope Model						
	Culture	<.001	.001	-.010	16	.992
	Climate*	-.003	.001	-2.146	16	.047
	Urban	<.001	.002	.205	16	.840
	Chain	<.001	.002	.128	16	.900
	Beds	<.001	.001	.205	16	.840
	Staffing	<.001	.001	.743	16	.468
	Ownership	<.001	.002	.044	16	.965
	Caucasian	.001	.002	.694	3803	.488
	Married	<.001	.002	-.134	3803	.894
	Dementia***	-.005	.001	-3.867	3803	<.001
	Gender	-.001	.001	-.828	3803	.408
	Age**	<.001	<.001	2.884	3803	.004
	Organizational variance	<.001				
	Individual variance	<.001				

Table 13 continued

HLM analysis of resident psychosocial outcomes with culture and climate profiles

Model	Variable	Coefficient	SE	<i>t</i> -ratio	df	<i>P</i> -value
Incremental proportion of organizational variance explained						.995
Incremental proportion of individual variance explained						.030

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14

<i>HLM analysis of resident psychosocial outcomes with climate dimensions</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Random effects only						
	Constant	4.881	.268	18.187	23	<.001
	Organizational Variance	<.001				
	Individual Variance	<.001				
	χ^2	33.773			23	.068
	ICC	.013				
Full Intercept Model						
	Constant	-13.877	10.560	-1.314	15	.209
	Stress*	-.164	.065	2.528	15	.023
	Engagement	-.003	.161	-.017	15	.986
	Functionality	.153	.123	1.243	15	.233
	Urban	.381	.466	.819	15	.426
	Chain	-.651	.568	-1.145	15	.271
	Beds	.011	.011	1.001	15	.333
	Staffing	.015	.115	.130	15	.899
	Ownership	.595	.641	.929	15	.368
	Caucasian	-.097	.191	-.508	3803	.611
	Married	.200	.138	1.456	3803	.145

Table 14 continued

<i>HLM analysis of resident psychosocial outcomes with climate dimensions</i>						
Model	Variable	Coefficient	SE	t-ratio	df	P-value
Full Intercept Model						
	Dementia***	3.865	.134	28.883	3803	<.001
	Gender	.062	.135	.460	3803	.645
	Age	-.011	.006	-1.771	3803	.076
Full Slope Model						
	Stress	<.001	<.001	.488	15	.563
	Engagement**	-.001	.001	-2.397	15	.030
	Functionality	<.001	<.001	.459	15	.653
	Urban	.001	.002	.809	15	.431
	Chain	<.001	.002	-.072	15	.944
	Beds	<.001	<.001	.572	15	.575
	Staffing	<.001	<.001	.872	15	.397
	Ownership	.001	.002	.318	15	.755
	Caucasian	.001	.002	.786	3803	.432
	Married	<.001	.002	-.147	3803	.884
	Dementia***	-.005	.001	-3.935	3803	<.001
	Gender	-.001	.001	-.847	3803	.397
	Age**	<.001	<.001	2.893	3803	.004

Table 14 continued

HLM analysis of resident psychosocial outcomes with climate dimensions

Model	Variable	Coefficient	SE	t-ratio	df	P-value
	Organizational variance	<.001				
	Individual variance	<.001				
	Incremental proportion of organizational variance explained					.971
	Incremental proportion of individual variance explained					.030

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

VITA

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