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FAMILY SUPPORT AND MENTAL HEALTH CARE QUALITY
IN NURSING HOMES SERVING RESIDENTS WITH A MENTAL HEALTH
HISTORY

by

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ABSTRACT

The prevalence of mental health disorders among the nursing home population is well recognized. However, providing adequate mental health services for nursing home residents who need them remains a challenging endeavor. The social support of family has long been recognized as a key resource for older adults with a mental health history and older adults residing in nursing homes. The purpose of this study is to examine the quality of mental health care provided for nursing home residents with a mental health history and to determine if family support influences the quality of their mental health care accounting for other facility resident and facility organizational characteristics.

The study utilized a retrospective, cross-sectional design with 2003 national Online Survey Certification and Reporting (OSCAR) facility data merged with the resident-level Minimum Data Set (MDS) resulting in N=2,499 nursing homes. Guided by the convoy model of social support and socioemotional selectivity theory, descriptive statistics and exploratory factor analysis were used to create a profile of facility level data of nursing home residents with a mental health history, explore the role of family support, and determine if items within the OSCAR and MDS databases could respectively be used to measure mental health care quality and family support. Overall, it was found that families have a positive relationship with their relatives and are involved in their lives. Additionally, items within the OSCAR and MDS databases could be used to measure mental health care quality and family support. Finally, facility organizational characteristics explained more variation in the quality of mental health care than did facility resident, family support, or market characteristics. In sum, to enhance the quality of mental health care in nursing homes, partnering with families may be an important tool to meet resident needs.

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INTRODUCTION

The prevalence of mental health disorders in nursing homes is well documented (Centers for Medicare and Medicaid Services, 2005; Bartels, Moak, & Dums, 2002; Castle & Shea, 1997). Although legislation exists mandating treatment for residents with a diagnosed mental health disorder, inadequacy of mental health service provision remains a pervasive issue (Department of Health and Human Services, 2003; Borson, Loebel, Kitchell, Domoto, & Hyde, 1997). Multiple factors are believed to influence the provision of mental health care including individual, social, and organizational characteristics (Gaugler, Leach, & Anderson, 2004). The social support of family has long been recognized as a key resource for older adults with a mental health history and older adults residing in nursing homes. Families provide emotional support, instrumental support, and advocate on behalf of their family members (Gladstone, Dupuis, & Wexler, 2006; Skinner, Steinwachs, & Kasper, 1992). As families serve important supportive roles, they have a positive influence on the quality of care provided in nursing homes (Chou, 2002). This may also apply specifically to mental health care. The overarching research question for this study is: *Does family support have an influence on the quality of mental health care provided in nursing homes?* Using a cross-sectional design with 2003 national Online Survey, Certification and Reporting (OSCAR) facility administrative data merged with the resident-level Minimum Data Set (MDS) this dissertation explored the role of family support to promote mental health care quality for residents who enter a facility with a prior history of receiving mental health treatment.

Little empirical research has examined how family support may influence the quality of care provided to individuals who enter nursing home care. Gaugler, Kane, and

Kane (2002), note the lack of evidence for the effectiveness of family support on resident well-being and call for future studies to more systematically explore the impact of informal support on the quality of care and quality of life of nursing home residents. This dissertation attempted to begin filling this gap. Specific aims for the study included:

Aim 1: To determine if specific mental health deficiency and care indicators within the OSCAR database can be combined to form a valid measure of mental health care quality for residents with a mental health history.

Aim 2: To determine if specific family indicators within the MDS database can be combined to form a valid measure of family support for residents with a mental health history.

Aim 3: To determine the independent influence of family support on the quality of mental health care provided for nursing home residents with a mental health history.

Aim 4: To determine if the quality of mental health care among nursing home residents with a mental health history varies based on facility resident, facility organizational, and market factors.

Aim 5: To determine the influence of family support on the quality of mental health care provided for nursing home residents with a mental health history controlling for facility resident, facility organizational, and market factors.

Background and Significance

Mental health disorders are medical conditions that influence individuals' daily functioning, ability to relate to others, and reduce their capacity to cope with life events. Some of the more severe mental health disorders include major depression,

schizophrenia, bipolar disorder, and anxiety disorder (National Alliance on Mental Illness, 2007). Treatment is often successful in helping to manage symptoms and increase quality of life. However, for a minority of individuals, their diagnosis is more chronic and persists throughout their life course.

Among the older adult population, mental health disorders are not uncommon, although they are less documented than among other age groups. During a one-year period, the prevalence rate of having a diagnosable mental health disorder among older adults is 19.8% (U.S. Public Health Service, 2007), with approximately 4% diagnosed with a severe mental illness and 1% diagnosed with a severe and persistent mental illness (Kessler, Berglund, Bruce, Koch, Laska, Leaf, Manderscheid, Rosenheck, Walters, & Wang, 2001).

While the prevalence rate of severe mental health disorders in the older adult community population is quite low, this number is higher among individuals residing in institutional settings. In fact, nursing homes are the primary source of institutional care for older adults with a mental health history (Bartels, Miles, Dums, & Levine, 2003). Older adults with a mental health history, without a diagnosis of Alzheimer's disease or dementia, account for approximately 13% (171,513) of the nursing home population (Centers for Medicare and Medicaid Services, 2005). A mental health history is defined as having a primary or secondary diagnosis of a psychiatric illness, without comorbid dementia or Alzheimer's disease, that results in functional limitations and a treatment history indicating supportive services due to significant life disruptions (Centers for Medicare and Medicaid Services, 2002).

The quality of care received by nursing home residents is of increasing concern (U.S. GAO, 1999; U.S. GAO, 1998). Quality of care measures emphasize health and safety measures, and facility deficiencies are often used to measure inadequate care that results in bedsores, urinary tract infections, dehydration, and excessive psychotropic medication use (Kane, 2003). However, moving beyond basic care needs are issues involving overall quality of life. Quality of life is a more broadly defined concept and is believed to encompass numerous domains including comfort, security, dignity, and mental well-being (Kane, 2001). Unfortunately, the mental health and social aspects of quality of life have not yet received the same widespread attention as the physical aspects of quality care (Kane, Kling, Bershady, Kane, Giles, Degenholtz, Liu, & Cutler, 2003). Efforts to improve quality of care and more generally quality of life in nursing homes must move beyond the present emphasis on the care of physical needs to address the mental health needs of residents.

Due to the prevalence of individuals with a mental health history in institutional settings and the complexity of their needs, the question arises if they are receiving needed mental health care. Adequately meeting the mental health care needs of individuals residing in nursing homes is important because it may have profound effects on their quality of life and overall well-being. Several studies looking at subsets of U.S. nursing home residents have found that few residents with a mental health history actually receive treatment when residing in nursing homes, even if it is an identified need (Fenton, Raskin, Gruber-Baldini, Menon, Zimmerman, Kaup, Loreck, Ruskin, & Magaziner, 2004; Bartels, Moak, & Dums, 2002; Shea, Russo, & Smyer, 2000).

Quality and utilization of mental health care are believed to be influenced by a number of factors including those of the organization and the individual (Shea, Streit, & Smyer, 1994). Additionally, family support may be a particularly important factor influencing the care individuals receive when residing in nursing homes. When individuals enter nursing home care, families continue to provide both technical and supportive assistance (Gladstone, Dupuis, & Wexler, 2006). Having a family or caregiver involved in the lives of older adults with a mental health history may serve as a key supportive factor, as social supports may advocate for needed mental health services (Shea, Streit, & Smyer, 1994). Partnering with families has been identified as essential for meeting the needs of individuals in nursing homes due to the limitation of resources and current demand for quality care (Specht, Kelley, Manion, Maas, Reed, & Rantz, 2000). Thus, family support may be a key source of assistance, care, and advocacy, resulting in better care for nursing home residents.

Little is known about the factors that influence the quality of mental health care provided specifically for individuals with a mental health history in nursing homes. In particular, there is a paucity of information about the role of family support among individuals with a mental health history and the quality of their mental health care. This study will contribute to the knowledge base by conveying information to guide practice. The dissertation identifies factors that influence the quality of mental health care provided in nursing homes. Further, findings from this study may provide evidence supporting increased attention to family support, particularly for individuals with a mental health history through informal implementation strategies and formal nursing home policy reforms.

THEORETICAL FRAMEWORK

The theoretical frameworks chosen for this study offer a foundation for understanding how the role of social support and family and social relationships across a lifespan would be expected to contribute to the mental health care provided for older nursing home residents with a mental health history.

Social support is viewed as being vital for overall functioning and mental health. Research has found a positive relationship between the perception of support from family and friends and life satisfaction and well-being as well as decreased depressive symptoms (Kasser & Ryan, 1999). While later life may be associated with functional loss, emotional well-being can be maintained through close, meaningful contacts (Carstensen & Charles, 1998). Research has found when individuals perceive time as limited they prefer to interact with close social partners who are more likely to meet their social and emotional needs and enhance their well-being rather than less close social contacts (Fung, Carstensen, & Lutz, 1999). Older adults create their social networks to include appropriate family and friends who are available to provide assistance in ways they need and desire (Adams & Blieszner, 1995).

However, if family members are unavailable as social partners, individuals can adapt by including other non-kin contacts in their close social networks as important sources of support (Takahashi, Tamura, & Tokoro, 1997; Lang & Carstensen, 1994). When individuals cannot identify anyone as being a significant social network member, they report significantly lower life satisfaction (Takahashi, Tamura, & Tokoro, 1997). Having no close social partners may put individuals at risk for lower overall well-being. In addition, types of social support networks may influence other behaviors, such as the

utilization of health services. Individuals with networks consisting primarily family and close friends have higher health utilization patterns (Litwin, 1997). Thus, it seems having close supportive networks influences well-being and life-satisfaction both directly and indirectly by altering not only social interactions but other service use patterns as well.

Two theories of social support are reviewed, with each contributing to the knowledge base of social and family support. The two selected theories are the convoy model of social support and socioemotional selectivity theory. Combined, these theories provide a framework for understanding the role of social support, particularly family support, in the lives of older adults. The utility of convoy theory and socioemotional selectivity theory for this study is evaluated in the context of the empirical literature on mental health care quality in nursing homes and the role families play to support members with a mental health history.

Convoy Theory

The convoy model of social support was introduced by Kahn and Antonucci (1980) as a theory for understanding social supports and social networks across the life span. The fundamental tenet of this theory posits social support as a vital determinant of individual well-being. In addition to directly enhancing well-being, social support is believed to also enhance well-being indirectly through acting as a buffer between individuals' well-being and life stressors (Kahn & Antonucci, 1980).

A convoy is the personal network of people surrounding an individual through which social support is given and received. These personal support networks are made up of family, friends, and other individuals who serve particular roles that may differ across the life course. Convoys are thought to include three different levels, indicating

the type of relationship and support between the individual and member of that convoy level (Kahn & Antonucci, 1980). The third, or outermost level, is comprised of individuals who are the least close but serve as sources of support by filling some role, such as coworker or neighbor. Social exchanges at this level are role dependent making them the least stable across time. The second level includes individuals who are somewhat closer, and the support received from these social exchanges is less role dependent. However, these relationships are still somewhat unstable as other individuals may be substituted for current convoy members across different life situations. The final, first level of the convoy is comprised of individuals who are very close and viewed as significant social supports. Members of this level are primarily family and include spouses, children, and siblings. This is the most stable level, as membership at this level varies the least across time and circumstances.

Kahn and Antonucci (1980) outline five propositions that provide a guiding framework for the theory. These include: 1) the amount and type of support individuals need is dependent both on the individual and the situation; 2) the networks existing within an individual's convoy are dependent on the individual, the situation, and their need for support; 3) the adequacy of an individual's convoy is dependent on the convoy networks, the individual, and the situation; 4) an individual's well-being and functioning are dependent on the adequacy of social support, the individual, and the situation; and 5) the influence of individual and situational factors on well-being and functioning is moderated by the convoy networks and adequacy of social support.

Research on convoys supports the model, finding members of individuals' inner levels are part of their networks for a longer period of time and older individuals know

their network members for longer than younger individuals (Antonucci & Akiyama, 1987). In addition, individuals are in greater contact with their inner level members compared to their middle and outer level members, and the majority of network supports (82%) are family members. Further, there are no differences across age groups in the number of individuals perceived to be a member of inner support networks, perhaps because inner convoy levels overwhelmingly consist of close family members (Ajrouch, Blandon, & Antonucci, 2005). A high level of consistency also exists among individuals in reported levels of closeness among various relationships (Antonucci, Akiyama, & Takahashi, 2004). Thus, individuals tend to have a fairly stable number of close relationships consisting primarily of family members who follow them across time.

Three types of social support exchanges exist within the convoy model. The first are affective exchanges, which are expressions of admiration and love. Second, affirmation exchanges include expressions of agreement and acknowledgment. Finally, aid exchanges are interactions in which direct assistance is provided (Kahn & Antonucci, 1980). The support that is received from an individual's social network is related not just to the size of the network but to the types of relationships that comprise the networks (Aartsen, Van Tilburg, Smits, & Knipscheer, 2004). In the outer and middle convoy levels, support is typically limited to a specific role or type of exchange. Broader forms of support are received from individuals in the first convoy level which vary depending on personal and situational needs, making this level of support the most important for individual well-being. This is supported by research finding inner level members provided greater support across a variety of support types when compared with outer level members (Antonucci & Akiyama, 1987).

The convoy model posits social support is a vital part of individual functioning and social networks are viewed a key source of support across the life span (Ajrouch, Blandon, & Antonucci, 2005). The model is conceptualized as a dynamic life course theory as individuals' needs and situations change across time and require a shift in roles and individual networks. In addition, the type and amount of social support individuals require is dependent on their circumstances (Kahn & Antonucci, 1980). Convoys may vary in size, stability, and connectedness, which are all influenced by individual and situational characteristics (Antonucci, 1985). As social networks accompany individuals across their life course, individuals need to select social partners that best fit their situations in order to optimize their social networks (Rodeheaver, 1985).

Research supports the dynamic nature of individual convoys across different individual and situational characteristics, finding older adults report more relatives as members of their network's inner level (Fingerman & Birditt, 2003; Ajrouch, Antonucci, & Janevic, 2001) and the number of family members within an individual's social network increases across time (Aartsen, et al., 2004). This may be adaptive as family members provide a wider variety of support which may be needed as individuals age. For nursing home residents with a mental health history support may include continuing contact, participating in care planning, and being responsible for their family member through having power of attorney, assisting in care planning, or paying for additional needs not covered by the primary payer source. Individuals with social networks consisting primarily of close family members report receiving the most support compared with other network types (Litwin & Landau, 2000). In fact, the majority of informal

support given to older adults is provided by family members, so it is only natural that social networks be increasingly comprised of these relationships (Aartsen, et al., 2004).

The perception of social support and actual receipt of social support are both important. In addition to social support directly influencing health behaviors such as seeking care or following medical advice, social support is also believed to be associated with better health outcomes through psychological processes, as individuals perceived support may influence their cognition and affective state (Uchino, 2006). Contact with family, but not friends, is related not only to an increase in received emotional support but also an increase in their perception of the availability of support (Krause, Liang, & Keith, 1990). Other research suggests that it may be the quality of social networks rather than the actual structural composition of networks that has a greater influence on individual well-being as perceived support mediates the relationship between network type and depressive symptoms (Fiori, Antonucci, & Cortina, 2006; Antonucci, Fuhrer, & Dartigues, 1997). The mere existence of social relationships may not be adequate; it is the specific characteristics of the relationships that make them more or less adaptive depending on the situation (Adams & Blieszner, 1995).

As people undergo major life changes such as entering nursing home care, the adequacy of their social support networks may be particularly important as they help to buffer the experienced stress of this life transition. When individuals have an inner convoy level that is perceived as adequate, it is believed to enhance well-being and reduce the risk of experiencing negative outcomes (Antonucci, 1985). Individuals who have suffered a significant amount of personal loss and are unable to maintain lifelong, close relationships may not have adequate support from inner convoy members

(Antonucci & Akiyama, 1987). According to the convoy model, this may be a particular risk to their physical and mental well-being as they do not have the vital support of close individuals to serve as buffers, moderating the influence of life events. In fact, social support is seen as protective factor, with older adults without social support experiencing greater social isolation and loneliness, which influence mental health (Wenger, 1997). Older adults with larger social networks including a greater proportion of family members display fewer depressive symptoms (Antonucci, Fuhrer, & Dartigues, 1997). Those without close family members may be at the greatest risk for negative outcomes. For example, the convoy theory predicts nursing home residents with a mental health history that have a close inner convoy of family members would have fewer symptoms and greater levels of mental health compared to residents without close family contacts.

In sum, the convoy model of social support offers a guiding framework for understanding the composition and size of social networks. In addition, it outlines the important role of supportive social networks across the life span. The adequacy of social networks varies based on both individual and situational characteristics, with the perceived quality of support influencing life satisfaction and well-being. Particularly important is having close social partners including family as part of individual convoys across time, serving a variety of supportive roles. This may especially be the case for older adults, as close family and social partners can serve as direct supports as well as buffers against life stressors and loss that are often a part of later life.

Socioemotional Selectivity Theory

Another social support theory proposed by Carstensen (1992; 1995) and colleagues is socioemotional selectivity theory. Socioemotional selectivity theory

compliments the convoy model of social support for understanding social relationships across the life span. The theory seeks to explain how individuals actively select certain social partners across time. As with the convoy model, social interaction is viewed as a central part of life and necessary for survival (Carstensen, Isaacowitz, & Charles, 1999). In addition, social support and interaction are viewed as meeting a broad range of goals throughout life, from making people feel emotionally connected to relaying thoughts and ideas (Carstensen, 1995).

Socioemotional selectivity theory posits that a variety of goals motivate social interaction. While individuals are seen as having sets of goals across their life span, the relative importance of these goals may change. Based on their perception of time, people selectively choose between long and short term goals to adapt to their life circumstances (Carstensen, Fung, & Charles, 2003). The latter period of life presents a certain set of conditions that alter individuals' cognitive, behavioral, and emotional goals. When individuals' time is perceived to be limited, this influences the goals that are the most salient in their lives (Carstensen, Fung, & Charles, 2003; Carstensen, 1995).

As the salience of individual goals changes, social preferences also change, with familiar social partners becoming more preferred in later life (Carstensen, Isaacowitz, & Charles, 1999; Carstensen, 1995). Thus, older adults are more motivated to have emotionally meaningful social network members. According to socioemotional selectivity theory, goals that are emotionally meaningful are viewed as being more compatible with small networks of familiar, close contacts (Lockenhoff & Carstensen, 2004). In later life, individuals become more selective about the members of their social networks, preferring to actively form social networks they find to be more emotionally

satisfying. Overwhelmingly, it is relationships with family and close friends that become increasingly important (Carstenson, Fung, & Charles, 2003). Lang (2000) found that 80% of the total decline in older adults' social network size occurred within their peripheral social networks. It appears older adults prefer maintaining ties with individuals, particularly family members, who are the most close and meaningful to them.

Selectively reducing network size is believed to be adaptive, as older adults attempt to maximize the quality of their interactions with others as they near the end of life (Carstensen & Charles, 1998; Carstensen, 1995). By limiting interactions with more peripheral social contacts, individuals are able to engage in a greater proportion of interactions with emotionally close network members (Fung, Carstensen, & Lutz, 1999). In addition, individuals decide to include specific people in their close social networks by evaluating both the emotional feelings as well as the actual assistance they may gain from the relationship (Lang, 2000). Those who are believed to provide the most emotional as well as instrumental support when needed are selected as network members.

Complementing research conducted on the convoy model of social support, studies of socioemotional selectivity have shown that compared with younger adults, older adults may have fewer overall social contacts, but an equivalent number of individuals they consider to be emotionally close (Carstensen, Fung, & Charles, 2003; Lang and Carstensen, 1994; Carstensen, 1992). Further, as individuals age, the quantity of total social contacts may decrease while at the same time the quality of social contacts may increase. Because of the reduction in more distant social network members, older

individuals actually have a greater proportion of emotionally close social relationships (Carstensen, Gross, & Fung, 1998).

Like the convoy model of social support, socioemotional selectivity theory views quality of social network interactions as more important than quantity of interactions or number of network members (Kasser & Ryan, 1999). Relationships that are valuable to individuals are those that offer high levels of satisfaction and meaningful connections. In later life, individuals report more investment in social interaction and maintaining family ties over other interests (Adams, 2004). Much of the time, social network members who are the most preferred in later life are family members who are viewed as familiar and emotionally close. As individuals age, social relationships become important resources for ensuring their needs are met. Older adults select to spend time with family as opposed to other acquaintances, which is believed to be adaptive (Carstensen, Gross, & Fung, 1998). Research suggests when time is perceived as limited, individuals prefer social networks comprised of family members and formal resources that can provide meaningful interaction and assistance (Lang & Carstensen, 2002; Lang, 2001). They prefer to interact with close social partners who are more likely to meet their social and emotional needs and enhance their well-being (Fung, Carstensen, & Lutz, 1999).

In sum, socioemotional selectivity theory provides a guide for understanding individual goals and the selection of social supports across the life span. In later life, the importance of emotionally meaningful experiences takes precedence. Individuals maximize their social interactions by actively choosing to maintain close social partners as opposed to more distant contacts. By doing so, they are adaptively including only individuals who can serve as vital emotional and instrumental supports when needed.

This is why older adults who have close networks of meaningful members, particularly family, are able to maintain their well-being in later life.

Convoy Theory and Socioemotional Selectivity as Complementary Frameworks

Combined, the convoy model of social support and socioemotional selectivity theory offer a framework for understanding social support networks across time. The convoy model supports the notion that individuals' close social networks are comprised of family, available to fill a variety of roles, while socioemotional selectivity theory provides support for individuals adaptively selecting social network members (frequently family) who will best meet their needs. Both view social support as a key component to successful functioning, with individuals actively surrounding themselves with social partners who most adequately meet their needs based on individual and situational characteristics. Most often, these social partners are family members who serve a variety of roles across time. In later life, having close family members available to serve as emotional and instrumental supports is important for individual functioning and life satisfaction. As little is known about how these processes operate for nursing home residents with a mental health history, one important aim of this study (Aim 2) is to describe the amount and kinds of family support provided to residents who have less ability to actively select their social partners due to residing in an institutional setting.

If circumstances in later life require individuals to enter a nursing home the convoy model of social support and socioemotional selectivity theory predict their social networks will continue to remain an important support. Although the role played by family members may change, they continue to be involved in the lives of relatives receiving nursing home care and assist with their care (Levy-Storms & Miller-Martinez,

2005). As older adults actively select the members of their inner networks over time, those who remain as close social contacts are the individuals who provide the most emotionally and instrumentally satisfying relationships across a variety of life situations. Because individuals in need of nursing home care require assistance to meet their basic needs, close family contacts also serve as advocates to ensure the needs of their relative are met (Gladstone, Dupuis, & Wexler, 2006). Thus, if individuals have constructed close social networks prior to entering a nursing home, these networks should continue to serve as important resources enhancing quality of life and well-being.

For older adults with a mental health history, family members serve a particularly vital role in providing needed resources and services (Rose, 1998a). They anticipate continued future involvement in the lives of their relatives and are prepared to fill a variety of supportive functions across time (Jewell & Stein, 2002). If individuals with a mental health history require institutional care, their close networks of social support continue to be involved in their lives and serve as key sources of support (Beeler, Rosenthal, & Cohler, 1999).

Together, the convoy model of social support and socioemotional selectivity help to explain how family members are involved in the lives of older adults residing in nursing homes and those with a mental health history. Individuals actively construct their social networks across time, and the members who fill close roles are most often family members who remain sources of support across the life course. Older adults adaptively choose their network members to ensure adequate support from their social networks when it is needed. Based on the complementary frameworks of convoy theory and socioemotional selectivity theory, individuals with a mental health history residing in

nursing homes would be expected to continue to have the supportive resources of family through the emotionally close networks that follow them across time and life situations.

LITERATURE REVIEW

The literature reviewed in the following section begins by examining the quality of life for individuals with a mental health history residing in nursing homes. Next, the adequacy of the current mental health care provided in nursing homes is addressed. Finally, the role of family support for individuals with a mental health history residing in nursing homes is explored.

Quality of Life for Individuals with a Mental Health History Residing in Nursing Homes

A major focus of nursing homes is providing adequate health and safety measures for residents, but ensuring or even addressing quality of life issues is given lower priority (Kane, 2001). Currently, information regularly collected on residents in nursing homes focuses more on physical health issues rather than measures of mental health and well-being (Mor, 2005). There is no question that quality of life is a multidimensional construct and is often measured indirectly by other nursing home indicators, frequently facility deficiency citations. Measures of quality of life among nursing home residents are generally thought to comprise the following areas: resident characteristics, organizational characteristics, and social patterns (including the support and interaction of family) (Kane, 2003).

Quality of life and resident characteristics

Quality of life and quality of care are inevitably influenced by characteristics of the individual. Residents' personal characteristics such as age, sex, and acuity of health conditions are important factors influencing personal experiences and quality outcomes

(Unruh & Wan, 2004). Additionally, individuals with a mental health history are more likely to experience poor health outcomes because of co-occurring illnesses as well as a history of less utilization of health care services, receipt of lower quality services, and practicing fewer preventive measures (Bartels, 2004). Co-occurring physical and mental health problems for individuals with a mental health history may put them at particular risk for nursing home placement (Cohen, Cohen, Blank, Gaitz, Katz, Leuchter, Maletta, Meyers, Sakauye, & Shamoian, 2000).

In nursing home settings, individuals with a mental health history are more impaired in cognitive, instrumental, and physical functioning compared with individuals with a mental health history residing in the community (Bartels, Mueser, & Miles (1997). Residents who never married have a greater likelihood of nursing home placement, as is frequently the case for individuals with a mental health history. This reinforces the importance of family and social supports that provide assistance and resources, allowing individuals to live in the community as long as possible. Close social networks may provide the resources needed by older adults as they have actively chosen network members who can provide them with the assistance.

Also of concern is individuals with greater functional limitations and physical need are less likely to receive specialized mental health services when residing in nursing homes (Shea, Streit, & Smyer, 1994). As many individuals with a mental health history have some form of physical impairment or health problem, this may put them at particular risk for not having their needs identified and addressed. Having the continued support of family members when individuals with a mental health history enter nursing

home care may be especially important for ensuring their needs are met as family can provide information on their relative as well as advocate for services.

Quality of life and organizational characteristics

Organizational characteristics are also considered important factors related to quality of life in nursing homes as they are likely to vary among facilities. Such factors include the case mix of residents (type and severity of residents' health issues), social services provided for residents, size of the facility, and ownership status (Unruh & Wan, 2004). Facility type, bed occupancy, and payer source are also factors found to influence care quality (Castle & Myers, 2006; Castle & Shea, 1998). Thus, it appears factors across multiple domains including the resident and the facility influence the quality of life and quality of care in nursing home settings.

Quality of life and social support

Social factors influence quality of life and quality of care among nursing home residents as well. Social support is meaningful because this variable is frequently used as a measure of quality of life among nursing home residents. Among older adults, social support and engagement are commonly believed to be essential for physical and mental health (Blazer, 2005). Maintaining social interaction after entering a facility is important because admission to a nursing home alters the nature of an individual's relationship with family and friends as well as the roles they fill. Nursing home residents who engage in social activities have a greater probability of survival when taking into account other factors associated with mortality (Kiely & Flacker, 2003). One way to enhance social supports is to actively include family members in the lives and care of their relatives in

nursing homes. When nursing homes encourage family support, family members tend to become more involved in the lives of nursing home residents (Friedemann, Montgomery, Maiberger & Smith, 1997).

Among individuals with a mental health history, satisfaction with support networks is significantly associated with the size of the family network as well as the size of overall network supports (Corrigan & Phelan, 2004; Meeks & Murrell, 1997). This may be because the presence of family support is a key resource contributing to their life satisfaction. Additionally, satisfaction with social contact is positively associated with subjective quality of life, with family being the primary source of social support (Bengtsson-Tops & Hansson, 2001). Thus, it appears that satisfaction with social support (specifically the support of family) and social relationships are important factors related to quality of life for individuals with a mental health history residing in nursing homes. Supported by the convoy model and socioemotional selectivity theories of social support, encouraging interactions with family and close social contacts may be one of the most effective way to improve resident quality of life and well-being, as family members serve as key sources of emotional and instrumental support.

Mental Health Care Quality

In 1987, the federal government passed the Nursing Home Reform Act establishing preadmission screening criteria for nursing homes to ensure proper placement of individuals in nursing facilities. Included in the legislation were requirements for determining if nursing home placement is appropriate for potential residents. The Preadmission Screening and Resident Review (PASRR) is used to determine if individuals have a mental illness as well as whether they require specialized

mental health services in addition to nursing home care (Linkins, Lucca, Housman, & Smith, 2006b). The first part of the PASRR (Level 1) is to determine whether an individual has a potential mental illness. If they receive a “positive” score on Level 1, they are subject to further review with the Level 2 screen to assess what types of specialized services they may require (Linkins, Lucca, Housman, & Smith, 2006a).

The legislation also outlined standards for mental health services and care for nursing home residents in need of such treatment (McGrew, 1999). Prior to the Nursing Home Reform Act, there was substantial evidence of unmet mental health needs in nursing homes (Anderson, Lyons, & West, 2001). At the time the Act was passed, almost 25% of nursing home residents lived in facilities reporting no counseling or psychotherapeutic services for their residents (Shea, Smyer, & Streit, 1993). Failure to receive needed mental health care may place residents at risk for lower quality of life and well-being.

Individuals with a mental health history are some of the most at-risk residents, Little attention is given to the services provided for them (Bartels, Levine, & Shea, 1999). As individuals with a mental health history comprise 13% of the nursing home population (Centers for Medicare and Medicaid Services, 2005), it is important that their care needs be appropriately addressed. The prevalence of a mental health history among individuals residing in nursing homes reinforces the need for mental health services to be incorporated as a primary component of their care (American Geriatrics Society and American Association for Geriatric Psychiatry, 2003). However, the adequacy and accuracy of measures used to identify the mental health needs of residents is a concern (Vourlekis, Zlotnik, Simons, & Toni, 2005). Individuals with a mental health history

residing in nursing homes often have co-morbid physical problems and low cognitive functioning, making it even more difficult to identify their needs (Gupta & Goldstein, 1999).

Research supports the challenge of providing adequate mental health care and the continuing prevalence of unmet need. While 80% of nursing home residents have a psychiatric disorder, less than 20% actually receive treatment from a mental health practitioner (Bartels, Moak, & Dums, 2002). Additionally, 80% of residents never receive a mental health consultation within 90 days of admission (Fenton, et al. 2004) and 80% of residents with a mental health history do not receive services from a mental health specialist (Shea, Russo, & Smyer, 2000). Among those who do receive services, the frequency is low with fewer than 10% receiving mental health treatment on a monthly basis. However, many of the studies conducted on nursing home mental health care relied on small samples. One aim of the current study is to investigate mental health services issues from a broad population-based perspective.

Even when the nursing home has identified mental health services as a resident need, this need often goes unmet. The level of mental health services available for nursing home residents is often far less than is actually needed (Gupta & Goldstein, 1999), and the perceived need for mental health services in nursing facilities is often much greater than actual service utilization (Meeks, Jones, Tikhtman, & LaTourette, 2000). More than 50% of residents identified as needing mental health services do not receive them (Borson, et al., 1997). Although the vast majority of nursing home residents have an identified mental health need, almost 40% of individuals do not have adequate care plans, and of those with care plans, almost half (46%) do not receive all indicated

mental health services (Department of Health and Human Services, 2003). In fact, there is no relationship between the prevalence of mental health and behavioral issues reported by nursing home administrators and the extent of mental health service available for residents, indicating a disparity between need (even when identified) and available treatment (Meeks, et al., 2000). Perhaps this is because of low reimbursement levels for mental health services in nursing homes as well as a lack of mental health service providers interested in working in this setting.

Clearly, the provision of mental health care in nursing homes continues to be a salient issue with low levels of service utilization. This is a disturbing finding as receiving adequate treatment for mental as well as physical problems may significantly influence residents' quality of life and well-being (Castle & Shea, 1997). Additionally, mental health treatment may have an influence on other outcomes, such as resident life satisfaction. When individuals with a mental health history actually receive treatment, it may have an impact on not only functional outcomes, but quality of life outcomes as well.

Quality of care and resident characteristics

Similar to overall quality of care, mental health care among individuals in nursing homes is influenced by characteristics of the individual receiving services. Predictors of depression among nursing home residents include demographic characteristics such as age, sex, and ethnicity as well as cognitive status (Jones, Marcantonio, & Rabinowitz, 2003). Under-recognition of a mental health history has been identified as an issue across nursing home settings for individuals at older ages, women, and African Americans. This may put specific individuals at greater risk of having unmet mental

health needs. Resident characteristics positively related to the receipt of mental health services include displaying anxiety or behavior problems (Fenton, et al., 2004). It may be that only when residents' individual behaviors are seen as a disruption, that mental health treatment seems warranted.

Type of psychiatric diagnosis may also affect the provision of mental health treatment as well as treatment type. Nursing home residents with depression are less likely to receive both medication and mental health treatment, while having a diagnosis of schizophrenia is only negatively related to receiving mental health interventions (Snowden, Piacitelli, & Koepsell, 1998). Perhaps there is a discrepancy between type of treatment provided (medication versus behavioral interventions) based on the type of mental health diagnosis of the resident. Having a diagnosed mental health disorder may increase the odds of treatment by a mental health specialist (Burns, Wagner, Taube, Magaziner, Permutt, & Landerman, 1993) and increase service use (Shea, Streit, & Smyer, 1994) although, as previously discussed, even when mental health services are an identified need of a residents, this need often goes unmet. Moreover, it is possible that specific mental health diagnoses influence the type and frequency of services received by individuals with a mental health history residing in nursing homes as they display different symptoms and behavior profiles. The findings of the current study will help to shed light on who receives services and what services they typically receive through including residents with a spectrum of mental health disorder as well as treatment types.

Quality of care and organizational characteristics

Organizational factors are related to receipt of mental health services. Characteristics prompting receipt of services include location in a large urban area and

residence in a for-profit facility (Fenton, et al., 2004; Shea, Russo, & Smyer, 2000). Individuals in government nursing homes and those in chain facilities are less likely to receive specialized mental health services (Castle & Fogel, 1998b; Shea, Streit, & Smyer, 1994). Additionally, individuals with a mental health history may be more likely to reside in facilities that have a higher percent of residents with Medicaid as a payer source, which may influence their care (Becker & Mehra, 2005). In fact, service utilization may be based more on organizational and individual factors instead of severity of need (McGrew, 1999). This study will further the understanding of what organizational characteristics may influence the provision of mental health services by examining facilities across ownership types and payer sources in addition to examining characteristics of the physical and mental health characteristics of the residents who reside in those facilities.

Quality of care and social support

Social networks also influence mental health service provision. Interestingly, individuals who are never married are significantly less likely to have a diagnosis of depression, possibly because they have fewer family members involved who are knowledgeable about their history (Fenton, et al., 2004). In fact, residents with children are more likely to receive mental health services (Shea, Streit & Smyer, 1994). It may be that families serve as advocates for their relatives, identifying need and ensuring receipt of needed mental health care. The current study will be one of the first to examine how social support may influence the quality of mental health care services provided for individuals with a mental health history residing in nursing homes and may highlight the

importance of including social support as a key factor in the provision of mental health services.

In the community, there is a positive relationship between levels of informal care from social networks and formal treatment for individuals with a mental health history (Clark, Xie, Adachi-Mejia, & Sengupta, 2001). This supports the use of informal support as a key resource for individuals with a mental health history. The enhancement and inclusion of family as important source of support and advocacy for nursing home residents may impact service provision and ultimately well-being. If older adults with a mental health history require nursing home care, family members and other individuals may provide social and instrumental support that enhances the individual's overall level of care. This compliments the notion that convoys of social support, especially of family, are crucial throughout life and the type of support provided will change based on current individual needs. Moreover, it is clear the factors influencing mental health care services are complex. Multiple domains, including resident, facility, and social characteristics, need to be considered when studying the provision of mental health care in nursing homes.

Family Support

Both theory and research support the importance of close family and social contacts for well-being and quality of life among older adults residing in nursing homes and individuals with a mental health history. The emotional and instrumental support provided by family serve as key resources, ensuring individuals' needs are identified and met. Given this information, what specific types of interaction patterns and role

functions are displayed by family members in the lives of nursing home residents and individuals with a mental health history?

Family support among individuals in nursing homes

Admission to nursing homes requires adjustment on the part of both the individuals entering the facility as well as their family members (Gaugler, Leitsch, Zarit, & Pearlin, 2000). This situational change may lead to a change in the roles played by family members as well as a change in the responsibilities they have for their relative (Gaugler, Anderson, Zarit, & Pearlin, 2004). However, when individuals move into nursing homes, families continue to provide different forms of care and support in addition to advocacy on behalf of their family members to promote their well-being (Gladstone, Dupuis, & Wexler, 2006).

Visitation patterns may be influenced by resident, facility, and family characteristics. In fact, factors across multiple domains including personal, social, and organizational factors have been found to influence patterns of visitation (Gladstone, Dupuis, & Wexler, 2006). Residents with lower cognitive functioning have a higher frequency of visits, possibly because families see it as their responsibility to advocate on behalf of their relative when they are unable to do so on their own (Port, 2004). Higher levels of family support are also seen among individuals who are older and have greater health problems (Gaugler, Anderson, & Leach, 2003). However, individuals who display problem behavior prior to placement are less likely to be visited (Gaugler, Leitsch, Zarit, & Pearlin, 2000). Additionally, individuals who have Medicaid as a primary payer source have fewer contacts with family and friends (Port, Gruber-Baldini, Burton, Baumgarten, Hebel, Zimmerman, & Magaziner, 2001).

Thus, it appears characteristics at the resident, family, and facility levels are important factors in determining family support (Gaugler, Anderson, & Leach, 2003). It seems a combination of factors influence family support and involvement in the lives of individuals residing in nursing homes. This is consistent with the convoy model of social support that posits network composition and adequacy is determined both by characteristics of the individual and of the situation.

Looking at visitation patterns over time, family members report a minimal decrease in visitation, approximately one hour less per week (Gaugler, Zarit, & Pearlin, 2003). Only a slight decline in the number of hours family visited their relative each week has been found over time (Yamamoto-Mitani, Aneshensel, & Levy-Storms, 2002). Despite the fact that the roles of family members change when relatives enter a nursing home, they continue to remain involved in their relatives' care (Levy-Storms & Miller-Martinez, 2005). Close social supports continue to play important roles in the lives of nursing home residents across time and varying situations, supporting the notion of stable inner network members posited by the convoy model of social support.

Individuals in nursing homes who are visited more frequently and have outside support tend to receive better overall care because families can provide useful information and knowledge about their relative as well as monitor their situation (Gladstone, Dupuis, & Wexler, 2006). Families engage in a wide range of caregiving behaviors including social and emotional support as well as instrumental assistance with activities of daily living (Gaugler, Anderson, & Leach, 2003). Greater levels of family support in the lives of individuals in nursing homes is likely related to greater levels of overall resident well-being (Gaugler, Zarit, & Pearlin, 2003). In addition, family support

for individuals in nursing homes may have a positive influence on the mental health of residents (Port et al., 2001). This supports socioemotional selectivity theory and the convoy model which view the social supports of family network contacts to be key resources and forms of support enhancing well-being throughout life.

Both informal family care and formal professional care are recognized as essential for ensuring care quality for residents in nursing homes (Specht, et al., 2000). Including families in the care of their relative can serve as a crucial source of support for both the staff and the individual in the facility (Almberg, Grafstrom, Krichbaum & Winblad, 2000). From a family perspective, one of the important aspects of their role is to oversee and ensure quality care is provided to their family member (Levy-Storms & Miller-Martinez, 2005). Families are most concerned their family member is receiving the best quality of care possible to maximize their well-being (Friedemann, et al., 1997). Unfortunately families are often underutilized resources and sources of support when individuals make the transition to nursing home care (Davis & Buckwalter, 2001).

When family support is not available for residents, staff generally express concern about the possible negative effects this may have on resident well-being (Jervis, 2006). The vast majority of social service practitioners in nursing homes indicate the importance of family support in care planning in addition to believing support is a relevant indicator of care (Vourlekis, Bakke-Friedland, & Zlotnik, 1995). It appears family support is generally viewed as a positive factor in nursing homes by both family and nursing home staff. Networks of family support can provide multiple resources to enhance the lives of individuals residing in nursing homes including emotional and instrumental support, providing valuable information about the resident to facility staff, and serving as

advocates for their family member. In fact, the need for family support may be even more important at this time in the residents' lives as they require greater amounts and varieties of assistance, both with emotional and instrumental needs.

Family support among individuals with a mental health history

For individuals with a mental health history residing in the community, family members also serve an important supportive role. Families provide much of the support enabling individuals with a mental health history to remain in community settings (Horwitz & Reinhard, 1995). Frequently, families are the primary providers of support and services and are often in close contact with their relative (Lukens, Thorning, & Lohrer, 2002). The functioning of individuals with a mental health history is often just as important to family members as to the individuals themselves since family serve as key sources of support and resource assistance (Rose, 1998a). Forms of support include residing with one another, providing financial assistance, and instrumental care (Skinner, Steinwachs, & Kasper, 1992). Among one sample of adults with a mental health history residing in the community, 87% of individuals had at least weekly contact by telephone or in-person with their family members and 35% received some form of support or assistance from family members (Seltzer, Greenberg, Krauss, & Hong, 1997).

Family supports are frequently parents, as individuals with a mental health history do not commonly have a spouse to provide support (Horwitz & Reinhard, 1995). If parents are not available, responsibility then falls on other family members such as siblings. Siblings are often considered the most logical replacements when parents are no longer able or available to provide needed care (Hatfield & Lefley, 2005). For individuals with a mental health history in later life, family members other than parents

may serve as important resources (Cook, Cohler, Pickett, & Beeler, 1997). In addition, older individuals with a mental health history continue to have contact with family members over time and are not socially isolated, though their networks of support may be small. These findings are consistent with socioemotional selectivity theory which views a decrease in network size as adaptive, with mostly important supportive individuals being included in the social networks of older adults. It seems individuals with a mental health history also have close social supports that follow them across time and remain available to provide assistance in later life, consistent with the convoy model.

In terms of family support, siblings are second only to parents in the amount of support they provide (Horwitz, Tessler, Fisher, & Gamache, 1992). Half of siblings report providing some form of assistance to their relative with a mental health history in the last 30 days. In fact, most siblings anticipate providing some type of supportive care for their relative with a mental health history (Hatfield & Lefley, 2005). When siblings perceive greater levels of need among family members with a mental health history, they report greater intention to provide future support (Jewell & Stein, 2002). Thus, family members anticipate providing support and are prepared to provide different amounts and types of support to meet their individual family member's needs.

Families view their relationship with their relative with a mental health history as important as they assist their relative with everyday functioning and receiving care (Rose, 1998b). Families also report caregiving as a source of satisfaction and gratification in their relationship (Rungrangkulkij & Gilliss, 2000). Relationships between family members and individuals with a mental health history generally involve high levels of warmth and low levels of conflict (Spruytte, Van Audenhove, Lammertyn, & Storms,

2002). It appears individuals with a mental health history often have positive ongoing relationships with family members on which they can rely for support.

Quality and availability of mental health services may also influence the relationship between individuals with a mental health history and their family members. Over 40% of families of individuals with a mental health history report unmet needs related to behavior problems, counseling services, and planning for the future while over 60% report unmet social needs (Smith, 2003). The study findings also suggest that the support of informal social networks may have a positive influence on service utilization either through encouraging service use or referring individuals for treatment.

Indeed, enhancing family support has long been identified as an important intervention strategy in mental health treatment for individuals with a mental health history residing in the community (Biegel, Tracy, & Corvo, 1994). Involving family in the treatment of individuals with a mental health history has been found to have positive effects for both individuals with a mental health history and their family members (Marshall & Solomon, 2004). Unfortunately, providers do not commonly involve families in the treatment process. Over 80% of providers never see family members and over 50% report they rarely involve family in treatment planning or request their assistance with monitoring medication effects (Marshall & Solomon, 2004). Generally, family members perceive formal mental health providers as unwilling to involve them in the treatment of their family member with a mental health history (Lukens, Thorning, & Lohrer, 2002). This is even though families perceive supportive links to professionals as important ways to assist their relative (Rose, 1998a). Additionally, family members can serve as key sources of information and knowledge about the individual with a mental

health history (Lukens, Thorning, & Lohrer, 2002). It seems increasing the involvement of families in care can enhance the mental health treatment their family member may receive.

Clearly, families are integral in providing the supportive services necessary for many individuals with a mental health history to function successfully. It appears families frequently provide support and care and may do so to a great extent. Understanding how to encourage families to provide support and be involved in the lives of family members with a mental health history is essential and should increasingly be a focus of mental health treatment.

In sum, for both individuals with a mental health history and individuals residing in nursing homes, families serve a key ongoing supportive role. They continue to provide a variety of care and desire to be involved with formal caregivers to ensure their relative's needs are adequately met. However, for both individuals residing in nursing homes and those with a mental health history, it appears that the supportive functions of families are not frequently utilized to enhance the quality of care provided for individuals as well as to increase their overall well-being. This is unfortunate as both theory and research support the importance of family supports as key resources in the lives of older adults, both as direct and indirect supports. For older adults with a mental health history who require nursing home care, family members may be especially important sources of support as the needs of their relatives are more complex and require additional resources to ensure they are adequately addressed. Involving family members in the lives of their relatives may enhance both the quality of overall care and mental health care provided in nursing home settings.

Family Support and Quality of Mental Health Care among Nursing Home Residents with a Mental Health History

Even with the implementation of federal legislation mandating care for nursing home residents with a mental health history, there continues to be a great deal of unmet need for mental health care for older adults in nursing homes (Bartels, Dums, Oxman, Schneider, Arian, Alexopoulos, & Jeste, 2002). Meeting the needs of residents with a mental health history must include not only formal mental health treatment but also social and informal interventions (such as family support) (McGrew, 1999). In an effort to meet the needs of residents with a mental health history, involving families in the provision of mental health services may be particularly important (Gupta & Goldstein, 1999). In fact, family support and the involvement of residents in facility activities are related to utilization of mental health services (Anderson, Lyons, & West, 2001). This underscores the importance of involving family supports and other social relationships to adequately provide care.

Essential components of quality mental health care for residents in nursing homes include designing services for a variety of mental health needs and involving family in planning and treatment of mental health issues (Lombardo, Fogel, Robinson, & Weiss, 1995). It is not only important to ensure individuals with a mental health history receive adequate diagnoses and treatment for their disorders, but facilities need to go beyond meeting these needs and ensure residents have a satisfying quality of life. One way to accomplish this is by including close family members in the care of their relative.

While there has been a great deal of research on family support for individuals with a mental health history in the community, family support in nursing homes, and the

quality of mental health care provided in nursing homes, less is known specifically about the influence of family support on the provision and quality of mental health services for individuals with a mental health history residing in nursing facilities. Additionally, the studies addressing family support in nursing homes generally focus on the lives of residents with Alzheimer's disease or dementia as opposed to other mental health issues. One study exploring the extent of family support in caring for individuals with a mental health history placed in long term care facilities (specifically psychiatric hospitals), was conducted by Sharp (1990) and found nursing staff was generally positive about involving relatives in patient care and 70% favored encouraging greater participation of family in the lives of facility residents. However, the findings of this study are limited as it did not examine family support in nursing homes settings, did not address the quality of mental health care provided for residents, and did not explore the influence family support may have on the provision of such services. The current study will specifically examine the role of family support in nursing homes for residents with a mental health history and how it may influence the quality and provision of mental health care services.

Beeler, Rosenthal, & Cohler (1999) noted a dearth in the research literature in the area of the role of family support in the lives of older adults with a mental health history residing in facilities. They found that that 75% of individuals with a mental health history residing in an intermediate care facility had contact with family members. This study is consistent with the convoy theory which would predict older adults with a mental health history continue to maintain networks of social support (particularly with family), even when they move into institutional settings. However, as with the study by Sharp (1990), Beeler, Rosenthal and Cohler (1999) did not look specifically at nursing home

settings, did not address the quality of mental health services provided for individuals with a mental health history, and did not explore the role family may play in ensuring service provision.

Because nursing homes are the primary source of long term care for individuals with a mental health history, more attention needs to be given to factors that may positively influence and enhance the quality of their care in this setting. Specifically, as the inadequacy of mental health service provision remains a pervasive issue among nursing homes, methods for enhancing mental health care need to be explored. Among nursing home residents with a mental health history, social support has been found to have a positive influence on level of functioning (Cohen, et al., 2000).

This compliments the assertions of the convoy model of social support and socioemotional selectivity theory. Individuals actively surround themselves with close network members that fill particular roles and can best meet their needs. Most often, these social partners are family members who are the most available throughout life to fill a variety of roles. As individuals reach later life, they limit their social interactions to those that are the most functional for maximizing their current situation. The support of family directly meets emotional and instrumental needs as well as indirectly enhances well-being through buffering against the negative impact of certain life events. For older adults, particularly individuals who both have a mental health history and reside in nursing homes, this form of support may be especially critical to ensure their needs are adequately met. Thus, it only seems appropriate and timely that the influence of family support on the quality of mental health care provided for individuals in nursing facilities receives more attention and be studied more systematically. The purpose of this study is

to examine the quality of mental health care provided for individuals with a mental health history residing in nursing homes and to determine if family support influences the quality of mental health care provided for residents with a mental health history while taking into account other important resident and facility characteristics.

Study Aims and Hypotheses

A retrospective study design was utilized to examine how resident characteristics, organizational characteristics, and family support influence risk-adjusted mental health care quality for nursing home residents with a mental health history. The specific study aims and hypotheses include:

Aim 1: To determine if specific mental health deficiency and care indicators within the OSCAR database can be combined to form a valid measure of mental health care quality for residents with a mental health history.

Hypothesis 1: Seven mental health deficiency and care indicators in the OSCAR database combined form a valid measure of mental health care quality.

Aim 2: To determine if specific family indicators within the MDS database can be combined to form a valid measure of family support for residents with a mental health history.

Hypothesis 2: Seven family indicators within the MDS database can be combined to form a valid measure of family support.

Aim 3: To determine the independent influence of family support on the quality of mental health care provided for nursing home residents with a mental health history.

Hypothesis 3: Family support has a positive influence on mental health care quality.

Aim 4: To determine if the quality of mental health care among nursing home residents with a mental health history varies based on facility resident, facility organizational, and market factors.

Hypothesis 4: The quality of mental health care provided for residents with a mental health history will vary based on facility resident, facility organizational, and market characteristics.

Aim 5: To determine the influence of family support on the quality of mental health care provided for nursing home residents with a mental health history controlling for facility resident, facility organizational, and market factors.

Hypothesis 5: Family support has a positive influence on mental health care quality when controlling for other factors.

Hypothesis 6: Family support will moderate the relationship between facility resident characteristics, facility organizational characteristics, market characteristics, and mental health care quality. Specifically, greater family support will increase mental health care quality taking into account facility resident, facility organizational, and market characteristics.

Conceptual Model

A conceptual model, guided by both theory and research, displaying the proposed relationships between facility resident characteristics, facility organizational characteristics, family support, and mental health care quality is provided in Figure 1. The study hypotheses are displayed, with mental health care quality varying based on the direct influence of facility resident characteristics, facility organizational characteristics,

market characteristics, and family support, as well as the indirect moderating influence of family support on facility resident, facility organizational, and market characteristics.

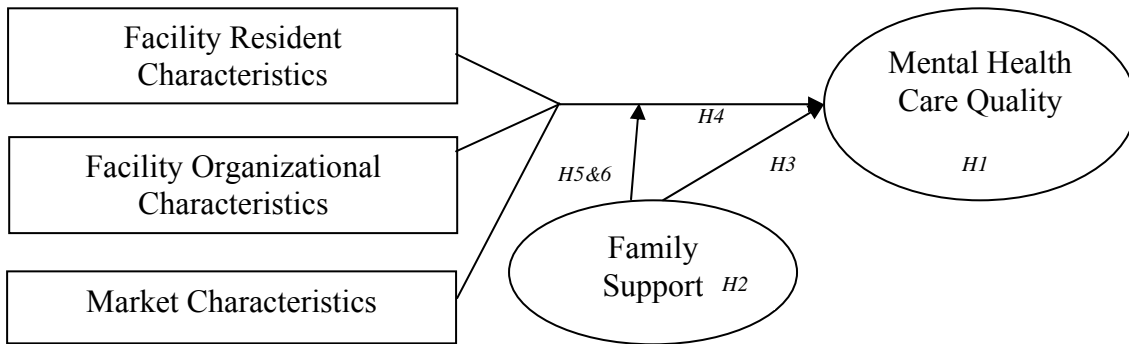


Figure 1 : Facility Resident-Facility Organizational-Family Support Model of Mental Health Care Quality

METHODS

This section details the study design, provides details about the study procedure, and outlines the measurement of study variables. The proposed model for measuring the influence of family support on the mental health care quality provided for individuals residing in nursing homes is displayed. Issues related to participant selection and protection are also addressed. Finally, the data analyses protocols are discussed.

Design

The study utilized a retrospective cross-sectional design, reviewing facility resident characteristics and family support indicators in the CMS Minimum Dataset (MDS) for nursing homes, facility characteristics in the CMS Online Survey, Certification, and Reporting (OSCAR) database, and market factors from the Bureau of Health Professions' Area Resource File (ARF) for the 2003 population on nursing home residents. MDS data was aggregated to the facility level, allowing the MDS and OSCAR databases to be merged.

Data Sources and Sample

Resident assessments were selected for inclusion in the study sample using items obtained from the 2003 MDS database. The MDS database contains information on every resident across the United States residing in a nursing home receiving Medicare or Medicaid funding. Individuals were selected for participation in the study if they were: (a) sixty-five years of age or older; (b) diagnosed with a mental health history with no history of mental retardation or developmental disability; (c) did not have a diagnosis of

Alzheimer's disease or dementia other than Alzheimer's disease; and (d) had a completed annual assessment. It is estimated that approximately 13% (171,513) of the nursing home population has a mental health history (Centers for Medicare and Medicaid Services, 2005). After applying the inclusion criteria to the 2003 MDS, data from 9,809 nursing home residents was found to meet the study requirements. However, because individual data was aggregated to the facility level for single level analysis purposes, the ultimate sample size was the number of nursing home facilities included in the study. After aggregating the data to the facility level, 2499 facilities were found to meet the study inclusion requirements. For the structural equation modeling techniques that will be utilized in this study, a general rule is that there be 10 to 20 times as many cases as there are study parameters (Mitchell, 1993). The study sample size is more than adequate to meet the requirements as there are more than 20 participants for each of the parameters included in the measurement model. An additional benefit of using data obtained from all eligible nursing homes within the United States is the study is nationally representative.

An IRB for human subjects research was approved by the University of Central Florida's Office of Research through the on-line submission system for approval and given exempt IRB status with waiver of consent and a waiver of HIPAA authorization. Copies of the IRB approval letters can be found in Appendix A. The data obtained for the study did not contain information that could be used to identify participants directly or through identifiers linked to participants in order to protect the participants' privacy and is from a Centers for Medicare and Medicaid approved study.

Procedures

Data on facility resident characteristics and family support indicators were obtained from the Minimum Data Set (MDS) 2.0. The MDS provides a standard set of measures on resident functional status and clinical health issues and is a required part of nursing home resident assessment both upon admission to the facility and at regular intervals thereafter. The goal of the MDS is to assess resident information in order to develop individual care plans (Mor, 2005). Data obtained from the MDS was aggregated to the facility level allowing it to be merged with other facility level databases. The Online Survey Certification and Reporting (OSCAR) data was used to obtain information on facility characteristics and mental health care quality indicators. The OSCAR is conducted on an annual basis and is widely viewed as a nationally representative measure of nursing home data (Castle & Myers, 2006). In addition to basic facility information, included in the OSCAR are measures on which the facility may receive citations for care deficiencies. These are coded as zero for no deficiency or as one if a deficiency is noted. The deficiency indicators used to measure mental health care quality were reverse coded so they represented a positive indicator of mental health care quality. Both deficiency indicators and regular items in the OSCAR were used to measure mental health care quality. Finally, the Area Resource File of the Bureau of Health Professions was used to obtain information market characteristics. The ARF is a database that contains demographic and health care access information aggregated to the county level. Nursing home market competition data were extracted from this source. Table 24 and Table 25 in Appendix B outline in detail the included study variables, the respective database from which they were extracted, and how they were measured.

Although using MDS and OSCAR data provides the opportunity for examining national data sets, limitations have been identified for each respective database. Many of the items contained in the OSCAR data set are self-reported by facility staff, with a limited number of these items being verified by surveyors (Castle, 2000; Castle & Fogel, 1998). However, the items of interest for this study are less likely to reflect self-reporting bias as they are either collected by surveyors or are indicators of facility structural factors. An additional limitation of the OSCAR is data collected by surveyors only reflect information gathered at one point in time, not a 24 hour observation period (Castle, 2000). Limitations of the MDS database include some concern about the reliability of the data. However, key areas of cognition, functional status, diagnoses, and activities of daily living, have been found to be highly reliable (Hawes, Morris, Phillips, Mor, Fries, & Nonemaker, 1995). While study reliability is a concern, the benefits of using a comprehensive standardized national dataset with information on individual nursing home residents outweigh this limitation.

The principal investigator worked with research assistants in the Public Affairs Program at the University of Central Florida to identify the variables of interest from the appropriate databases (MDS, OSCAR, and ARF) to create the merged data set.

Measurement of Study Variables

Exogenous variables in this study believed to influence mental health care quality included resident characteristics aggregated to the facility level, facility organizational characteristics, and market factors. Facility resident characteristics included demographics (average facility resident age, average facility resident gender, and average facility resident ethnicity), average facility resident psychiatric diagnoses (anxiety

disorder, depression, bipolar disorder, and schizophrenia), measures of average facility resident physical health and physical functioning, a measure of average facility resident cognitive functioning, and a measure of the level of average facility resident social engagement. Physical health, physical functioning, cognitive functioning, and social engagement are all subscales included in the MDS. The items used to calculate each subscale are provided in Table 24 of Appendix B. Each of these facility resident characteristics was included because previous research suggests they may influence the quality of resident care. Facility organizational characteristics included facility size and ownership type, bed occupancy levels, the payer source, a measure of resident acuity, and the percent of residents with a mental health history. Resident acuity measures the severity of residents living in nursing homes and contains both activities of daily living and health status measures. Residents who require greater and more complex care to meet their needs may influence overall facility care as residents with more acute needs tend to reside in facilities with greater staffing levels, an indicator of facility quality (Harrington, 2005). Previous findings suggest these facility characteristics may influence resident care quality. Market factors included market competition and market demand. Research suggests competition may influence nursing home cost and the quality of care provided for residents (Weech-Maldonado, Shea & Mor, 2006). Table 24 in Appendix B outlines each of the above variables and how the indicator was calculated.

The exogenous study variable, family support, was included as a moderator of mental health care quality. The latent construct family support was measured by seven indicators in the MDS database: (1) daily contact with family/close friends; (2) harmonious relationship with family/friends (3) ongoing relationship with family/friends;

(4) family participation in assessment; (5) significant other participation in assessment (6) supportive person towards discharge; and (7) family responsible for individual. These indicators measure various aspects of the supportive functions played by family members. Measures of family support include actual day to day interactions, the characteristics of the relationship, if family is involved in assessing their relative, and if family is listed as being legally responsible for their family member. Harmonious relationship with family/friends and ongoing relationship with family/friends are measured by negative items within the MDS, so were reversely coded for analysis purposes. The location of each of these indicators within the MDS database is given in Table 24 in Appendix B.

Mental health care quality was measured by seven indicators in the OSCAR related to mental health care. These are process indicators and not indicative specifically of resident outcomes. They included: (1) nursing home ensures that residents do not have avoidable decline in their psychosocial functioning, no development of mental problems; (2) facility provides appropriate treatment for residents with mental and/or psychosocial difficulties; (3) facility ensures no unnecessary psychotropic drug use; (4) nursing home adheres to Preadmission Screening and Resident Review (PASRR) coordination requirements; (5) number of residents receiving psychoactive drugs; (6) number of residents receiving a behavior management program; and (7) number of residents receiving health rehabilitative services for a mental illness or mental retardation. The first four indicators listed above are deficiency indicators within the OSCAR so were reverse scored to serve as positive measures of mental health care quality. The other three mental health care quality indicators are regular items included in the OSCAR

survey. The location of each of these indicators within the OSCAR database is given in Table 25 in Appendix B.

Analytical Model

Figure 2 displays the proposed structural equation model (SEM) of the determinants of mental health care quality. Exogenous resident characteristics aggregated to the facility level and facility organizational characteristics included in the model are on the left side of the figure. The indicators of the exogenous latent construct, family support, are given in the lower right side of the figure. On the upper right side of the figure, the indicators of the endogenous latent construct, mental health care quality are provided. Combined, the figure displays the generic model of facility resident characteristics, facility organizational characteristics, and family support influencing mental health care quality.

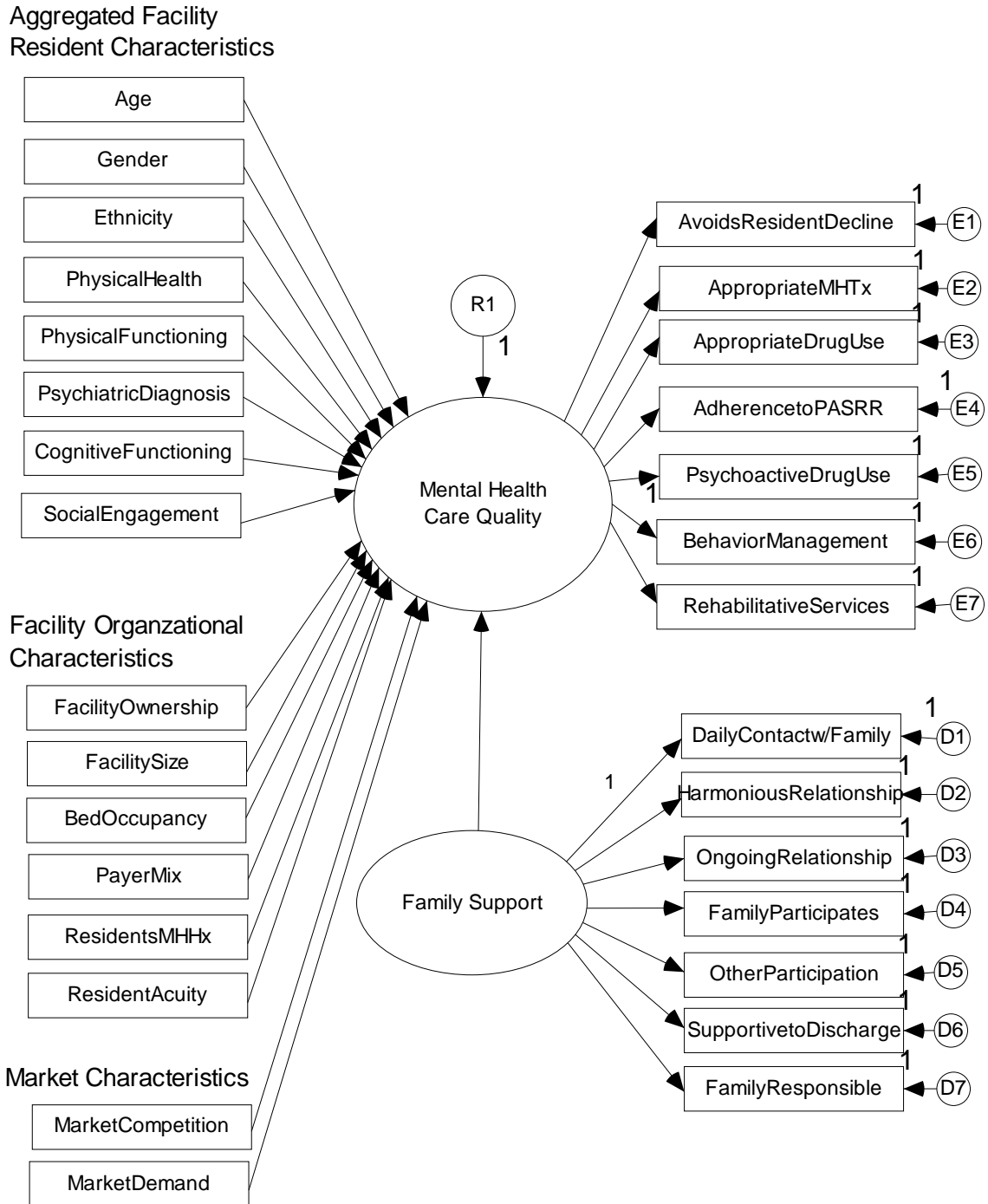


Figure 2: Structural Equation Model of Determinants of Quality of Mental Health Care for Nursing Home Residents Across Facilities

Analysis

Data Cleaning

Once all variables of interest were identified in the OSCAR database, the data was cleaned before further analysis. Data cleaning criteria was based on techniques utilized in other research using the OSCAR database. For the purposes of this study, facilities in Puerto Rico and U.S. territories were excluded from analysis because of the small number of OSCAR surveys from these locations (Mueller, Arling, Kane, Bershadsky, Holland, & Joy, 2006; Intrator, Feng, Mor, Gifford, Bourbonniere, Zinn, 2005; Harrington, Carrillo, Thollaug, Summers, & Wellin, 2000). Facilities reporting more residents than beds, less than 40% occupation, or greater than 100% occupation were also excluded (Mueller, et al., 2006; Zhang & Grabowski, 2004). If facility data had duplicate identifiers, the most recent survey data was used; if the dates of the surveys were identical, one was randomly selected (Castle, 2000). Once the OSCAR data was cleaned, it was then merged with the ARF database and the MDS database using the facility identification code, creating one comprehensive database. This database was exported to SPSS software for analysis and testing.

Statistical Analysis

Using SPSS and AMOS software, exploratory factor analysis (EFA) and structural equation modeling (SEM) were used to analyze the data. EFA and SEM are common statistical techniques used in nursing home studies as they allow for analyses of the total direct and indirect effects of facility organizational characteristics and facility resident characteristics on nursing home quality and performance (Unruh & Wan, 2004; Arling & Williams, 2003; Weech-Maldonado, Neff, & Mor, 2003).

EFA is a statistical technique used to identify relationships among sets of observed values in terms of an unobserved, latent construct and test hypotheses (Wan, 2002). EFA is a technique that allows for the evaluation of a measurement model without prior knowledge of how the selected indicators may be related to the latent construct. The latent construct is measured by the observed indicators, therefore the more variation explained by the set of observed variables, the sounder the measurement model (Kline, 2005). SEM builds on EFA, combining measurement and structural models to test causal relationships among latent and observed constructs (Wan, 2002). In SEM, explanatory models are developed, tested, and revised in order to better fit the data (Unruh & Wan, 2004).

Hypothesis 1 Analysis

To determine if seven mental health deficiency and care indicators in the OSCAR database combined form a valid measure of mental health care quality.

Descriptive statistics and a correlation matrix was created using SPSS software to assess whether the seven indicators of the endogenous latent construct, mental health care quality, were correlated. The four indicator representing deficiency scores were reversely coded in order to combine them with the other three indicators as positive measures mental health care quality. Upon review of the descriptive statistics, the four deficiency indicators included in the model of mental health care quality were found to be extremely skewed. These indicators related to nursing home deficiency scores included (1) nursing home ensures that residents do not have avoidable decline in their psychosocial functioning, no development of mental problems (2) facility does not provide appropriate

treatment for residents with mental and/or psychosocial difficulties; (3) unnecessary psychotropic drug use; (4) adherence to Preadmission Screening and Resident Review (PASRR) coordination requirements. With a minimum score of 0 and a maximum score of 1, the four indicators ranged from a mean of .98 (facility does not provide appropriate treatment) to 1 (adherence to PASRR). For purposes of further analysis, these four items were combined as one indicator and renamed “Deficiencies”. Once combined, the minimum possible score was 0 and the maximum possible score was 4. However, no facility had more than 2 deficiencies, so the minimum deficiency score in the study was 2 (indicating deficiencies) and the maximum of 4 (indicating no deficiencies). Thus, four items were ultimately used to measure the quality of mental health care: number of residents receiving psychoactive medication, number of residents receiving a behavior management program, number of residents receiving health rehabilitative services for mental illness or mental retardation, and deficiencies.

To determine the validity of the resulting four items included in the measurement model, mental health care quality, EFA was performed with the total sample using AMOS Graphics software with SPSS interface. If each of the four indicators were found to be statistically significantly correlated with the latent construct at the $p < .01$ level, the null hypothesis that the four indicators do not form a valid measure of mental health care quality could be rejected. Items found not to be statistically significant indicators of the construct were removed from the model.

Hypothesis 2 Analysis

Seven family indicators within the MDS database can be combined to form a valid measure of family support.

Descriptive statistics and a correlation matrix were created using SPSS software to assess whether the seven indicators of the exogenous latent construct, family support, were correlated. After review of the descriptive statistics, all seven indicators were retained for further analysis. Next, to determine the validity of the items included in the measurement model, family support, EFA was performed with the total sample using AMOS Graphics software with SPSS interface. If each of the seven indicators were found to be statistically significantly correlated with the latent construct at the $p < .01$ level, the null hypothesis that the seven indicators do not form a valid measure of family support could be rejected. Items found not to be statistically significant indicators of the construct were then removed from the model.

Hypothesis 3 Analysis

Family support has a positive influence on mental health care quality.

Descriptive statistics were performed to explore family support characteristics for nursing home residents with a mental health history. SEM was then used to test if mental health care quality varied independently based on family support. If family support was found to be statistically significantly related to mental health care quality at the $p < .01$ level, the null hypothesis that family support does not have a positive influence on mental health care quality could be rejected. Goodness-of-fit statistics, including chi-square, chi-square likelihood ratio (χ^2/df) and RMSEA were used to determine the degree of model fit. For the sake of parsimony, variables not found to be statistically significant predictors were removed from the model.

Hypothesis 4 Analysis

The quality of mental health care provided for residents with a mental health history will vary based on facility resident, facility organizational, and market characteristics.

Descriptive statistics were performed to create a profile of nursing home residents with a mental health history. SEM was used to test if mental health care quality varied based on facility resident, facility organizational, and market characteristics. The null hypothesis that mental health care quality does not vary based on facility resident, facility organizational, and market characteristics could be rejected if measures of these characteristics were found to be statistically significantly related to mental health care quality at the $p < .01$ level. Each indicator of facility resident, facility organizational, and market characteristics was individually added to the model to test if it was independently related to mental health care quality.

Once that process was completed, the variables were added to the model one at a time in a step-wise process beginning with the most statistically significant variable to ensure no variables changed in significance when taking into account other variables. Exogenous variables statistically significantly related to the quality of mental health care provided for residents with a mental health history were identified through this process. Goodness-of-fit statistics, including chi-square, chi-square likelihood ratio (χ^2/df) and RMSEA were used to determine the degree of model fit. For the sake of parsimony, variables not found to be statistically significant predictors were removed from the model.

When adding the variables in a step-wise process, variables that changed in statistical significance were further investigated to determine if there was an interaction effect between independent variables. These interactions were then tested in the SEM model to determine if they were statistically significant.

Hypothesis 5 Analysis

Family support has a positive influence on mental health care quality when controlling for other factors.

SEM was then be used to test if mental health care quality varied based on family support when controlling for other factors. If family support was found to be statistically significantly related to mental health care quality at the $p < .01$ level in the presence of other factors, the null hypothesis that family support does not have a positive influence on mental health care quality could be rejected. Goodness-of-fit statistics, including chi-square, chi-square likelihood ratio (χ^2/df) and RMSEA were used to determine the degree of model fit. For the sake of parsimony, variables not found to be statistically significant predictors were removed from the model.

Hypothesis 6 Analysis

Family support will moderate the relationship between facility resident characteristics, facility organizational characteristics, market characteristics, and mental health care quality. Specifically, greater family support will increase mental health care quality taking into account facility resident, facility organizational, and market characteristics.

Interaction testing within SEM was used to determine if greater family support increases mental health care quality taking into account facility resident and facility organizational characteristics. If the interaction term between facility resident and facility organizational characteristics and family support was found to be statistically significant, the null hypothesis that greater family support does not increase mental health care quality could be rejected. This would demonstrate family support influenced the strength of the relationship between facility resident, facility organizational, and market predictor variables and the outcome variable, mental health care quality.

RESULTS

Hypothesis 1

Seven mental health deficiency and care indicators in the OSCAR database combined form a valid measure of mental health care quality.

First, descriptive statistics were performed for the four indicators of mental health care quality. These indicators were deficiencies (the combined score of the four original deficiency indicators), number of residents receiving psychoactive medication, number of residents receiving a behavior management program, and number of residents receiving health rehabilitative services for mental illness or mental retardation. Table 1 presents the descriptive statistics for characteristics of mental health care quality across facilities.

Table 1: Descriptive Statistics of Mental Health Care Quality Characteristics Across Facilities (N=2,499)

	Minimum Number	Maximum Number	Mean	Standard Deviation
Deficiencies	2	4	3.978	.149
Psychoactive Drug Use	0	601	65.370	42.269
Behavior Management	0	431	15.27	25.934
Rehabilitative Services	0	260	4.68	14.760

Because the original four indicators representing deficiency scores were combined into one indicator, the possible range for this score was zero to four. However, as no facility had more than two deficiencies, the minimum score across facilities was two. Even though the initial four deficiencies indicators were combined to form one variable, the average score remained high at 3.978 with a standard deviation of .149. Across facilities, the average number of residents receiving psychoactive medications was 65.37 with a standard deviation of 42.269. An average of 15.27 residents were

receiving behavioral management programs across facilities while an average of 4.68 residents were receiving rehabilitative services for a mental illness.

To determine if the four indicators included in the generic measurement model for the latent construct, mental health care quality, were statistically significantly correlated with one another ($p < .01$), a correlation matrix was constructed using SPSS software. Psychoactive drug use, behavior management, and rehabilitative services were all found to be statistically significantly correlated with one another. Although correlations were present between the variables, they were not high enough to suggest that any of the indicators were in fact measuring the same thing. Deficiencies was not statistically significantly correlated with any of the other indicators. This suggests it may not be a sufficient indicator to measure mental health care quality when combined with the other three indicators. However, because of the limited number of indicators included in the latent model, mental health care quality, it was necessary to retain deficiencies for further analysis. Thus, all four indicators (deficiencies, number of residents receiving psychoactive medication, number of residents receiving a behavior management program, and number of residents receiving health rehabilitative services for mental illness or mental retardation) were retained in the measurement model.

EFA was then performed to determine if the four indicators were statistically significantly related to the latent variable. Results obtained from the initial analysis indicate three of the four indicators were statistically significantly correlated with mental health care quality. Table 2 presents the statistical significance levels and factor loading for the 4 indicators in the generic model. Correlation co-efficients ranged from a high of .871 for behavior management to a low of .003 for deficiencies.

Table 2: Factor Loadings of Mental Health Care Quality by Four Mental Health Indicators

Mental Health Indicators	Estimate	S.E.	C.R.	P	Std.Estimate
Deficiencies	.000	.000	.142	.887	.003
Psychoactive Drug Use	1.205	.083	14.562	***	.643
Behavior Management	1.000			***	.871
Rehabilitative Services	.251	.019	13.011	***	.384

*** Indicates variable is statistically significant at $p < .01$ level

Table 3 presents the generic model fit by the four mental health care quality indicators.

Table 3: Goodness of Fit Measures of Mental Health Care Quality by Four Mental Health Care Quality Indicators

Model	NPAR	CMIN	DF	P	CMIN/DF	CFI	RMSEA
Default Model	8	4.420	2	.110	2.210	.998	.022
Saturated Model	10	.000	0			1.000	
Independence Model	4	1255.297	6	.000	209.216	.000	.289

In an effort to improve the model, deficiencies was removed from the model because it was not statistically significant. However, this led to a saturated model due to the small number of indicators included in the model (no χ^2 value, degrees of freedom, or goodness of fit measures could be calculated). Thus, deficiencies was retained in the model for further analytic purposes. The final model used to measure mental health care quality by the four included indicators is displayed in Figure 3.

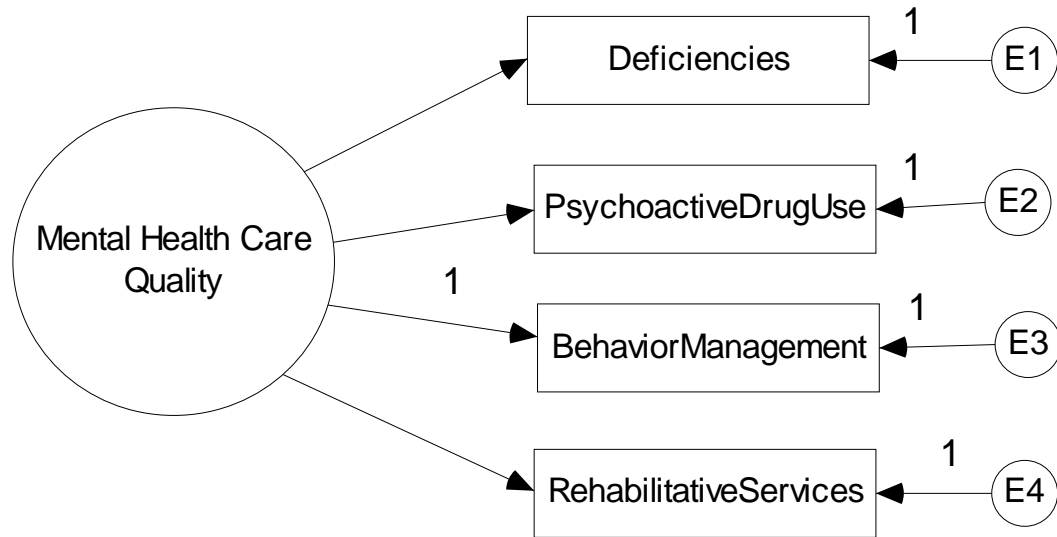


Figure 3: Final Mental Health Care Quality Measurement Model by Four Indicators

In the final model, the behavior management indicator was found to explain the most variation in mental health care status at 75.8%, whereas deficiencies was found to explain the least amount of the variation in mental health care status at 0%. Table 4 presents the squared multiple correlations for the four indicators.

Table 4: Squared Multiple Correlations of the Four Mental Health Indicators

Mental Health Indicators	Estimate
Deficiencies	.000
Psychoactive Drug Use	.414
Behavior Management	.758
Rehabilitative Services	.147

As shown in Table 4, three of the indicators statistically significantly contributed to mental health care quality: the number of residents receiving psychoactive medication, number of residents receiving a behavior management program, and number of residents receiving health rehabilitative services for mental illness or mental retardation.

Deficiencies was not statistically significantly related to variations in mental health care quality. As indicated above, although not statistically significant, deficiencies was not yet

removed from the model due to the limited number of indicators used to measure the latent construct, mental health care quality. Thus, the null hypothesis that the four mental health indicators do not form a valid measure of mental health care quality could be partially rejected in support of the research hypothesis.

Hypothesis 2

Seven family indicators within the MDS database can be combined to form a valid measure of family support.

Descriptive statistics were first performed for the seven indicators of family support. Table 5 presents the descriptive statistics of family support across facilities.

Table 5 Descriptive Statistics of Family Support Characteristics Across Facilities (N=2499)

Facility Residents having:	Mean	Standard Deviation
Daily Contact with Family/Friends	.517	.413
Harmonious Relationship With Family/Friends	.973	.128
Ongoing Relationship With Family/Friends	.927	.206
Family Participates in Assessment	.305	.401
Significant Other Participates In Assessment	.049	.180
Supportive Person Towards Discharge	.021	.122
Family Responsible	.547	.420

Across facilities, close to fifty-two percent of residents maintained daily contact with relatives or close friends. Very few residents across facilities had anger or conflict in their relationships or the current absence of contact with family or friends, with ninety-seven and ninety-three percent respectfully reporting this is not the case. Thirty-one

percent of families participate in care planning across facilities while only five percent of significant others do so. Only two percent of residents across facilities have a support person who is positive towards discharge while almost fifty-five percent have a family member responsible for the resident.

Next, to determine if the seven indicators included in the generic measurement model for the latent construct, family support, were statistically significantly correlated with one another ($p < .01$), a correlation matrix was constructed using SPSS software. It was found that all of the indicators were related to at least one other indicator. Family participation in care had the greatest number of statistically significant correlations being related to five of the other indicators, with scores ranging from $-.060$ to $.239$. Continued support had the least number of statistically significant correlations being related to only one other indicator, at $-.062$. The remaining five indicators ranged in the number of statistically significant correlations they had to the other indicators from between two to four. Although correlations were present between the variables, they were not high enough to suggest that any of the indicators were in fact measuring the same thing. Thus, all seven were included for further analysis.

EFA was then performed to determine if the seven indicators were statistically significantly related to the latent variable. Results obtained from the initial analysis indicate four of the seven indicators were statistically significantly correlated with family support. Table 6 presents the statistical significance levels and factor loadings for the seven indicators in the generic model.

Table 6: Factor Loadings of Family Support by Seven Family Support Indicators

Family Support Indicators	Estimate	S.E.	C.R.	P	Std.Estimate
Daily Contact with Family/Friends	1.000			***	.536
Harmonious Relationship With Family/Friends	-.012	.016	-.708	.479	-.020
Ongoing Relationship With Family/Friends	.298	.034	8.735	***	.320
Family Participates in Assessment	.785	.080	9.769	***	.434
Significant Other Participates In Assessment	.046	.023	1.980	.048	.057
Supportive Person Towards Discharge	-.016	.016	-1.041	.298	-.030
Family Responsible	.812	.083	9.755	***	.428

*** Indicates variable is statistically significant at $p < .01$ level

Although four indicators were found to be statistically significantly correlated with family support in the generic model, better model fit could be obtained. Table 7 presents the generic model fit with the seven family support indicators.

Table 7: Goodness of Fit Measures of Family Support by Seven Family Support Indicators

Model	NPAR	CMIN	DF	P	CMIN/DF	CFI	RMSEA
Default Model	14	76.787	14	.000	5.485	.876	.042
Saturated Model	28	.000	0			1.000	
Independence Model	7	527.175	21	.000	25.104	.000	.098

In an effort to improve the model, the three indicators found to be not statistically significant, harmonious relationship with family/friends, significant other participates in assessment, and supportive person towards discharge were removed from the model. Upon review of the revised model, good model fit was obtained. The final model used to measure family support by the four final indicators is displayed in Figure 4.

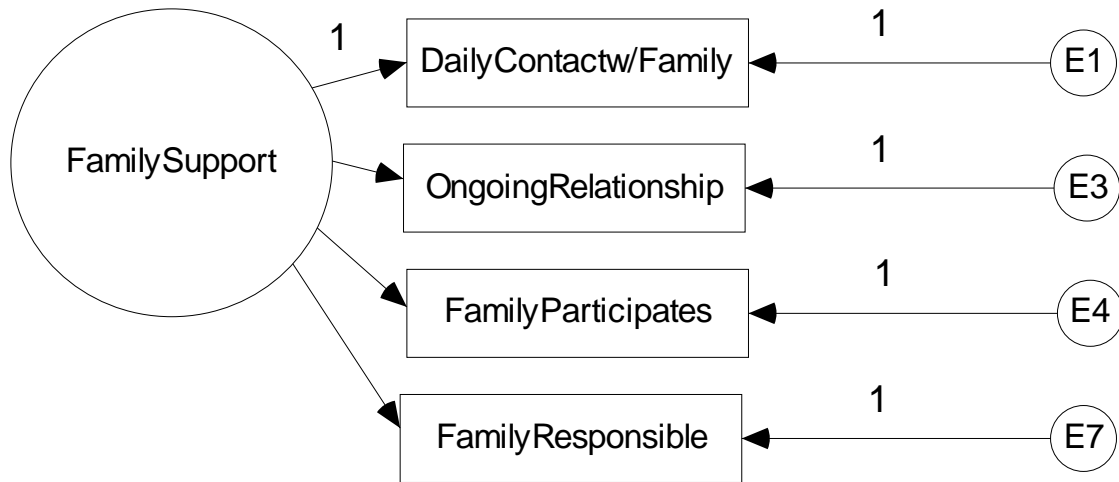


Figure 4: Final Family Support Measurement Model by Four Indicators

Table 8 presents the factor loadings and statistical significance levels for the four indicators in the final revised model. Correlation co-efficients ranged from a high of .545 for contact frequency to a low of .324 for current relationship status.

Table 8: Factor Loadings of Family Support by Four Family Support Indicators

Family Support Indicators	Estimate	S.E.	C.R.	P	Std.Estimate
Daily Contact with Family/Friends	1.000			***	.545
Ongoing Relationship With Family/Friends	.297	.034	8.747	***	.324
Family Participates in Assessment	.753	.080	9.650	***	.422
Family Responsible	.799	.083	9.666	***	.428

*** Indicates variable is statistically significant at $p < .01$ level

In the final model, the indicator contact frequency, representing daily contact with the resident, was found to explain the most variation in family support at 29.7%, whereas current relationship status was found to explain the least amount of the variation in family support at 10.5%. Table 9 presents the squared multiple correlations for the four indicators.

Table 9: Squared Multiple Correlations of the Four Family Support Indicators

Family Support Indicators	Estimate
Daily Contact with Family/Friends	.297
Ongoing Relationship with Family/Friends	.105
Family Participates in Assessment	.178
Family Responsible	.183

In addition, good model fit was obtained. Table 10 presents the goodness of fit measures for the final model.

Table 10: Goodness of Fit Measures of Family Support by Four Family Support Indicators

Model	NPAR	CMIN	DF	P	CMIN/DF	CFI	RMSEA
Default Model	8	8.649	2	.013	4.324	.985	.036
Saturated Model	10	.000	0			1.000	
Independence Model	4	453.791	6	.000	75.632	.000	.173

The fit of the final model is better than that of the generic model originally specified. Table 11 displays a comparison of the Chi-Square values between the two models.

Table 11: Chi-Square Values of Generic and Revised Family Support Models

Model	χ^2	DF	χ^2/DF
Generic Model	76.787	14	5.485
Revised Model	8.649	2	4.324
Model Difference	68.138	12	1.161

As shown in Figure 4 and Table 9, four of the indicators statistically significantly contributed to family support: daily contact with family/close friends, ongoing relationship with family/friends, family participation in assessment, and family responsible for individual. Thus, the null hypothesis that the seven family support indicators do not form a valid measure of family support could be partially rejected in support of the research hypothesis.

Hypothesis 3

Family support has a positive influence on mental health care quality.

The latent construct, family support, was tested independently in SEM to determine if it was statistically significantly related to mental health care quality. Figure 5 displays the initial model of family support and mental health care quality.

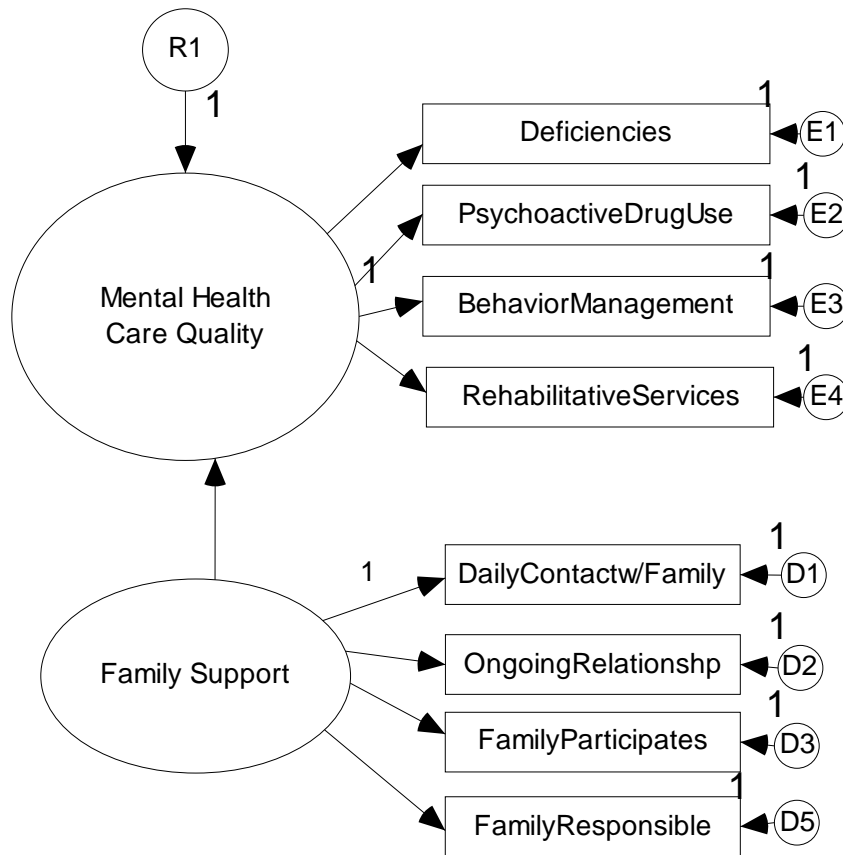


Figure 5: Initial Model of Family Support and Mental Health Care Quality

Table 12 presents the regression estimates and statistical significance levels of mental health care quality by family support.

Table 12: Regression Estimates of Mental Health Care Quality by Family Support

Family Support Indicators	Estimate	S.E.	C.R.	P	Std.Estimate
Mental Health Care → Family Support Quality	-3.147	3.199	-.984	.325	-.031
Daily Contact → Family Support With Family/Friends	1.000			***	.545
Ongoing Relationship → Family Support With Family/Friends	.296	.034	8.745	***	.323
Family Participates → Family Support In Assessment	.753	.078	9.658	***	.423
Family Responsible → Family Support Deficiencies	.798	.082	9.672	***	.427
Psychoactive → Mental Health Drug Use Care Quality	1.200	.082	14.562	***	.642
Behavior → Mental Health Management Care Quality	1.000			***	.872
Rehabilitative → Mental Health Services Care Quality	.251	.019	13.003	***	.384

*** Indicates variable is statistically significant at $p < .01$ level

Family support was not found to be statistically significantly related to mental health care quality in the initial model ($p > .01$). Deficiencies remained not statistically significant as it was previously in the measurement model of mental health care quality so it was removed at this time. Figure 6 displays the final model of family support and mental health care quality.

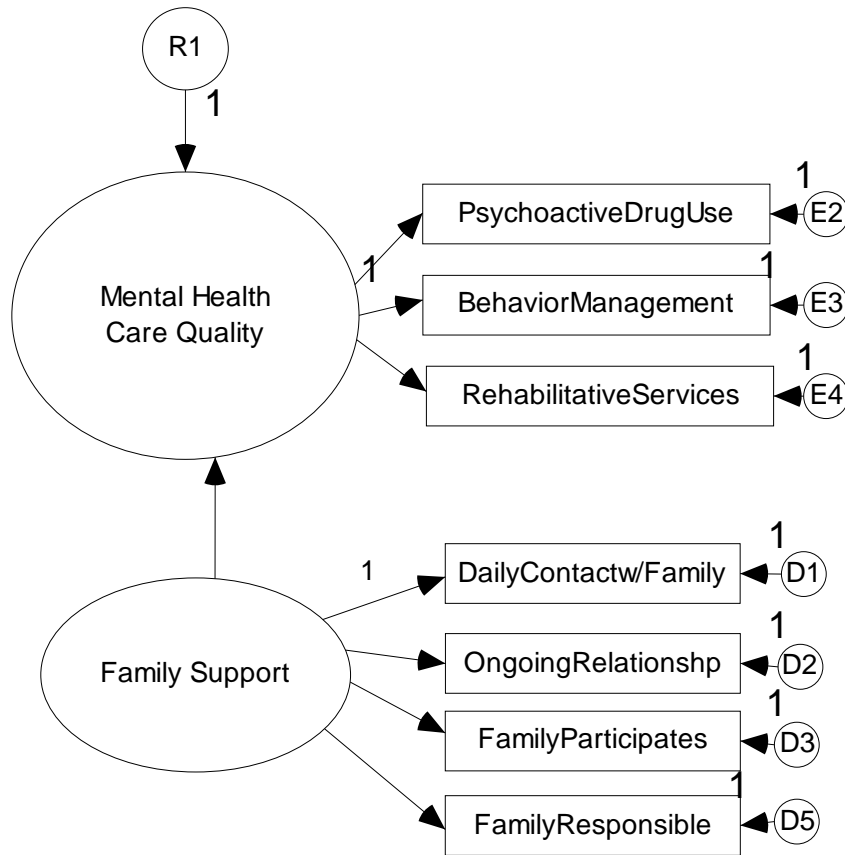


Figure 6: Final Model of Family Support and Mental Health Care Quality

Table 13 presents the goodness of fit measure for the final model.

Table 13: Goodness of Fit Measures of Family Support and Mental Health Care Quality

Model	NPAR	CMIN	DF	P	CMIN/DF	CFI	RMSEA
Default Model	15	65.068	13	.000	5.055	.970	.040
Saturated Model	28	.000	0			1.000	
Independence Model	7	1762.032	21	.000	83.906	.000	.182

In the final model, the indicator behavior management was found to explain the most variation in mental health care quality at 76.0%, followed by psychoactive drug use, which explained 41.3% of mental health care quality. Table 14 presents the squared multiple correlations for mental health care quality when taking into account family support.

Table 14: Squared Multiple Correlations of Mental Health Care Quality

<u>Mental Health Care Quality Indicators</u>	<u>Estimate</u>
Psychoactive Drug Use	.413
Behavior Management	.760
Rehabilitative Services	.148
Daily Contact with Family/Friends	.297
Ongoing Relationship with Family/Friends	.105
Family Participates in Assessment	.179
Family Responsible	.183

Thus, the null hypothesis that family support does not have a positive influence on mental health care quality could not be rejected in support of the research hypothesis.

Hypothesis 4

The quality of mental health care provided for residents with a mental health history will vary based on facility resident, facility organizational, and market characteristics.

Descriptive statistics were first performed for facility resident, facility organizational, and market characteristics. Table 15 presents the means and standard deviations for facility resident characteristics across facilities.

Table 15: Descriptive Statistics of Facility Resident Characteristics Aggregated Across Facilities (N=2499)

<u>Facility Resident Characteristics</u>				
<i>Continuous Variables</i>	Minimum Number	Maximum Number	Mean	Standard Deviation
Average Age	65.000	101.000	78.696	6.530
Psychiatric Diagnosis				
Anxiety Disorder	0	1.000	.190	.318
Depression	0	1.000	.530	.408
Manic Depression	0	1.000	.152	.289
Schizophrenia	0	1.000	.374	.403
Physical Health	0	9.000	.3239	1.514
Physical Functioning	1.000	5.000	.1760	1.072
Cognitive Function	0	6.000	.2233	1.330
Social Engagement	0	6.000	.2649	1.486
<i>Categorical Variables</i>	Frequency		Percentage	
Gender				
Male	617		24.7%	
Female	1882		75.3%	
Ethnicity				
White, not Hispanic	2155		86.2%	
Black, not Hispanic	227		9.1%	
Hispanic	87		3.5%	
Asian/Pacific Islander	18		0.7%	
American Indian/ Alaskan Native	12		0.5%	

The average age across facilities was 78.696. Looking at gender, seventy-five percent were female while twenty-five percent were male. Across ethnicities, eighty-six percent were white followed by nine percent black, not Hispanic, and three percent Hispanic. In the psychiatric diagnosis categories, fifty-three percent had depression, thirty-seven percent had schizophrenia, nineteen percent had anxiety disorder, and fifteen percent had manic depression.

Physical health was measured by the average number of disease categories in which individuals across facilities had a diagnosis out of a possible fifteen categories. The average score for physical health across facilities was 3.239 out of a maximum of 9.

Physical functioning was measured using the Activities of Daily Living (ADL) Index calculation within the MDS. For physical functioning, the average score across facilities was 1.760 out of a maximum of 5. Cognitive functioning, the degree to which an individual is cognitively impaired, was measured using the Cognitive Performance Scale within the MDS. The average score for cognitive functioning was 2.233 out a maximum of 6, indicating mild to moderate cognitive impairment. Social engagement, how involved a resident is in activities, was measured using the Social Engagement Scale within the MDS. The average score for social engagement was 2.649 out of 6, indicating moderate involvement in activities.

The facility organizational characteristics of facilities are presented in Table 16.

Table 16: Descriptive Statistics of Facility Organizational Characteristics Across Facilities (N=2499)

<u>Facility Organizational Characteristics</u>				
<i>Continuous Variables</i>	Minimum Number	Maximum Number	Mean	Standard Deviation
Facility Size	22	1362	128.470	80.660
Bed Occupancy	.020	1.000	.833	.151
Medicare Payer	0	.837	.092	.081
Medicaid Payer	0	1.000	.694	.177
Residents w/ Mental Health History	.060	1.000	.216	.174
Resident Acuity	3.381	21.897	10.038	1.511
<i>Categorical Variable</i>				
Ownership Type	Frequency	Percent		
For-Profit	1799	72.0%		
Government or Non-Profit	700	28.0%		

Across facilities, the average facility size was 128 residents with a standard deviation of 81. Bed occupancy across facilities was found to be 83.3%. Upon

reviewing payer source, close to seventy percent was found to be from Medicaid while only nine percent was from Medicare. Twenty-two percent of the total residents across facilities had a mental health history. Resident acuity was measured using the Resident Acuity Index within the OSCAR. The average acuity of residents was 10.038 with a standard deviation of 1.511. Seventy-two percent of facilities were found to be for-profit followed by twenty-two percent non-profit and six percent government.

The characteristics of market factors across facilities are presented in Table 17.

Table 17: Descriptive Statistics of Market Factor Characteristics Across Facilities (N=2499)

<u>Market Characteristics</u>				
<i>Continuous Variable</i>				
	Minimum Number	Maximum Number	Mean	Standard Deviation
Market Competition	.004	1.00	.186	.222
Market Demand	.047	.334	.139	.038

Out of a maximum of one, the average market competition across facilities was .186 with a standard deviation of .223. The average market demand was found to be .139 with a standard deviation of .038.

Each indicator of facility resident, facility organizational, and market characteristics was then added separately to the SEM model of Mental Health Care Quality and Family Support to test for independent statistical significance. Table 18 presents the regression estimates and statistical significance levels for the tested individual indicators.

Table 18: Regression Estimates of Mental Health Care Quality by Independent Facility Resident Characteristics

Facility Resident Characteristics	Estimate	S.E.	C.R.	P
Age	-.207	.077	-2.682	.007
Male	3.161	1.475	2.143	.032
Female	-3.161	-1.475	-2.143	.032
White not Hispanic	-2.603	1.722	-1.511	.131
Black not Hispanic	3.163	2.111	1.498	.134
Hispanic	2.324	3.220	.722	.470
Asian/Pacific Islander	.333	6.774	.049	.961
American Indian/Alaskan Native	-4.627	8.524	-.543	.587
Anxiety Disorder	-1.485	1.589	-.935	.350
Depression	.091	1.238	.073	.942
Manic Depression	.454	1.750	.260	.795
Schizophrenia	-.149	1.254	-.119	.906
Physical Health	.639	.334	1.915	.056
Physical Functioning	-1.002	.470	-2.130	.033
Cognitive Functioning	.412	.380	1.085	.278
Social Engagement	-1.012	.338	-2.998	.003

None of the facility resident characteristics were found independently to be statistically significantly related to mental health care quality. Table 19 presents the regression estimates and statistical significance levels for the tested facility organizational and market indicators.

Table 19: Regression Estimates of Mental Health Care Quality by Independent Facility Organizational and Market Characteristics

Facility Organizational & Market Characteristics	Estimate	S.E.	C.R.	P
Facility Ownership	-5.793	1.107	-5.231	***
Facility Size	.153	.006	27.484	***
Bed Occupancy	29.628	3.184	9.304	***
Medicare Payer	-20.073	6.269	-3.202	.001
Medicaid Payer	22.717	2.788	8.148	***
Residents w/ Mental Health History	20.004	2.846	7.029	***
Resident Acuity	-.739	.334	-2.214	.027
Market Competition	-14.666	2.208	-6.644	***
Market Demand	-51.539	13.020	-3.958	***

*** Indicates variable is statistically significant at $p < .01$ level

Five of the facility organizational characteristics were found independently to be statistically significantly related to mental health care quality: facility ownership, facility size, bed occupancy, Medicaid payer, and percent of residents with a mental health history. Both of the market characteristics, market competition and market demand, were found independently to be statistically significantly related to mental health care quality.

Once the statistical significance of each independent variable was determined, they were added to the model in a step-wise process beginning with the most statistically significant, facility size. This process continued until all of the facility resident, facility organizational, and market indicators had been tested in the model. Table 20 presents the regression estimates and significance levels for facility resident, facility organizational, and market indicators when taking into account the other factors.

Table 20: Regression Analysis of Mental Health Care Quality by Facility Resident, Facility Organizational, and Market Characteristics Aggregated Across Facilities

Significant Characteristics	Estimate	S.E.	C.R.	P	Std.Estimate
White not Hispanic	2.343	.536	4.371	***	.044
Facility Size	.162	.005	32.026	***	.838
Bed Occupancy	32.825	1.403	23.401	***	.316
Medicaid Payer	5.789	.896	6.462	***	.066
Family Support	.488	.987	.494	.621	.007
Residents w/ Mental Health History	8.412	.925	9.097	***	.094
Resident Acuity	-.651	.105	-6.128	***	-.063

*** Indicates variable is statistically significant at $p < .01$ level

Good model fit was obtained when taking into account all indicators. Table 21 presents the goodness of fit measures for the mental health care quality model when taking into account facility resident, facility organizational, and market characteristics.

Table 21: Goodness of Fit Measures of Mental Health Care Quality by Facility Resident, Facility Organizational, and Market Characteristics

Model	NPAR	CMIN	DF	P	CMIN/DF	CFI	RMSEA
Default Model	27	1458.958	64	.000	22.796	.784	.093
Saturated Model	91	.000	0			1.000	
Independence Model	13	6527.155	78	.000	83.681	.000	1.82

As evidenced by Table 18 and Table 20, two indicators (white not Hispanic and resident acuity) previously found to be not statistically significant became statistically significant when taking into account other facility resident, facility organizational, and market factors. Additionally, as shown in Table 19 and Table 20, three indicators found independently statistically significant (facility ownership, market competition, and market demand) became not statistically significant when taking into account other facility resident, facility organizational, and market factors. All three of the variables that became not statistically significant were previously statistically significantly negatively related to mental health care quality. This change indicates a possible interaction effect between the independent variables. Therefore, interaction variables were computed in SPSS and added to the model in a stepwise fashion beginning with the most statistically significant to determine if any interactions were statistically significantly related to mental health care quality. Two interactions were found to be statistically significant, market demand * residents with a mental health history and market competition * facility size. However, when added to the model only market demand * residents with a mental health history remained statistically significant and as it led to poorer model fit, it was ultimately also excluded from the model.

The final model used to measure mental health care quality by facility resident and facility organizational indicators is displayed in Figure 7.

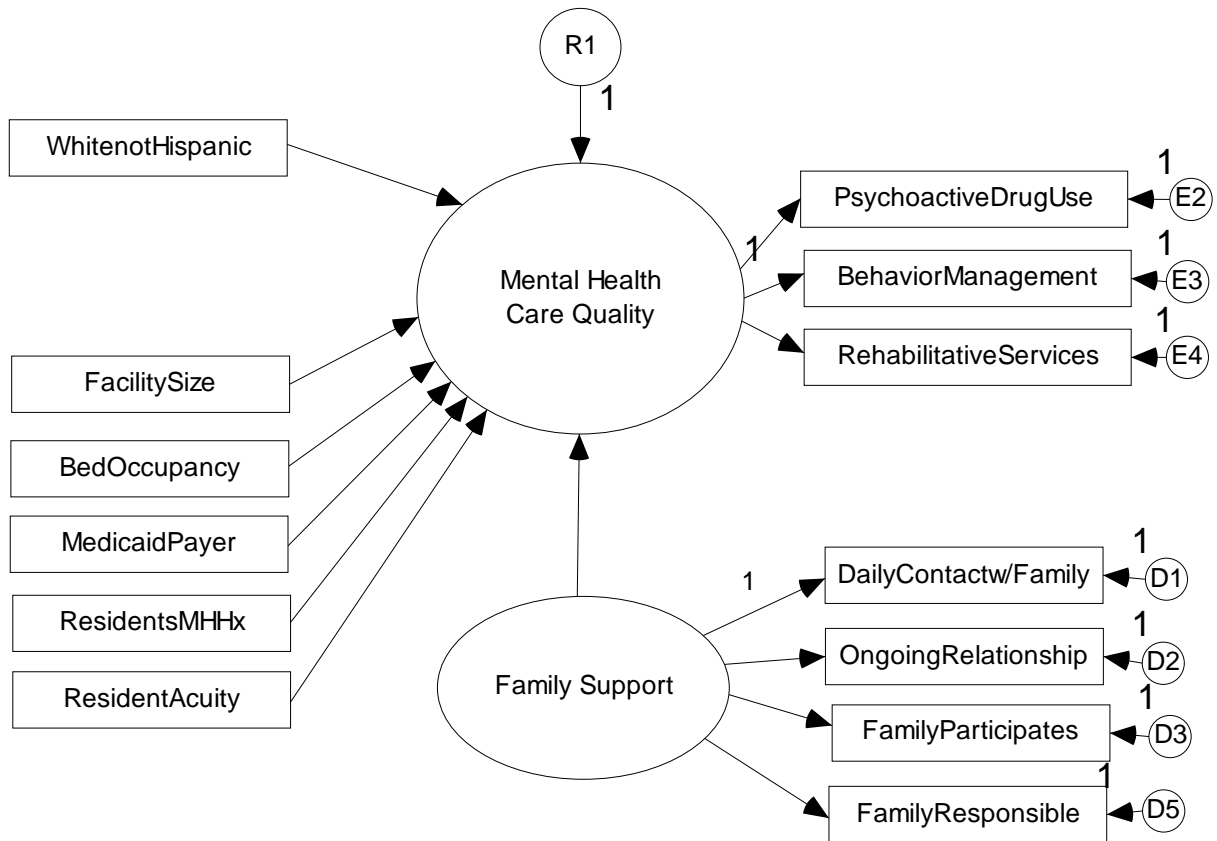


Figure 7: Structural Equation Model of Mental Health Care Quality by Significant Facility Resident and Facility Organizational Indicators

When taking into account facility resident, facility organizational, and market characteristics, one facility resident characteristic, white not Hispanic, was found to be statistically significantly related to mental health care quality. Five facility organizational characteristics: facility size, bed occupancy, Medicaid payer, percent of residents with a mental health history, and resident acuity, were found to be statistically significantly related to mental health care quality when accounting for other facility resident, facility organizational, and market factors. Thus, the null hypothesis that mental health care quality does not vary based on facility resident, facility organizational, and market characteristics could be rejected in support of the research hypothesis. However, it

appears that it is facility organizational characteristics that are most related to mental health care quality.

Hypothesis 5

Family support has a positive influence on mental health care quality when controlling for other factors.

The null hypothesis that family support does not have a positive influence on mental health care quality could not be rejected as family support remained not statistically significant in the final SEM model. Family support was not able to overcome of influence of facility resident, facility organizational, and market characteristics on mental health care quality. Table 22 presents the regression estimate and statistical significance level for family support in the final model.

Table 22: Regression Analysis of Mental Health Care Quality by Family Support

	Estimate	S.E.	C.R.	P	Std.Estimate
Mental Health → Family Support Care Quality	.488	.987	.494	.621	.007

Hypothesis 6

Family support will moderate the relationship between facility resident characteristics, facility organizational characteristics, market characteristics, and mental health care quality. Specifically, greater family support will increase mental health care quality taking into account facility resident, facility organizational, and market characteristics.

The null hypothesis that greater family support does not increase mental health care quality could not be rejected as the interaction term between facility resident and facility organizational characteristics and family support was not statistically significant. Family support was not found to influence the strength of the relationship between facility resident, facility organizational, and market predictor variables and the outcome variable, mental health care quality. It appears facility organizational characteristics have the most influence on mental health care quality, even when taking into account other family support, facility resident, and market characteristics.

DISCUSSION

A summary of the study findings is presented in Table 23.

Table 23: Findings of the Results Testing of Study Hypotheses

Hypotheses	Proposed Predictor Variables	Significant Variables
<u>Hypothesis 1:</u> Seven mental health deficiency and care indicators in the OSCAR database combined form a valid measure of mental health care quality.	<ol style="list-style-type: none"> 1. Number of residents receiving psychoactive medication 2. Number of residents receiving a behavior management program 3. Number of residents receiving health rehabilitative services for mental illness or mental retardation 4. Deficiencies 	<ol style="list-style-type: none"> 1. Number of residents receiving psychoactive medication 2. Number of residents receiving a behavior management program 3. Number of residents receiving health rehabilitative services for mental illness or mental retardation
<u>Hypothesis 2:</u> Seven family indicators within the MDS database can be combined to form a valid measure of family support.	<ol style="list-style-type: none"> 1. Daily contact with family/close friends 2. Ongoing relationship with family/friends 3. Family participation in assessment 4. Family responsible for individual 5. Harmonious relationship with family/friends 6. Significant other participates in assessment 7. Supportive person towards discharge 	<ol style="list-style-type: none"> 1. Daily contact with family/close friends 2. Ongoing relationship with family/friends 3. Family participation in assessment 4. Family responsible for individual
<u>Hypothesis 3:</u> Family support has a positive influence on mental health care quality.	<ol style="list-style-type: none"> 1. Family support: daily contact with family/close friends, ongoing relationship with family/friends, family participation in assessment, family responsible for individual 	<ol style="list-style-type: none"> 1. No significant findings
<u>Hypothesis 4:</u> The quality of mental health care provided for residents with a mental health history will vary based on facility resident, facility organizational, and market characteristics.	<ol style="list-style-type: none"> 1. Facility resident characteristics: demographics, physical health, functioning, psychiatric diagnosis, cognitive functioning, social engagement 2. Facility organizational characteristics: ownership, facility size, bed occupancy, payer mix, resident acuity index, % of residents with a mental health history 3. Market characteristics: market competition, market demand 	<ol style="list-style-type: none"> 1. Facility resident characteristics: white, non Hispanic 2. Facility organizational characteristics: facility size, bed occupancy, Medicaid payer, percent of residents with a mental health history, and resident acuity

<p><u>Hypothesis 5:</u> Family support has a positive influence on mental health care quality when controlling for other factors.</p>	<ol style="list-style-type: none"> 1. Family support: daily contact with family/close friends, ongoing relationship with family/friends, family participation in assessment, family responsible for individual 2. Resident facility characteristics: demographics, physical health, functioning, psychiatric diagnosis, cognitive functioning, social engagement 3. Facility organizational characteristics: ownership, facility size, bed occupancy, payer mix, resident acuity index, % of residents with a mental health history 4. Market characteristics: market competition, market demand 	<p>1. No significant findings</p>
<p><u>Hypothesis 6:</u> Family support will moderate the relationship between facility resident characteristics, facility organizational characteristics, market characteristics, and mental health care quality. Specifically, greater family support will increase mental health care quality taking into account resident, facility, and market characteristics.</p>	<ol style="list-style-type: none"> 1. Family support: daily contact with family/close friends, ongoing relationship with family/friends, family participation in assessment, family responsible for individual 2. Facility resident characteristics: demographics, physical health, functioning, psychiatric diagnosis, cognitive functioning, social engagement 3. Facility organizational characteristics: ownership, facility size, bed occupancy, payer mix, resident acuity index, % of residents with a mental health history 4. Market characteristics: market competition, market demand 	<p>1. No significant findings</p>

Multiple factors including facility resident, facility organizational, and market forces are believed to influence the provision of mental health care services in nursing homes. Additionally, the support of family has been recognized as an important resource

for individuals residing in nursing homes that may influence overall care and specifically mental health care. It is estimated older adults with a mental health history, without a diagnosis of Alzheimer's disease or dementia, account for approximately 13% (171,513) of the nursing home population (Centers for Medicare and Medicaid Services, 2005). Due to the prevalence of nursing home residents with a mental health history and the complexity of their needs, there is concern they are receiving adequate care, specifically mental health care.

Although the prevalence of mental health disorders among the nursing home population is well documented, little is known specifically about the characteristics of nursing home residents with a mental health history. In order to meet the needs of this population, it is important to identify the factors that influence the quality of mental health care they receive. Once the factors that contribute to mental health care quality for individuals with a mental health history are identified, this information can be used to inform nursing home practices and policy reform to ensure adequate mental health care provision within and across facilities.

One contribution of this study is to provide a national profile of nursing home residents with a mental health history. The study sample included individuals sixty-five years of age or older who had a diagnosed mental health history with no history of mental retardation or developmental disability and did not have a diagnosis of Alzheimer's disease or dementia other than Alzheimer's disease. Characteristics of nursing home residents with a mental health history were aggregated to the facility level in order to merge them with facility and market characteristics.

Reviewing the resident characteristics of nursing home residents with a mental health history across facilities, the average resident in this study was almost seventy-nine years of age. Three-fourths of all residents were female and eighty-six percent were white, non Hispanic, in ethnicity. These findings were similar to the demographic characteristics of the US population of nursing home residents, although there was a lower percentage of female residents in a national survey, with only sixty-two percent of all residents (with and without a mental health history) being female (Department of Health and Human Services, 2002). One reason for this may be the exclusion of individuals under the age of sixty-five, and females lives tend to live longer than men.

The largest percent of residents across facilities had a mental health diagnosis of depression (53%). This is not surprising as depression is common among all nursing home residents, not just those with a history of mental health problems. Schizophrenia was the second most common diagnosis (37.4%) followed by anxiety disorder and manic depression. Since residents with a mental health history may have more than one mental health diagnosis, the total percent of diagnoses across categories was greater than one hundred percent.

Across a possible fifteen physical health categories, residents across facilities had an average of just over three categories in which they were impaired. This means they had at least three diagnosed physical health problems. For physical functioning, as measured by ADL scores, residents across facilities had an average of just under two areas in which they required assistance, indicating a need for limited assistance by facility staff. This was lower than the national average of all nursing home residents, with over

seventy-four percent of all residents needing assistance with at least three ADLs (Department of Health and Human Services, 2002).

Across facilities the average resident score for cognitive impairment was 2.233 out of a maximum score of six. This indicates mild to moderate cognitive impairment. The average social engagement for residents across facilities was 2.649 out of a maximum score of six, indicating residents participated in at least some social activities. Only when residents score a zero on the social engagement scale is it suggested the facility interdisciplinary team discuss possible interventions to increase this score. This is a positive finding as it is generally believed older adults with a mental health history tend to have fewer social contacts and involvement. Residing in the nursing home may give individuals with a mental health history an opportunity to actively engage with others.

Turning to the characteristics of the facilities themselves, seventy-two percent were for-profit facilities while only twenty-eight percent were non-profit or government facilities. This is slightly higher than previous study findings that sixty-seven percent of facilities were for-profit (Department of Health and Human Services, 2002). Facilities also had a greater number of beds, with an average of 128 beds versus 106 beds although bed occupancy declined slightly from an average of eighty-seven percent to eight-three percent. So, although facilities grew in size, fewer of their beds were occupied by a resident.

The primary payer source for facilities was Medicaid, with over sixty-nine percent of residents relying on Medicaid to pay for their care. This is higher than data from the national survey of all nursing homes, which found only fifty-nine percent of

residents relied on Medicaid as their primary payer (Department of Health and Human Services, 2002). Additionally, in contrast to the national survey finding fifteen percent of residents rely on Medicare, only nine percent of residents had Medicare as their primary payer source in the present study. Perhaps residents with a mental health history tend to have fewer personal resources to private pay for care, lack a work history to qualify for Medicare, or tend to stay in facilities longer than the typical nursing home resident.

For facilities included in the present study, the average number of residents with a documented mental health history was over twenty-one percent. This was higher than expected based on estimates of the Centers for Medicare and Medicaid Services (2005), which placed the figure at thirteen percent. Perhaps facilities that accept residents with a mental health history are inclined to have a resident census with a greater percentage of individuals with a mental health history. Finally, the average acuity of residents was 10.038, similar to the results of another nursing home study utilizing the OSCAR database, finding an acuity score of 10.19 (Mueller, et al., 2006).

Mental Health Care Quality

Upon review of the descriptive statistics of the four indicators of mental health care quality, it is evident that deficiencies were reported in very few nursing homes. In fact, 2,445 nursing homes had no reported deficiencies. Only 53 nursing homes had one reported deficiency and just one nursing home had two reported deficiencies. Needless to say, receiving a deficiency citation for any of the following deficiencies related to mental health was quite rare: (1) nursing home ensures that residents do not have avoidable decline in their psychosocial functioning, no development of mental problems; (2) facility does not provide appropriate treatment for residents with mental and/or psychosocial

difficulties; (3) unnecessary psychotropic drug use; and (4) adherence to Preadmission Screening and Resident Review (PASRR) coordination requirements.

There may be a couple reasons for so few reported deficiencies across facilities. First, nursing homes were in fact providing adequate mental health care for residents as measured by these indicators. However, as the deficiencies are all related to negative outcomes, it does not necessarily mean the quality of mental health care was high, only that nursing homes were providing the minimum mental health services necessary to avoid being cited as deficient. Second, the nursing home regulations measured by the OSCAR include 187 specific standards related to deficiencies (Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000). These are often grouped together to measure deficiencies by specific categories such as quality of life and quality of care. However, even when they are lumped into categories with numerous standards, studies have found the number of deficiencies within each category to be quite low, with average quality of care deficiencies between two and four and average quality of life deficiencies between one and two (Harrington, Woolhandler, Mullan, Carrillo, & Himmelstein, 2002; Harrington et al., 2000). This was also found to be the case in this study, as an average only 6.27 individual deficiencies was reported in nursing homes meeting the study inclusion criteria. Compared to the larger nursing home population, this was a slightly higher number of deficiencies, as an average of 5.85 deficiencies was reported across all nursing homes. However, the occurrence of overall reported deficiencies was low across all types of deficiency categories for both the nursing homes included in this study as well as the larger nursing home population.

Due to the small number of deficiencies across facilities, the summed indicator, deficiencies, was not a statistically significant indicator in the model of mental health care quality. When reviewing the other indicators included in the model of mental health care quality, residents receiving a behavior management program was related most strongly to mental health care quality. The number of individuals across facilities receiving behavior management was much higher than the number receiving rehabilitative services for mental illness, 15.27 residents versus 4.68 residents respectively. Perhaps nursing homes were more likely to provide a service for disruptive or problem behavior that may affect other nursing home residents and staff than provide mental health services to enhance the current level of functioning for a resident with a mental health history. The federal regulations regarding behavior management programs encompass the use of physical and chemical restraints and are meant to prohibit resident mistreatment through inappropriate use of these programs. The regulations outline appropriate behavior management programs and under what circumstances such programs may be implemented (NH Regulations Plus, 2008). Behavior management programs may be easier and less costly for nursing homes to provide as they are perhaps implemented by regular staff while providing rehabilitative services for a mental illness may require skilled professionals not already employed by the nursing home. However, while federal regulations require specialized rehabilitative services be provided if they are indicated in the resident's comprehensive plan of care, the requirement is vague in many states and only mandates the service be provided by "appropriate staff" (NH Regulations Plus, 2008).

The psychoactive drug use reported across facilities varied widely, with an average of 65.37 individuals across facilities receiving psychoactive drugs and a standard deviation of 42.269. This variation may in part reflect significant size differences between nursing homes. Psychoactive drug use followed behavior management as the second indicator most closely related to mental health care quality. However, the average number of residents receiving psychoactive drugs was much higher than the number of residents receiving any type of behavioral or rehabilitative intervention which may reflect both the residents' need for psychoactive drugs as well as a substitution for other types of mental health care treatment. As the federal regulations for behavior management programs outline the use of chemical restraints for nursing home residents, it may also be that residents are receiving psychoactive drugs to control behavior, it is just not labeled as a "behavior management program" in their record.

Mental Health Care Quality and Resident Characteristics

The findings showing none of the facility resident characteristics were statistically significantly related to health care when they were added independently to the proposed model of mental health care without taking into account other factors was unexpected. Age, sex, and ethnicity have been identified as factors that may influence the recognition of mental illness among individuals in nursing homes (Jones, Marcantonio, & Rabinowitz, 2003). However, this finding is consistent with the study conducted by Fenton et al. (2004), which found demographic variables were not statistically significantly associated with receipt of mental health services. Interestingly, in the present study once the other facility resident, facility organizational, and market factors were taken into account, the percent of facility residents who were white, not Hispanic

was found to have a statistically significant positive relationship with mental health care quality. This complements the findings of Jones, Marcantonio, & Rabinowitz (2003) which suggests an under recognition of mental health problems among black residents, thus the provision of no mental health services. It may also be that ethnicity influences the type of facility in which an individual resides. Additionally, none of the mental health diagnoses (anxiety disorder, depression, manic depression, and schizophrenia) were statistically significantly related to mental health care quality. This was also unexpected as past studies have shown a possible discrepancy in the receipt of services based on diagnosis type (Snowden, Piacitelli, & Koepsell, 1998). Clearly factors beyond resident characteristics account for the quality of mental health care provided in nursing homes.

Mental Health Care Quality and Organizational Characteristics

Five of the facility organizational characteristics included in the present study were found to be statistically significantly related to mental health care quality. Facility ownership was statistically significantly related to the quality of mental health care, with for-profit ownership facilities providing less adequate care. This is consistent with the findings of other studies, showing investor ownership is associated with worse care (Harrington et al., 2002; Harrington et al., 2000). However, once other factors were taken into account, this characteristic was no longer significant. Facility size was positively related to mental health care quality. It may be that larger facilities have greater resources to pay for specialized services as well as more residents who need them. Bed occupancy was also positively related to mental health care quality, with greater occupancy associated with better quality of mental health care.

Interestingly, Medicaid as the primary payer source was positively related to mental health care quality. This was unexpected as other studies have found a negative relationship between Medicaid payment and reimbursement levels and quality of care (Grabowski, Angelelli & Mor, 2004; Mor, Zinn, Angelelli, Teno & Miller, 2004). It is possible that because residents with a mental health history are more likely to have Medicaid as their primary payer, or reside in facilities that choose to specialize in mental health services, the facilities they reside in are also more likely to have better mental health care services. This also complements the finding that having more residents with a mental health history is positively related to mental health care quality. Close to 70% of residents across facilities were funded by Medicaid in this study. Resident acuity was found to be statistically significantly negatively related to mental health care. Higher acuity levels were related to less adequate mental health care quality. It may be other health care needs were deemed to be of more importance. No other facility organizational characteristics were found to have a statistically significant independent relationship with mental health care quality.

Mental Health Care Quality and Market Characteristics

Reviewing the market characteristics, the average market competition for facilities having residents with a mental health history was .186, slightly lower than the findings of another nursing home study, with an average market competition of .20 (Grabowski & Hirth, 2003). This index ranges from 0 to 1, indicating facilities with lower scores are located in areas with a lower concentration of facilities and greater competition. Based on the number of individuals over the age of 65 in the county in which the nursing home was located, the average demand was almost fourteen percent,

slightly higher than the approximately twelve percent of individuals over the age of 65 in the United States (Hetzl, & Smith, 2001).

When independently added to the proposed model of mental health care quality, both market competition and market demand had a statistically significant negative relationship with the quality of mental health care. Perhaps when competition and demand for beds in nursing homes is high, the quality of mental health care services is worse as facilities do not have to provide the services to attract residents and fill beds.

Once the independent relationships between the facility resident, facility organizational, and market characteristics were determined, all of the factors were taken into account simultaneously and each relationship to mental health care quality was reanalyzed. When other variables were considered, facility ownership was no longer statistically significantly related to mental health care quality. It appears the for-profit ownership status of a facility was not related to less adequate mental health care quality once other factors were accounted for. Market competition and market demand were also no longer statistically significantly related to mental health care quality when other variable were considered. When taking into account other factors, it seems an increase in competition and an increase in demand does not have a negative influence on mental health care quality.

Interestingly, two variables not statistically significantly related to mental health care quality when analyzed independently became significant once other factors were taken into account. The facility resident characteristic, white not Hispanic, was found to have a statistically significant positive relationship with mental health care quality. Perhaps demographic variables, especially ethnicity (white, not Hispanic), are important

factors influencing the quality of mental health care. It appears across facilities, residents who were white not Hispanic received better quality mental health care. This supports research suggesting ethnicity does influence the mental health services nursing home residents receive. The acuity of residents also had a statistically significant relationship with mental health care quality when other factors were considered. However, the relationship was negative indicating that greater levels of resident acuity within the facility were related to less adequate mental health care quality. When the physical needs of residents was greater, it appears to have had negative influence on the mental health care services provided. It may be residents' serious physical health issues demand greater priority and a greater percent of resources must be utilized to provide adequate care for physical needs when the acuity of residents is greater.

Overall, facility organizational characteristics had the greatest influence on the quality of mental health care services provided in nursing homes. Only one facility resident characteristic was statistically significantly related to mental health care quality and market factors did not influence the quality of mental health care once other factors were considered. This is an important finding as characteristics of facility organizational structure can be monitored and controlled through policies and more readily than facility resident or market factors. Additionally, individuals and their families may have some choice when selecting a facility, and the characteristics of a particular nursing home may influence their decision about what facility is the best for them, although choice may be more limited for individuals with a mental health history because of their disease diagnosis and facility payer source. Facilities that are larger in size, have a greater bed occupancy, and have more residents with Medicaid as a primary payer source provide

their residents with better quality mental health care. This is perhaps due to both the availability of more resources to provide mental health care services as well as the greater demand of residents for mental health care treatment.

Family Support

The descriptive statistics of family support across facilities show families were in close contact with their family member with a mental health history as 51.7% reported daily contact, consistent with the findings of other studies (Levy-Storms & Miller-Martinez, 2005; Seltzer, et al., 1997). Individuals with a mental health history also generally had positive relationships with their family members, with only 3.7% of residents across facilities reporting conflict with family and only 7.3% reporting the absence of personal contact with family. This supports previous research finding relationships between individuals with a mental health history are generally positive (Spruytte, et al., 2002; Rungrangkulkij & Gilliss, 2000).

Families were commonly listed as responsible for their family member, with almost fifty-five percent indicating this across facilities. Families were also regularly involved in the assessment of their family member, with 30.5% participating. Significant others were less likely to participate in care planning (4.9%), which may reflect the fact that a spouse had passed away or the resident with a mental health history never married, which is consistent with research finding individuals with a mental health history often do not have a spouse to rely on for support (Horwitz & Reinhard, 1995). Interestingly, across facilities few residents (2.1%) had the support of someone who is positive toward discharge. This may be because the physical or mental health needs of individuals residing in the facility are too great to be met in the community and families believed the

nursing home was the most appropriate setting for their family member. Another possibility is individuals with a mental health history may have experienced numerous episodes of acute mental illness requiring institutional care throughout their lives and families perceive their current level of need as too great to bear on their own.

Reviewing the seven indicators included in the measurement model of family support, contact frequency was found to be the most closely related to family support. This is logical as the presence of daily contact with family members is conducive to receiving their support. Family members being responsible for their relative as well as families participating in care planning assessments were also indicators statistically significantly related to family support. It appears that being aware of the needs of their relatives and actively engaging in their relative's assessment also serve supportive functions. The final indicator found to be related to family support was not having an absence of contact with family.

Three of the indicators were not found to be statistically significantly related to family support. The first non-significant indicator was having a support person positive toward discharge. It may be that individuals do receive the support of family through frequent contact and participation in their care although the family is not supportive of their relative leaving the nursing home setting. As mentioned above, it may be family members believed their relatives were receiving the best services to meet their needs by residing in the nursing home. Having a significant other participate in care planning assessments was not statistically significant, perhaps because it was other family members that provided the majority of supportive services for individuals with a mental health history residing in nursing homes. Finally, conflict with family was not

statistically significantly related to family support. It appears that having conflictive, as opposed to harmonious relationships with family members does not influence the support received from family as so few individuals across facilities were assessed to have conflict within their relationships.

Once both the measurement models of mental health care quality and family support were analyzed, they were combined to test if family support was independently related to mental health care quality. The results of this analysis found family support was not statistically significantly related to mental health care quality. This finding was not expected and is contrary to the proposed research hypothesis that family support is independently related to mental health care quality. It also contradicts studies in the community suggesting family support is an important strategy related mental health care (Smith, 2003; Biegel, Tracy, & Corvo, 1994).

In fact, though not statistically significant, family support had a slight negative relationship to mental health care quality. It must be acknowledged when using contact as a proxy for support, the fact that contact may be negative cannot be ruled out entirely. Additionally, perhaps when families believe their family member is receiving appropriate mental health care services to meet their needs, they do not feel obligated to be as involved in their care and advocate for treatment. When families are satisfied their relative is receiving adequate services, they may not participate as actively in the lives of their family member as they believe the nursing home is properly fulfilling its role in caring for the resident. It may be families provide more support when the services provided by the facility are perceived to be inadequate, and family members feel it is their responsibility to become more involved to ensure quality services are provided for

their relative. It appears if factors other than family support influence the quality of mental health care provided for nursing home residents.

After taking into account facility resident, facility organizational, and market characteristics, family support remained not statistically significantly related to mental health care quality. However, it no longer was slightly negatively related to mental health care quality, but instead became positively related, though not to a level of statistical significance. This is an interesting finding as having the support of family when taking into account other factors may enhance the quality of mental health care provided to nursing home residents. Although it appears facility characteristics account for the majority of the variance within mental health care quality provided by facilities, perhaps by bolstering levels of family support, it may significantly contribute to better quality of mental health care for nursing home residents. Encouraging families to actively participate in the lives and care planning of residents may help to contribute to the mental health care they receive after taking into account the facilities in which they reside.

Although family support did not statistically significantly moderate the relationship between facility resident, facility organizational, and market characteristics and mental health care quality, it did change in a positive direction once the other factors were considered. Perhaps if a more adequate way of measuring family support was available or if greater levels of family support were encouraged by nursing homes, this finding would be become significant. It is important to note that while in the present model of mental health care quality the latent indicator, family support, was not found to be statistically significant, it may be in part due to the way the variables were measured.

As evidenced by the descriptive statistics of family support, families often have a positive relationship with their family member and are active in their lives and care. Although the findings do not support the hypothesis proposing greater levels of family support are related to better quality mental health care, they also do not provide evidence that family support hinders the mental health care services received by individuals needing these services in nursing homes.

Study Limitations

Several study limitations should be noted. First, the calendar year 2003 was used to obtain data from both the MDS and OSCAR databases. This does not allow for a cause-effect relationship to be established as it cannot be determined if the OSCAR data on mental health care quality was collected after the MDS data. A possible next step is to stagger the years used to gather study variables, such as using the 2003 MDS database and the 2004 OSCAR database.

Another study limitation is the OSCAR survey is not designed to specifically measure mental health care quality. The indicators related to mental health within the database may not accurately reflect all of mental health care services provided for residents in nursing homes which may affect the quality of care. While the model of mental health care quality constructed using the four mental health indicators had good model fit, it may be that other indicators not included in the model can be used to measure mental health care quality within the nursing home setting. Future studies may explore utilizing quality indicators within the MDS database to measure mental health care quality.

Additionally, although a good model fit was obtained using the four statistically significant indicators, a limitation of using these indicators to measure family support is the MDS is not designed to measure family support. Though it does contain items related to social and family support, there is not specific measurement tool built into the instrument for this construct. While it appears the four statistically significant indicators capture the fundamental nature of family support, it may be that other indicators not included in the MDS can also be used to measure family support in the nursing home setting. Items and measurement tools designed specifically to measure indicators of mental health care as well as account for the professionals within the facility who provide such services may provide more insight into the quality of mental health care provided in nursing homes. Finally, it may be because of limitations with the indicators used to measure family support in the present study that family support was insufficient to overcome other individual and facilities characteristics to become a statistically significant factor influencing mental health care quality. A next step may be to utilize alternative methods of measuring family support to determine what influence it may in fact have on the quality of mental health care provided for nursing home residents with a mental health history.

Implications

Due to the challenges of providing adequate care in nursing homes, particularly mental health care, facilities need to consider using multiple resources to enhance the quality of mental health care they provide. One potential resource nursing homes may not adequately utilize is family support. The present study provides evidence for the active involvement of family members in the lives of nursing home residents with a

mental health history. This supports the convoy model of social support and socioemotional selectivity theory that posit individuals actively surround themselves with individuals who will provide support for them if necessary. This also provides evidence that families of individuals who both have a mental health history and reside in nursing homes maintain close, supportive contact with family members.

The finding that family members are actively involved in the lives of nursing home residents with a mental health history has other implications as well. Related to social work practice, it is often the designated social service staff within facilities that interacts the most with family members. The role of social workers is to serve as advocates for their clients and ensure their needs are met. In the nursing home setting, partnering with families may be an important step towards enhancing the quality of mental health care services. By viewing them as an important partner in ensuring quality mental health care, social workers may help to ensure the mental health needs of residents are sufficiently met. Perhaps the training and education of nursing home social services staff could be enhanced by including strategies for working with families and involving them in the lives of the nursing home residents. Further social work research could also explore how the involvement and support levels of families in the lives of nursing home residents influences their well-being and overall quality of life.

Nursing home administrators may also benefit from understanding the ongoing role of families in the lives of residents, particularly if getting them involved in the facility has benefits for not only the residents but the overall life of nursing home as well. Education and training for individuals in public administration intending to work in nursing homes may address the role of families in the lives of residents, the importance of

these roles, and how they may change over time. All of which are concepts outlined in social support theories including the convoy model and socioemotional selectivity theory. Providing both theoretical and empirical knowledge may help administrators to incorporate policies and practices into their facilities that are conducive to family involvement.

Nursing home staff and health professionals are the individuals who work most closely with the residents themselves. Helping them to value the role of families in the lives of residents may assist them in communicating with residents and in better meeting their needs. Additionally, staff may be more willing to actively communicate with families to provide as well as receive information regarding their family member. The education and training of health professionals could also include resources and techniques used to interact with families and engage them in facility life.

For all levels of professionals working in nursing homes, family members may provide valuable information about the background and history related to the mental health of their relative, provide insight into the course of their mental illness, and inform the nursing home about their treatment history. All of this would be very useful information for the professionals responsible for providing mental health care services and overall care for the resident. Additionally, nursing home staff could increasingly engage families in the activities of the facility, including family/resident boards, to ensure their concerns are voiced to the administration of the nursing home. As it appears facility characteristics largely influence mental health care quality, families can be tapped as advocates for change that would enhance the provision of mental health services in nursing homes. As resident advocates, the social services staff in nursing homes should

also serve as family advocates, working to limit organizational practices and policies that are impediments to family involvement and promoting more family-friendly policies.

When considering the ethnic and cultural diversity of nursing home residents and the fact that this may impact the quality of mental health care services they receive, it is also imperative for social workers within nursing homes to be adequately trained in providing culturally competent care to all residents. In fact, the culture of the entire organization may be a factor in determining whether residents receive appropriate mental health care services to meet their needs. This is also linked to family support, as different cultures may hold different views regarding the role of family in the lives of their relative as well as about their involvement in the nursing home setting. Ensuring all levels of nursing home professionals are aware of the importance culture may play in lives of residents and families is imperative to providing quality mental health care as well as overall care.

On a larger level, as facility characteristics play a large role in the quality of care provided in nursing home facilities, enacting nursing home and health policies that ensure better monitoring of care and require specific procedures to enhance care, such as the greater inclusion of families in the facilities and in decision making, may be in order. Additionally, it may be fitting to revisit current social policy related to nursing homes and the social services staff within nursing homes. The Nursing Home Reform Act of 1987 mandated all nursing homes to provide medically-related social services but did not require standards for training or licensure of qualified social service providers. Only nursing homes with greater than 120 beds must employ a full-time credentialed social service provider (U.S. Department of Health and Human Services 1998). Strengthening

the federal standards related to the training and employment of social services staff within nursing homes may be necessary to ensure the mental health care needs of residents are appropriately met.

To better understand the role of family support in the lives of nursing home residents with a mental health history, future research should include primary research focused on the role of families and may involve collecting qualitative data from family members and all levels of nursing homes professionals. Additionally, future steps should include designing scales to specifically measure family support within the nursing homes setting as well as the quality of mental health care services provided in nursing homes. Finally, as characteristics of the facility appear to influence the mental health care quality, investigating more specific facility characteristics, such as the organizational mission and environment may provide greater insight into the specific factors that influence quality.

For individuals with a mental health history, their complex needs require all possible resources be utilized in an effort to adequately provide them with sufficient mental health services to positively influence their overall quality of life. It has been found families remain involved and provide support for nursing home residents with a mental health history. The work of the individual residents, selectively surrounding themselves with individuals available to provide them with support across time, has already been accomplished. Once individuals enter the nursing home, it would be appropriate and beneficial if the facility and its employees ensured these supports continued to be utilized in order to enhance the quality of life provided for nursing home residents.

CONCLUSION

Quality of life among nursing home residents remains a complex and multifaceted issue including resident, organizational, and social support characteristics. Identifying the factors that influence quality of life and quality of care for individuals with a mental health history may be even more complex. The prevalence of mental health disorders in nursing homes and the provision of mental health services in nursing homes present significant challenges to ensuring residents receive adequate services. This study provides evidence characteristics of the organizational structure of facilities appear to have the most influence on the quality of mental health care provided in nursing homes for individuals with a mental health history. This is an important finding as continuous changes seen within the structure and operation of nursing home organizations may impact the quality of mental health care provided by facilities. To ensure quality mental health care is provided for residents and resident needs are adequately met, it may be necessary for the facilities to explore ways to enhance their mental health services.

Facilitating family involvement in care is a mandated component of psychosocial care delivered by social service providers in nursing homes (Centers for Medicare and Medicaid Services, Title 42, 1991, amended 1992, 2005). This study provides evidence that families continue to provide support and remain involved in the lives of residence with a mental health history. Exploring ways family support can be utilized within the facility to enhance the quality of services and care provided for residents may be in order. As providing quality mental health care in nursing homes is one of the more challenging issues, perhaps families could be better utilized and incorporated into daily facility

operations to assist with ensuring adequate physical and mental health care for residents with a mental health history.

APPENDIX A
IRB APPROVAL LETTERS



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Notice of Exempt Review Status

From: **UCF Institutional Review Board**
FWA00000351, Exp. 5/13/07, IRB00001138

To: **Dr. Denise L. Gammonley**

Date: **May 31, 2007**

IRB Number: **SBE-07-05020**

Study Title: **Nursing Home Psychosocial Care for Older Adults with a History of Mental Health Treatment**

Dear Researcher:

Your research protocol was reviewed by the IRB Chair, Vice-chair or designated reviewer on May 31, 2007. Per federal regulations, 45 CFR 46.101, your study has been determined to be minimal risk for human subjects and **exempt** from further IRB review or renewal unless you later wish to add the use of identifiers or change the protocol procedures in a way that might increase risk to participants. Before making any changes to your study, submit the Addendum/Modification Request Form for IRB approval.

The category for which exempt status has been determined for this protocol is as follows:

#4 – Research involving the collection or study of existing data, documents, records, pathological specimens or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. (**“Existing”** means already collected and/or stored before your study starts, not that collection will occur as part of the routine care.)

Please forward the completed Data Use Agreement when it becomes available. To do this after receiving IRB approval, select your study in iRIS and submit the document using the Miscellaneous Document Submission Form.

A **waiver of consent** has been approved for this study. The IRB also granted a **waiver of HIPAA authorization** to access PHI, in accord with federal regulation 45 CFR Part 164. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel. Advise the IRB if you receive a subpoena for the release of this information or if a breach of confidentiality occurs. Also, report any unanticipated problems or serious adverse events (within 5 working days).

Sincerely,

Signature applied by Janice Turchin on 05/31/2007 04:53:09 PM EDT

A handwritten signature in black ink that reads "Janice Turchin".



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
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Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
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Notice of Expedited Review and Approval of Requested Addendum/Modification Changes

From: UCF Institutional Review Board
FWA00000351, Exp. 5/07/10, IRB00001138

To: Denise L. Gammonley, Kathryn A. Frahm, Ning J. Zhang

Date: January 14, 2008

IRB Number: SBE-07-05020

Study Title: Nursing Home Psychosocial Care for Older Adults with a History of Mental Health Treatment

Dear Researcher:

Your requested addendum/modification changes to your study noted above which were submitted to the IRB on 01/13/2008 were approved by **expedited** review on 1/14/2008.

Per federal regulations, 45 CFR 46.110, the expeditable modifications were determined to be minor changes in previously approved research during the period for which approval was authorized.

This addendum approval does NOT extend the IRB approval period or replace the Continuing Review form for renewal of the study.

On behalf of Tracy Dietz, Ph.D., IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 01/14/2008 02:17:49 PM EST

A handwritten signature in black ink that reads 'Janice Turchin'.

IRB Coordinator

Internal IRB Submission Reference Number: 001836

APPENDIX B
EXOGENOUS AND ENDOGENOUS STUDY VARIABLES

Table 24: Exogenous Study Variables

Variable	Data Source	Measurement
Facility Resident Characteristics		
Demographics	MDS	Average facility resident age, gender, ethnicity
Average Facility Resident Physical Health	MDS	Total number of disease diagnosis categories
Average Facility Resident Physical Functioning (ADLs)	MDS	Self-performance on bed mobility, transfer, locomotion on unit, dressing, eating, toilet use, and personal hygiene
Average Facility Resident Psychiatric Diagnosis	MDS	Diagnosis of depression, anxiety disorder, bipolar disease, or schizophrenia
Average Facility Resident Cognitive Functioning	MDS	Cognitive Performance Scale
Average Facility Resident Social Engagement	MDS	Social Engagement Scale
Facility Organizational Characteristics		
Ownership of Facility	OSCAR	Non-profit, for-profit, government
Facility Size	OSCAR	# of beds in facility
Bed Occupancy	OSCAR	# of residents/# beds in facility
Payer Mix	OSCAR	# of residents with Medicare or Medicaid as payer/# of residents
Resident Acuity Index	OSCAR	OSCAR Resident Acuity Index Calculation
% Residents with Mental Health History	OSCAR	% of residents diagnosed with depression, anxiety disorder, bipolar disease, or schizophrenia
Market Characteristics		
Market Competition	ARF	Herfindahl index
Market Demand	ARF	% of 65+ population
Family Support		
Contact Frequency	MDS	Customary routine includes daily contact with family /close friends
Past Relationship Status	MDS	Unsettled relationships with family/friends
Current Relationship Status	MDS	Absence of personal contact with family/friends
Family Participation in Care Plan	MDS	Family/caregiver participated in

		care planning
Other Participation in Care Plan	MDS	Significant other participated in care planning
Continued Positive Outside Support	MDS	Upon discharge, resident has positive social support
Family Responsible	MDS	Family member is responsible/legal guardian

Table 25: Endogenous Study Variables

Variable	Data Source	Measurement
Mental Health Care Quality		
Nursing home ensures that residents do not have avoidable decline in their psychosocial functioning, no development of mental problems	OSCAR	Total # of deficiency citations
Facility does not provide appropriate treatment for residents with mental and/or psychosocial difficulties	OSCAR	Total # of deficiency citations
Unnecessary psychotropic drug use	OSCAR	Total # of deficiency citations
Adherence to PASRR coordination requirements	OSCAR	Total # of deficiency citations
Psychoactive drug use	OSCAR	# of residents receiving any psychoactive medication
Behavior management	OSCAR	# of residents receiving a behavior management program
Health rehabilitative services	OSCAR	# of residents receiving health rehabilitative services for mental illness

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