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Job Satisfaction And Intent To Quit Outcomes Among Home Health Aides In Home Health Care Industry Of The United States: A Multilevel Study

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JOB SATISFACTION AND INTENT TO QUIT AS OUTCOMES AMONG HOME HEALTH AIDES IN
HOME HEALTH CARE INDUSTRY OF THE UNITED STATES: A MULTILEVEL STUDY

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DEDICATION

This work is dedicated to God and to my parents, my father-in-law and mother-in-law, lovely wife, and my sons. Without their support, love, and encouragement, it would not have been possible. Their belief in my abilities and encouragement to be the best has spurred me on to greater heights.

Due to the kindness and support for my academic achievement of my academic advisors, Drs. Khan and Choi, and the co-workers of the Office of Public Health Practices, I was able to spend my energy to complete this study.

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ABSTRACT

Backgrounds: Home health aides' job satisfaction and intent to quit have been attributed to organizational and community level factors. The objective is to determine the effects of individual-, organizational-, and community-level factors on job satisfaction or intent to quit among home health aides.

Methods: This research used data from two subsets of the 2007 National Home and Hospice Care Survey and the 2007 National Home Health Aides Survey, sampling six eligible workers across the agencies in the United States. As another data source, the present study uses Area Health Resource File. The author used hierarchical linear modeling technique for handling hierarchically nested data structures. The author conducted two-level logistic regression analysis for dichotomous responses of the outcomes using GLLAMMs (Generalized Linear Latent And Mixed Models) in STATA 13.0/SE (Rabe-Hesketh, Skrondal, & Pickles, 2004).

Results: Benefits, age, and household income were found to be predicting variables for home health aides' job satisfaction. Ownership, location, patient care revenue sources, and patient assignment were also found to be predictors for job satisfaction and intent to quit among home health aides. Being respected, being trusted, being involved in challenging work, and being confident were contributing factors to higher level of job satisfaction. However, being involved in challenging and being confident contributed to a reduction in home health aides' intent to leave their jobs. In addition,

supervisor quality and being valued by their agencies were found to be predictors for job satisfaction and intent to quit. These factors were also found to be moderating factors in the relationship between individual-level work related factors and job satisfaction or intent to quit and between individual-level job perception and job satisfaction or intent to quit. High unemployment rates in the communities was found to be a predicting factor for job satisfaction and intent to quit among home health aides.

Conclusions: The findings are a clear indication that supervisor quality and organizational values are the most significant predictors of home health aides' job satisfaction and intent to quit. Therefore, addressing supervisor and organizational supportiveness may increase job satisfaction and reduce intent to quit by home health aides.

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CHAPTER I

INTRODUCTION

1.1 PROBLEM STATEMENTS

In general, job satisfaction is the degree to which employees have positive feelings toward the tasks in their jobs (Buelow, Winburn, & Hutcherson, 1999; Denton, Zeytinoglu, Davies, & Lian, 2002). It is an important factor affecting performance of workers and organizations. Furthermore, job satisfaction is critical in making decisions on whether to quit or to stay in a job by employees (Karsh, Booske, & Sainfort, 2005). It is influenced by many factors including personal, organizational and other external environmental factors (Edwards & Shipp, 2012). Job satisfaction results from the comparison between “what organizations and job provide” and “what workers want, need, and desire from the job” (Edwards, 2008, p. 175). Overall, workers who have positive satisfaction with their jobs tend to perform better in their tasks, decide to stay more days in their workplaces, and are more likely to commit themselves to perform towards the overall mission of their organizations.

On the contrary, poor job satisfaction lead to higher levels of employee turnover. Therefore, it is essential to improve job satisfaction; this will increase employee contributions to organizations and encourage provisions of high quality services to customers (Schnelle et al., 2004; Timmreck, 2001; Zinn, Brannon, & Weech, 1997). In any organization, job satisfaction is highly associated with quality of services provided. In high performance work systems, it is necessary to retain workers who have positive

job satisfaction. Therefore, it is critical to understand and manage employee attitudes and behaviors, including job satisfaction and intent to quit to produce positive performance at individual and organizational levels.

With the continued increase in demand for healthcare workers, particularly for direct care workers, researchers and practitioners are more interested in understanding factors affecting job satisfaction and intention to quit among direct care workers in healthcare facilities. As any business organization, it is essential to select and retain committed workers for healthcare organizations that provide services to older adults and patients with chronic conditions. Although health service agencies have stable health care workers and providers, it is described that the workers are often quite unhappy with their jobs because of work conditions and structures, such as low wage, heavy workload, lack of benefits, lack of training, and lack of opportunity for career development (Ashley, Butler, & Fishwick, 2010; Buelow, et al., 1999; Delp, Wallace, Geiger-Brown, & Muntaner, 2010; J. M. Wiener, Squillace, Anderson, & Khatutsky, 2009). Under these conditions, many healthcare facilities, particularly long-term care facilities such as nursing homes and home health care agencies have faced chronic difficulties in keeping adequate staffing numbers to operate their facilities effectively (Baron, McPhaul, Phillips, Gershon, & Lipscomb, 2009; Delp, et al., 2010). As frontline workers, direct care workers, such as home health aides and nursing assistants, play important roles in the system by providing personal assistance to patients. In 2011, it is reported that more than 13 million people who have chronic conditions depend on paid hands-on care provided by direct care workers such as home health aides, nurse aides, and personal and home care aides (U.S. Department of Health and Human Services, 2011). The roles of

home health aides have become increasingly important in increasing the quality of home health care.

Research supports that many direct care workers experience a tremendous amount of stress and burnout in providing care to patients (Delp, et al., 2010; Denton, et al., 2002). Some workers are dissatisfied with their jobs and have plans to leave (Denton, et al., 2002; Faul et al., 2010), while others are satisfied with their job. Based on the 2007 National Home Health Aides Survey and the 2004 National Nursing Assistant Survey, home health aides and certified nursing assistants reported relatively high job satisfaction (U.S. Department of Health and Human Services, 2011). Specifically, 47.2 percent of home health aides and 30 percent of certified nursing assistants showed extremely high job satisfaction (U.S. Department of Health and Human Services, 2011). In spite of the relatively high job satisfaction by both occupations, both occupations have high turnover rate. In addition, 45 percent of certified nursing assistants and 35 percent of home health aides reported relatively high intention to leave the current jobs in the next year (U.S. Department of Health and Human Services, 2011). In healthcare facilities, lack of staff and staff turnover are likely to have a negative influence on the quality of services provided (Harrington, Zimmerman, Karon, Robinson, & Beutel, 2000; Katz, Karuza, Lima, & Intrator, 2010). For home healthcare workers, a lower commitment to their job and job dissatisfaction reduce the quality of care received. A host of factors can affect job satisfaction and staff turnover in long-term care settings and home health agencies (Brannon, Barry, Kemper, Schreiner, & Vasey, 2007; Buelow, et al., 1999; Currivan, 1999).

In organizational psychology and organizational behavior, job satisfaction is the heart of managing effective work relationships in healthcare organizations (R. Stone & Dawson, 2008). Staff burnout among healthcare workers, organizational characteristics, and managerial support may be related to the expression of job dissatisfaction and intent to quit (Sherman et al., 2008; Tullai-McGuinness, Riggs, & Farag, 2011). In addition, other work-related factors such as salary and benefits, personal factors, and organizational characteristics, affect job satisfaction, which in turn, increases the rate of intent to quit among healthcare workers (Brannon, et al., 2007). In healthcare facilities, it is important to identify and understand job satisfaction and intent to quit as this can affect quality because healthcare workers play important roles in ensuring continuity and stability of care and services.

Even though job satisfaction affects intent to quit in all industries, it is especially problematic for certain job situations such as in long term care facilities and home healthcare settings where the work environment may take a strong emotional toll on healthcare workers, affecting motivation to continue and/or perform their jobs effectively (Schmid & Hasenfeld, 1993; R. Stone, 2004; Tullai-McGuinness, et al., 2011). In both long-term care and home healthcare organizations, healthcare workers, particularly home health aides, often express their desire to leave their jobs earlier, though they are positively satisfied with their jobs. This is a huge problem because of the importance of home health aides as the front line workers in delivering home health care services.

Despite the significantly higher job satisfaction concerns among home healthcare workers, researchers tend to focus more on retention of nurses or turnover among nurses in hospitals and nursing home settings. Consequently, little is known about retention and

turnover in home health care agencies and especially among home health aides. Furthermore, few studies have investigated structural aspects of agencies and the organizational processes that affect job satisfaction and other outcomes, intent to leave, of home health aides. However, individual home health aides within same home health agencies tend to be more alike than individual workers chosen at random from the general population. With the individual level analysis, an agency should have been the unit of comparison. Although a number of studies have examined the effects of community contexts on job satisfaction of health care workers, to date, there is not enough evidence to explain why home health aides feel differently about their work and agencies across the community. Evidence from previous studies show inconsistent outcomes due to the limitations of the study.

1.2 FORMAT OF DISSERTATION

The dissertation will be organized into eight chapters. This study will employ hierarchical linear modeling methods to examine the relationship among personal characteristics, organizational structures, organizational support, task rewards/motivation, job satisfaction, and intent to quit of home health aides and to investigate the effects of organizations and community level characteristics on job satisfaction of home health aides. Chapter 1 will provide the background information, the problem statement, and the rationale of this study. Chapter 2 provides more detailed background information about demographic characteristics of major home health patients, definition of home health care, characteristics of home health agencies, and natures and roles of home health aides. In addition, the author describes the significance of this study. The purpose of this study is discussed in Chapter 3. The author also describes what aims are specifically needed to

examine the proposed relationships. Chapter 4 reviews the literature on the concepts of organizational structures and organizational processes in the context of home health care quality and workers-related outcomes among home health aides. After reviews of the extant literature, the author's research questions and hypotheses that should be answered throughout this study are outlined. In Chapter 5, the author will review and explain the theoretical frameworks that determine the foundations of the study's questions. Chapter 6 will present empirical methodology of the research including a discussion of the dataset to be used and the sample for this study. After reviewing the existing theories, a modified framework will also be developed. Chapter 7 will present study results. Chapter 8 will contain the summary of the findings from the hierarchical linear modeling analysis, the conclusion, and discussions of the findings with limitations and implications of this study.

CHAPTER II

BACKGROUND AND SIGNIFICANCE

2.1 DEMOGRAPHIC TREND OF OLDER POPULATION AND BENEFICIARIES

In 2011, nearly 3.4 million people who had Medicare received home health care services (Center for Medicare & Medicaid Innovation, Centers for Medicare & Medicaid Services, & U.S. Department of Health and Human Services, 2012). Most who receive home health care are older adults. Moreover, the use of home health care and skilled nursing care increased with age. In 2009, it was reported that there were 1,396 home health visits per 1,000 enrollees aged 65 – 74 by home health agencies (Center for Medicare & Medicaid Innovation, et al., 2012). However, there were 8,974 visits per 1000 for those who are age 85 and over (Center for Medicare & Medicaid Innovation, et al., 2012).

Older adults need assistance with their basic activities of daily living (ADLs) because of their functional limitations (Administration on Aging, 2009). The number of elderly people with chronic conditions has increased consistently over the past few decades. Among people who live in the U.S. and who require some assistance with ADLs, 84 percent live in their own or adult child's homes (The National Association for Home Care & Hospice, 2010). This has led to an increasing demand for home health care services (Benjamin & Matthias, 2004; Levine, Boal, & Boling, 2003).

Although some people voluntarily move to assisted living or nursing homes, most people prefer to live in their own homes. Therefore, most adults continue to live in their homes with some formal or informal assistance. In 2009, however, it was reported that nearly 20 percent of older adults who are 65 years and older are institutionalized at long term care facilities such as nursing homes and assisted living facilities (Administration on Aging, 2009). In 2008, it was also reported that nearly 40 percent of older adults 65 years and older have some types of disabilities. In this situation, they need some help for their ADLs and instrumental activities of daily living (IADLs). This reflects the needs and demands of older adults for healthcare to manage their lives in their community.

2.2 WHAT IS HOME HEALTH CARE?

Home health care refers to the services delivered at home to those who are in need of medical, nursing, social, or therapeutic treatment and assistance with the activities of daily living (ADLs) (Pratt, 2010). Home health care entities provide “various types of services such as professional, paraprofessional, and informal support services in clients’ homes” (Shaughnessy et al., 1996, p. 151). Such home health care may be provided for assistance to make transition from hospital to home or to allow earlier discharge from hospital. Compared to home care that provides chore and house cleaning services, home health care is more medically oriented. Home health care is usually designed to help clients recover from injury and illness, and to delay hospitalization in long term nursing facilities and hospitals.

In general, home health care is provided by home health care agencies. Home health agencies provide necessary care services such as skilled nursing care, physical

therapy, occupational therapy, medical social work, homemaker services, and home health aide services in their own home settings by qualified medical staff, and other direct care workers, including personal aides, social workers and home health aides. However, all home health agencies do not provide all of the services.

These services may be covered on a part-time or intermittent basis as supportive services for skilled nursing care. Home health agencies coordinate what patients need to get services among skilled nursing care, therapy, medical social services and home health aides visit at the beginning of episode of care based on doctors' orders (Shi & Singh, 2012). Therefore, such services are provided by doctors' orders and nurses' plan. Among home health care services, home health aide services include providing personal care services such as help with bathing, using the toilet, and dressing (Talaga, 2013). Such home health aides services are designed to provide hands-on personal care to patients that are needed to maintain their health through visiting by home health aides (Faul, et al., 2010; Talaga, 2013). Moreover, home health aides' visits have critical roles for services to facilitate treatment of the patients' illness or injury (Bureau of Labor Statistics, 2014). Because diverse health care personnel including professionals and paraprofessionals are involved in the process of delivering care and services, home health care is a relatively high labor intensive industry in health care market (Ellenbecker, 2004).

In the United States, there are three types of home health agencies: for-profit, non-profit, and government or public agencies. Medicare and Medicaid have played important roles as stable financing sources for eligible organizations (Harris, 2005). Therefore, certified home health or hospice agencies are eligible to get reimbursement for Medicare. In 2007, there were 10,800 home health care only agencies and 2,200 hospice

care only agencies in the U.S. (Park-Lee & Decker, 2010). In addition, there were 1,400 both home health and hospice care agencies (mixed) (Park-Lee & Decker, 2010). In 2011, there were 12,199 home health agencies participating in Medicare (Medicare Payment Advisory Commission, 2013). It was reported that 81.6 percent of home health care agencies are certified under Medicare and 80.7 percent of the agencies are certified under Medicaid (Park-Lee & Decker, 2010). It was also presented that 93.4 percent of hospice care agencies are certified under Medicare. Among the hospice care agencies, 86.4 percent are certified under Medicaid (Park-Lee & Decker, 2010).

Among the mixed agencies, 97.6 percent are certified as a home health agency under Medicare (Park-Lee & Decker, 2010). 96.6 percent are certified as a home health agency under Medicaid (National Center for Health Statistics, 2011). Among the certified home health care only agencies, 79.5 percent are certified as home health care agency under Medicare (National Center for Health Statistics, 2011). 78.6 percent are certified as home health care agency under Medicaid.

Among the mixed agencies, 97.2 percent are certified as hospice care agency under Medicare (National Center for Health Statistics, 2011). 91.9 percent are certified under Medicaid (National Center for Health Statistics, 2011). 90.9 percent of hospice care only agencies were certified as hospice care agency under Medicare. 82.8 percent of hospice care only agencies were certified as hospice care agency under Medicaid.

2.3 HOME HEALTH AIDES

Direct care workers are home health aides, personal care assistants, direct support professionals, and workers with other similar titles who work at home health and hospice

care agencies. Normally, home health aides provide assistance with housekeeping, cooking, cleaning, bathing, dressing, and eating (Bercovitz et al., 2011). Depending on state laws, they can perform clinical tasks such as medication management, checking vital signs, and assistance with physical therapy under supervision of nurses or therapists (Bercovitz, et al., 2011). In the process of delivering home health care, home health aides provide assistance and companionship to clients.

Home health aides services in Medicare are secondary to personal care provided by the family or friends of patients. Therefore, the Medicare certified home health aides provide only a small portion of all personal care services needed and provided home health aides work. Under the environment, the role of home health aides are relatively weak in delivering care to patients. Despite this, the demands for home health aide visits are continuously increased. Furthermore, patients and health care workers can face unique environmental conditions and situations that are not encountered in the institutional settings. Healthcare providers and policy experts have recognized that those who have chronic conditions may need wide range of supportive services to stay at home.

As the baby boomers age and the elderly population grows, demand for alternative care and home health care have increased making it even more important to organize and deliver high quality home health care services (Jette, Smith, & McDermott, 1996). In this situation, the roles of healthcare workers, including home health aides, are critical in providing high quality services. In 2009, more than 33,000 providers have worked to provide home care services at diverse agencies including Medicare certified home health agencies, Medicare certified hospices, and non-Medicare agencies providing home care (The National Association for Home Care & Hospice, 2010). According to

Bureau of Labor Statistics (2014), about 875,000 employees worked as home health aides in 2012. Among the health profession, personal care aides and home health aides are the fastest growing profession. For example, it is expected that home health aides will grow by 48 percent over the years 2012 and 2022 (Bureau of Labor Statistics, 2014). Mandates for home health aides specify that home health aides should be selected according to their “sympathetic attitude toward care of the sick, ability to read, write, and carry out directions, and maturity and ability to deal effectively with the demands of the job” (Harris, 2005, p. 48).

In general, licensed medical professionals and paraprofessionals provide home health care. More specifically, typical services are primarily provided by nurses, social workers, and physical therapists when patients are discharged from hospital (Harris, 2005). Unskilled care for activities of daily living rather than skilled care are normally provided by family members and friends (Harris, 2005). However, those unskilled care and informal caregiving becomes replaced by formal caregivers, home health aides. Therefore, home health aides, trained personal care attendants, homemakers, and companions provide non-medical types of services at home under the direction of nursing. Although home health care services are primarily delivered by professionals such as RNs and LPNs, role of home health aides has become increasingly important.

In delivering home health care services, home health aides have also provided “personal interaction that is essential to the quality of life and quality of care” for those who have chronic illness and disability (R. Stone, 2004, p. 340). Through the care process, they have developed daily contact with care recipients and the relationship between them and clients. Therefore, they need to have good communication and

interpersonal skills in providing care to clients and to have skills to modify their own behavior in response to the needs of clients. As “eyes and ears” for nurses in clients’ homes, home health aides provide a wide range of services including personal care (Schmidt, 1996).

The position of home health aides is unique in the health care field. As informal caregivers, family and friends have primarily provided care to patients and people with chronic conditions in their homes. As described above, home health aides and other front line workers provide paid hands-on care, supervision, and emotional support to patients in their homes and in community settings (Trembl & Schulman, 1999). In delivering care to clients, the home health aides provide services which are usually limited to intimate and personal approach. With the increasing demands for home health care, Home health aides visit clients more often than ever before. They often travel from home to home. Changes in health care market and job market conditions such as layoffs at hospitals and ambulatory care clinics have made some health care workers including nursing aides become home health aides (Davitt & Choi, 2008b; Scala, 2008). Regardless of where they work, most home health aides often take care of several patients in a day. In many cases, they spend the entire day for taking care of patients assigned. Their work is labor intensive and physically and emotionally challenging (R. Stone, 2004).

With the increase of aging population, the demands for home health aides have also increased. Even though the roles of home health aides are relatively weak in home health care industry, as described above, the number of home health aides has continuously increased. Even with the increase in the numbers of home health aides, they

are in short supply due to even more rapid increase in demand (Smith & Baughman, 2007; U.S. Department of Health and Human Services, 2011).

Clearly, home health aides perform the role of more than elder sitters at clients' homes or at agencies providing care services. Although the necessity of this kind of work has increased over the years, the work is still undervalued in the society. Most direct care workers including home health aides are women and white. One third is African American. They also have limited education, low household incomes, and have low wage and minimal benefits from their workplaces (Scala, 2008). In addition, they experience some difficulties with patients, hazards from exposure to communicable diseases, high rate of occupational injury, and high turnover rates (Department of Labor, 2010). According to Bureau of Labor Statistics (2014), their median annual wage was \$20,820 in 2012. In 2012, it was reported that median annual wage for all occupations was \$34,750. Median annual wage for other healthcare support occupations was \$25,550 in 2012. It was also reported that total family income for almost half of all aides was \$30,000 or less, compared with a national median family income of \$50,233 in 2007 (Bercovitz, et al., 2011). Based on these facts, home health aides are characterized by poverty level wages, part-time hours, and high emotional stress and demands.

2.4 NECESSITY AND IMPORTANCE OF HOME HEALTH CARE

As a consumer-need driven service provider, home health care has provided supportive services and personal care for people with limitations on daily living and other long-term needs. With rapid increases in the advanced age elderly population, the growth rate of home health care has remained high. Home health care is located as a health care

option at the community level to prevent unnecessary hospitalization and to improve access to care at a lower cost (Levine, et al., 2003; Murkofsky & Alston, 2009; Shaughnessy, et al., 1996).

Home health care makes it possible for people to stay in their home for their health care needs rather than using residential care and institutionalization to nursing homes. These services are primarily covered by Medicare for older adults (S. Choi, 2009; Rosati, 2009). With the advent of prospective payment system (PPS) in 1983, hospitals have become more cost conscious and encourage individuals with chronic conditions to move to the community rather than staying in hospitals (S. Choi, 2009).

Despite the importance of home health care, the industry retained a number of characteristics of “lay” care for a long period of time. In the healthcare market, home health care organizations are quite weak and unstable because of the lack of supportive political environment; poor quality controls; and workforce instability, characterized by relatively high proportion of unskilled workforce and a high rate of turnover (Schmid & Hasenfeld, 1993). However, home health care is an important option because it is less expensive and more convenient than receiving care in hospitals and skilled nursing facilities. Therefore, this option is very helpful for patients who wish to retain some degree of independence and self-sufficiency with less money.

2.5 TRENDS IN HOME HEALTH CARE EXPENDITURES AND THE ROLES OF MEDICARE AND MEDICAID

Patients pay for home health care services through a variety of methods, such as out-of-pocket, health insurance, long term care insurance, Medicare, and Medicaid. In the United States, the federal government is the single largest payer for home health care

services (Davitt & Choi, 2008b; Dey, Johnson, Pajrowski, Tanamor, & Ward, 2011). Since the 1980s, Medicare spending on home health benefits has grown very rapidly (Davitt & Choi, 2008b). In 1997, the Balanced Budget Act was implemented to reduce Medicare spending; this led to reduction in payment for health services in hospitals, doctors, and nurse practitioners (Davitt & Choi, 2008b). Consequently, the adoption of the Balanced Budget Act (BBA) caused the decline in the number of beneficiaries for home health services and the number of home health agencies until 2000 (Davitt & Choi, 2008b). As a response for financial relief to the flawed BBA policy about Medicare, Medicaid, and State Children's Health Insurance Programs (SCHIP), in 1999, the BBA was revised to the Balanced Budget Refinement Act (BBRA) to restore some of the payment reduction that was caused by the BBA (McCall, Komisar, Petersons, & Moore, 2001). Under the act, Medicare managed care organizations, skilled nursing facilities, and home health agencies received some additional funds (Davitt & Choi, 2008a, 2008b).

In 2000, there were important changes in the payment system for home health care. Specifically, cost-based reimbursement, such as fee-for-service system, was shifted to a prospective payment system (PPS) for 60-day episodes of care (Rosati, 2009). This PPS was developed to predict resource utilization of home health care patients, reflecting the characteristics of individual patients. More specifically, the prospective payment system (PPS) reimburses certified home health agencies under Medicare, using a rate that reflect clinical conditions of patients and service use for a patient for each 60-day episode (Dey, et al., 2011, p. 7). In 2008, the prospective payment system was revised to extend the episodes of care to less than 120 days (Rosati, 2009). Under the plan, agencies were paid prospectively based on an episode of care with fixed costs. In the home health

payment, 153 categories are applied to set payment rates based on characteristics and conditions of patients including clinical severity, functional status, and the need for rehabilitative therapy services (Davitt & Choi, 2008b). Various factors such as client diagnoses and types of payment can be widely applied to reimbursement for home health care services. There are detailed conditions for being a Medicare-certified organization in the industry, including rules for administration and coordinating services (e.g., administrative control, training, planning, record keeping, and reporting) (Harris, 2005; Talaga, 2013).

In 2009, home health care spending in the U.S. reached nearly \$66.1 billion, and increased to \$74.3 billion in 2011 (The National Association for Home Care & Hospice, 2010). Moreover, it is estimated that home health expenditures are expected to grow at an average annual rate of 8 percent during 2011 through 2019 (The National Association for Home Care & Hospice, 2010). Health spending for private payers grew 3.0 percent in 2009 (The National Association for Home Care & Hospice, 2010). However, spending by public payers was estimated to have grown by 8.7 percent in 2009 (The National Association for Home Care & Hospice, 2010). During this time, the U.S. faced increasing unemployment rates due to the economic recession, which increased enrollment in Medicaid. Increasing enrollment in Medicaid also affected the enrollment in private insurance. In 2010, probably due to slightly better economic environment, public spending has grown more slowly at 5.2 percent compared to previous years (The National Association for Home Care & Hospice, 2010).

In general, Medicare and Medicaid spending explain 80 percent of total spending for home health care services (Talaga, 2013). Care provided by home health agencies

must be approved by Medicare. More specifically, Medicare normally pays for health care services that are provided in home when the services are considered reasonable and necessary for patients' conditions under the scheme of Medicare home health benefit (Harris, 2005). To be eligible for Medicare home health benefit, patients should be under a doctor's care and a doctor must certify the services that patients should receive; this can include one or more of the following services, such as intermittent skilled nursing care, physical therapy, speech language pathology services, and continued occupational therapy. Intermittent care is defined as the care that is "needed fewer than seven days each week or less than eight hours each day for periods of 21 days or less" (Talaga, 2013, p. 2).

When patients need more than the required care that is eligible for Medicare home health care, it is not covered by Medicare (Harris, 2005). In addition, Medicare does not cover home-maker services, home delivered meals, and 24-hour a day care at home (Talaga, 2013). As described above, it does not cover personal care services provided by home health aides when that type of service is the only care required.

As other public funding sources, Medicaid, the Older Americans Act, Title XX Social Services Block Grants, the Veterans' Administration, and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) have played important roles to cover home care as well (Levine, et al., 2003; Pratt, 2010; Rosati, 2009). Under the Medicaid scheme, there are three categories for home care payments: the mandatory traditional home health benefit; the personal care options; and home and community-based waivers. Since 2007, Medicaid expenditures for home health care have continuously increased (The National Association for Home Care & Hospice, 2010). In

addition, with efforts from states to change their Medicaid programs to managed care programs, managed care enrollment increased among Medicaid enrollees. This environmental situation played important roles by increasing incentives for home care agencies through the managed care provider networks. In general, many states do not cover home health care by Medicaid, thus the access is very restricted (as in South Carolina).

Almost all home health and hospice care agencies' patient revenues are from Medicare, Medicaid, and private health insurance. The National Home & Hospice Care Survey results indicate that, on the average, 55.7 percent of revenues of home health care only agencies came from Medicare and 22.4 percent came from Medicaid (National Center for Health Statistics, 2011). On the average, 81 percent of revenues of hospice care only agencies came from Medicare and 6.7 percent came from Medicaid (National Center for Health Statistics, 2011). About two-thirds of revenues of mixed agencies came from Medicare and 10.3 percent came from Medicaid (National Center for Health Statistics, 2011).

In 2011, beneficiaries using Medicare home health agency services accounted for that 17 percent of home health aide visits (The Centers for Medicare & Medicaid Services, 2012). It also explained 11.3 percent of total charges for home health aide visits (The Centers for Medicare & Medicaid Services, 2012). For example, it is reported that among 50,516,440 Medicare beneficiaries, 721,000 persons used home health aide visit services through all types of agencies (1.4%) in 2012 (The Centers for Medicare & Medicaid Services, 2012).

Among Medicaid beneficiaries served, in 2010, 1.7 percent used home health services (1,137,000 out of 65,182,000) (The Centers for Medicare & Medicaid Services, 2012). More specifically, for adult groups, 0.1% (81,000) used home health services and 0.4% (276,000) of aged groups used home health services (The Centers for Medicare & Medicaid Services, 2012). Among Medicaid beneficiaries of older adults (4,284,000), 6.4% used home health services (The Centers for Medicare & Medicaid Services, 2012). This means that a relatively small percent of Medicare and Medicaid patients use home health aide services.

2.6 QUALITY OF CARE AND ORGANIZATIONAL STRUCTURES AND PROCESSES

In current society, well-developed medical technology and healthcare services make people live longer. Therefore, healthcare facilities and professionals have devoted themselves much more to treating chronic diseases. As a result, the importance of collaborative efforts and processes to increase effectiveness of the care of those who have chronic conditions is paramount. With this trend, patient-centeredness approaches have been developed to focus more on healthcare and the systems that work to meet patients' needs (Institute of Medicine, 2001). This term, patient-centered approaches, encompasses the responsiveness to the patient needs, preferences, and their values (Institute of Medicine, 2001). The quality of care is emphasized in delivering care to patients.

Donabedian (1968) emphasizes that well-organized healthcare settings have instituted mechanisms and components for achieving the full effectiveness of care. According to Donabedian (1980), quality of care refers to the effectiveness of the health care services provided. It can be operationally defined with the assessment of

multidimensional aspects of healthcare using the combined criteria of structure, process and outcomes of care (Donabedian, 1968, 1980). Structure serves as a foundation to plan the process of delivering care that is associated with producing patients' positive outcomes and changes (Donabedian, 1980, 1988). Therefore, structure exerts a strong influence on the continuity and stability of home care. Patients' health outcomes and other quality related outcomes can be seen in the context of structure and system that encourage good practices (Harrington, 2005). In the quality of care, organizational structures and care processes are important in providing appropriate care for better quality outcomes with increased organizational effectiveness. In measuring the quality of home healthcare, therefore, structure (e.g. staffing levels, education, turnover rates, and characteristics of agencies) and process (e.g., assistance with ADLs) are inseparable for the assessment of quality outcomes and outcomes for patients.

As described above, home health care has the important responsibility to help patients transition "from institutionalized care (hospitals) to self-care settings, homes (Institute of Medicine, 2001). As one of the components of complex healthcare system, home health agencies played important roles to coordinate and integrate care in community (Arend, Tsang-Quinn, Levine, & Thomas, 2012). In the process of providing care, it is important to provide high quality of care and to flow smoothly the processes (Institute of Medicine, 2001). It can be improved through continuous quality improvement efforts.

To get reimbursement by Medicare, Medicaid, private insurance, and other insurances for the services provided by home health agencies, organizations should be licensed and have clinical records for all patients (Harris, 2005). In healthcare

organizations, team and health information technology became core components to make system more reliable. Harris (2005) wrote that organizations should also meet other conditions for health and safety for patients and workers. Health care organizations should make face appropriate arrangement between care workers and clients and between health care workers or teams and health care environments; therefore, it is important to redesign the processes of organizational development and support for employees to improve the quality of care (Institute of Medicine, 2001). Quality of home health care, quality of work environment, and quality of interaction with others, such as supervisors, patients, and other workers, are likely to be factors that affect organizational quality and patient outcomes. Patients and families' interests have increased than ever before to evaluate the quality of health care provided.

With the increase the number of home health agencies, it is important to assess the agencies' compliance with federal standards managing quality and range of services. In this sense, the Center for Medicare and Medicaid Service (CMS) (1999) has implemented a standardized assessment tool for patients, known as Outcome and Assessment Information System (OASIS). It is designed to assess the comprehensive patient health information and risk factors that affect the outcomes. The CMS has collected information from Medicare certified home health agencies through the OASIS system in order to provide information to Medicare beneficiaries. Such quality information has been recognized as a useful tool to improve quality of home health care. Consequently, patients and families can compare and choose home health agencies through the website of CMS, "Home Health Compare." They can also see the results for quality of home health care based on the various measures of quality for the agencies, and

also compare state and national averages. Such quality measure is more focused on measuring nursing and therapy.

Most of the patients receiving services from home health care agencies either need specialized services on a regular basis or continuous monitoring of their conditions over an extended period of time (Harris, 2005). Given the poor health of many of the home health care users, high quality standardized services are essential for improving patient's health outcomes. The importance of quality of care cannot be an exception in the field of home care. With those understandings about home health care and the quality of care, the organizational characteristics of home health agencies and the availability of a trained and dedicated workforce are absolutely critical for delivering high quality care (Henriksen, Joseph, & Zayas-Caban, 2009).

Previous research studies document that home health agencies have unique features in the characteristics of organization because of its diverse workforce (Levine, et al., 2003). It is also well documented that structure and process characteristics in the nurse work environment in acute care settings such as hospitals and nursing homes are associated with improved nurse and patient outcomes (Ashley, et al., 2010). As a non-institutionalized type of care, however, there are some regulatory requirements for home health agencies for maintaining and increasing the quality of care. For example, home health agencies have management protocols and policies that are established by professional groups in order to govern the supervising the services provided (Harris, 2005). In addition, home health agencies are primarily engaged in providing skilled services or other types of therapy and intermittently or regularly visiting services in patients' residences.

In assuring the quality of home health care services, it is also important to understand organizations' structures and features to satisfy and to retain qualified health care workers (Ellenbecker, 2004; Ellenbecker & Cushman, 2012). With the increase in demand from clients, quality in healthcare settings and home healthcare has been a controversial issue among policy makers, the public, care providers, and clients. In the context of home healthcare quality, it is necessary to understand the system's content including the characteristics of home health organizations and the workforce issues to provide services in outpatient and home settings. Structural factors of organizations and processes are especially vital for providing appropriate care with better quality outcomes with increased organizational effectiveness (Donabedian, 1966, 1968). This proposed study is interested in identifying workers' outcomes such as job satisfaction and intent to quit among home health aides as essential factors in delivering high quality services to patients and achieving organizations' goals.

2.7 SIGNIFICANCE OF THIS STUDY

Even though home health care is a fast growing component of health care sector, its rapid rise in practice has not been supported by expansion in research and strong evidences regarding the organization, management, and workforce outcomes or work environment that can affect home health care quality (Berry, 2011). Both policy makers and providers in home health care industry have planned an agenda for research and practice in the industry regarding the utilization of services and organizational effectiveness as an outcome for workers who serve people with diverse needs. Providing high quality health care services by a direct health care workforce is an important means whereby health care organizations are competitively advantageous in the health care

market (Ployhart, Iddekinge, & Mackenzie, 2011). Job satisfaction and intent to leave are important predictors on actual turnover among employees. Therefore, it is important to understand the dynamic relationships between job satisfaction and intent to leave and the predicting factors.

Empirical research is continuously being requested to describe and identify the workforce related components and the organizational factors and the relations to them (Ejaz, Noelker, Menne, & Bagaka's, 2008; Ellenbecker & Cushman, 2012). In some cases, even though previous research has provided useful insights for home health care agencies, understanding for this type of organization is still unclear. Therefore, this study will contribute to the scientific knowledge base by examining the effects of organizational factors, management support, and other personal characteristics on the outcomes of home health aides such as job satisfaction and intent to leave and the relationships among the factors (Faul, et al., 2010).

Organizational theories suggest that an organization's structural characteristics have been indicators for organizational behaviors (Brief & Weiss, 2002; Oldham & Hackman, 1981; Zazzali, 2003). Changes and outcomes in organizational behaviors provide useful information regarding the consequences of organizational factors and management factors which may affect the methods in which care is provided. It is important for providers and stake holders in the home health care industry to provide useful information through using a national sample and integrated frameworks from relevant theories (Zazzali, 2003). Little is known about how organizational factors may influence the outcomes of home health aides as direct care workers. Therefore, this proposed study will significantly contribute to a better understanding of the theoretical

and empirical articulation of the dynamic relationships between job satisfaction and intent to leave across types of organizations and personal backgrounds among home health aides.

The findings from the proposed study will allow clear understanding of home health aides and the organizational and work-related factors that can affect the outcomes of the care workers. Results of this study will provide a basis for conclusions that are considered to be generalizable. It is important to understand the work environment of home health aides for high quality home health care because paraprofessionals play important roles in delivering care to patients at home. Understanding the workforce issues linked to organizational features and processes is crucial “to ensure the quality healthcare and the effective work environments that facilitate health care” (Sochalski, 2004, p. 22). This study will also contribute to the policy and practices of home health care by providing implications for developing the effective strategies in supportive management that reflect the workers’ demands and needs. In management practice, this study will provide important implications for managers and home health agencies about how to support home health aides.

In addition, this study addresses the relationship between the organizational level, or community level, and individual level characteristics regarding job satisfaction of home health aides. Previous studies about home health care and the workers have largely ignored the multilevel interactions. This study will examine whether the relationship between perceptions of organizational supportive culture and job satisfaction will be simultaneously influenced or not both at individual level and organizational level variables or community level factors. Different types of organizations can provide

different environments for their employees with unique features of each organization. Particularly, direct health care workers such as home health aides, may be directly influenced by organizational environment and organizational structures, and external economic factors at community levels in their activities. A multilevel model, therefore, may explain the effect of organizational environment and community level external economic factors as the nested structure of individual direct health care workers. With those factors, it is important to understand organizational supportive culture that may enhance the work environment to increase job satisfaction of home health care workers.

CHAPTER III

OBJECTIVES AND SPECIFIC AIMS

Quality of home health care is a major concern. As an important component that can influence home healthcare quality, the proposed study will focus more on home health care workers nested within agencies or in communities – their job satisfaction and intent to quit. These are important psychological and behavioral outcomes in organizational psychology that can lead to organizational performance and patient outcomes. This study is intended to extend the existing body of knowledge concerning the links between organizational structural factors (organizational characteristics and staffing), organizational management support/process, and the satisfaction of home health aides as direct care workers in home health agencies.

According to prior research, by examining the impact of organizations and neighborhood contexts on health workers' behaviors, it is possible to assume that agency factors and community characteristics may play roles in predicting job satisfaction and intent to quit by home health aides. Basically, the primary purpose of this study is to better understand job satisfaction and intent to quit of home health aides by investigating the effects of agency factors and economic environmental factors on job satisfaction and intent to quit of home health aides. In doing so, the author will focus on how organizational supportiveness (supervisor quality and organizational values), work environment factors, and job perception affect job satisfaction or intent to quit of home

health aides and how the effects of agency factors and community contextual factors affect the relationships. Therefore, this study is planned to examine how broader context of organizations and communities is associated with the relationships between predictors and job satisfaction or intent to quit by home health aides. Consequently, the author will provide practice and policy recommendations for home health care agencies, which will contribute to the development of management processes and supportive work environments for organizations and their workers.

In addition to the organizational factors, workers' job satisfaction and intent to quit are influenced by external economic environments of community (states or the county) where they work (Edwards, 2007, 2008; Judge, Locke, & Durham, 1997). Based on this premise, this study will also investigate how community-level economic environmental factors affect job satisfaction or intent to quit of home health aides. Individual job satisfaction or intent to quit is influenced by individual level and agency level characteristics or community level economic factors. There is a need to examine how agency or community level factors lead to differences in relationship between predicting factors and individual home health aide's job satisfaction or intent to quit.

Specific aims of the papers are described below.

- 1) To describe the level of job satisfaction/intent to quit by home health aides across home health agencies and across the communities.
- 2) To examine the effects of organizational supportiveness in explaining unit differences in job satisfaction or intent to quit by home health aides.

- 3) To examine whether organizational supportiveness explain individual differences in the relationship between individual level variables and job satisfaction or intent to quit by home health aides.
- 4) To investigate if organizational supportiveness (supervisor quality and organizational values) moderate the relationship between individual level variables and job satisfaction or intent to quit by home health aides.
- 5) To explore if community environmental factors affect the relationships between individual level variables and job satisfaction or intent to quit by home health aides.

At this point, it is important to define the various terminologies used in this study. Organizational structures refer to the different classes and attributes of home health care agencies. They are defined as a set of factors that are related to ownership types, agency type, and patient care revenue sources. Staffing is defined as levels of staff that can provide care to patients in home health agencies. It will include a set of variables related to the number of full time equivalent (FTE) home health aides for taking care of patients. In addition, using electronic medical records (EMRs) will be included as the factor to indicate organizational capability for managing health information.

Organizational supportiveness refers to support for their employees in home health agencies. Perceptions on supervisor behaviors and organizational values toward the roles of home health aides can be good indicators to understand organizational supportiveness (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Ejaz, et al., 2008; Noelker, Ejaz, Menne, & Bagaka's, 2009).

Individual level variables are composed of work-related characteristics, workers' perception toward work, and task rewards/motivation. Workers' work perception refers to how home health care workers rate their work performed in the agencies.

Work-related characteristics are the factors that characterize the work of home health care workers in health care fields. It will include the following variables: hourly rate of wages, availability of health insurance, benefits provided, perceptions toward their jobs, and training (Brannon, et al., 2007; J. Choi, 2010).

Task rewards/motivation refers to the extent of workers' perception on motivation or rewards from their tasks performed. Therefore, commitment to organization will be used as an indicator to explore task rewards/motivation of home health aides (Currivan, 1999; Ingersoll, Olsan, Drew-Cates, DeVinney, & Davies, 2002; Meyer, Allen, & Smith, 1993).

Economic environment in community refers to economic-related contextual factors from community level that can affect home health agencies and their workers (Burbridge, 1993; Fenwick & Tausig, 1994). For example, unemployment rate, poverty level (percent of persons below the poverty level), and median household income will be used as indicators to understand the community level economic contexts.

CHAPTER IV

LITERATURE REVIEW

In this study, the author examines home health aides' job satisfaction and intent to quit. By attending to the direct care workers perspective, the author aims to expand knowledge about the organizational management practice that are linked to the environmental factors in organizations and in the communities to meet the needs of workers.

The primary tasks of home health aides are to support rehabilitation efforts for patients and to extend therapy services (R. Stone, 2004; Treml & Schulman, 1999). It is important to know that positive outcomes of direct care workers, home health aides, are significantly associated with high performance of health care organizations that are linked to positive outcomes of patients served.

This chapter describes the knowledge and ideas that have been established in previous studies related to the topic of job satisfaction and intent to quit by home health aides in home health agencies. The factors that predict job satisfaction and intent to quit as outcomes of home health aides are discussed: personal factors, organizational support, work-related environmental factors, and other environmental contexts of the communities.

4.1 JOB SATISFACTION AMONG HOME HEALTH AIDES

Job dissatisfaction among direct care workers is a recognized problem in long term care settings and other health care facilities and is a critical factor to affect turnover among the workers (Karsh, et al., 2005). Turnover is expensive for an organizations have expensive costs for recruitment and training for their workers. The consequences of job dissatisfaction and turnover can be serious in providing appropriate care. It is well documented that job satisfaction, commitment to organizations, and intent to quit are critical predictors to actual turnover among health care staff including nursing staff (Hannan, Norman, & Redfern, 2001; Karsh, et al., 2005).

Existing research suggests that health care workers often experience high level of job dissatisfaction and turnover intention when they struggle to meet their needs for continuing their jobs and they feel mismatch with their jobs and organizations (Buelow, et al., 1999; J. Choi, Flynn, & Aiken, 2011; Edwards, 2008; Faul, et al., 2010; Ingersoll, et al., 2002; Timmreck, 2001). Such high job dissatisfaction and turnover intention appear in part to be caused by organizational structures such as staffing and organizational types, organizational processes such as work environment, care processes, and intrinsic and extrinsic rewards (Buelow, et al., 1999; Timmreck, 2001).

There is evidence of correlations between various factors of job characteristics such as supervision, day shift, recognition, communication with other staff, stress, routinization, other determinants, and job satisfaction (Blegen, 1993; Blegen & Mueller, 1987; Garland, Oyabu, & Gipson, 1989). In addition, Buelow and her colleagues (2009)

found that a supportive leadership style, training, and mission implementation are critical factors for home care assistants to have positive job satisfaction (Buelow, et al., 1999).

Faul and her colleagues (2009) also found that it is important to provide appropriate salary and benefits to retain high quality workers (Faul, et al., 2010). Their study found that younger workers are more sensitive to salary than older workers. Also, it was reported that highly educated workers are more sensitive to salary than less educated employees. Therefore, wages are one of the strongest predictors of workers' job satisfaction, retention of high quality of workers, and quality of services delivered.

In addition, personal stressors such as depression, job-related factors such as continuing education, and interaction with others are more important than personal backgrounds of direct care workers for predicting job satisfaction among direct care workers (Ejaz, et al., 2008). Furthermore, their study showed that health care workers working at nursing homes have lower job satisfaction rates than other types of long-term care organizations. This study found that organizations providing lower minimum hourly rates and those that have turnover problems report lower job satisfaction.

Other research indicates that nurse participation in agency affairs, managers' supportiveness, and adequacy of resources were significantly associated with job satisfaction of the nurse workforce (J. Choi, 2010; J. Choi, et al., 2011). Studies that focused on certified nursing assistants (CNAs) discuss that supportive supervision was a critical factor to job satisfaction and intent to leave from job in nursing homes. Furthermore, age, education, and job history are significantly related to intent to leave by certified nursing assistants in nursing homes. Other studies also describes that ownership

was an important factor for job satisfaction (Decker, Harris-Kojetin, & Bercovitz, 2009). The authors explain that nurses working in for-profit nursing homes showed lower satisfaction with their jobs.

Existing research on direct care staff's experiences of job satisfaction is based on data provided primarily by nurse assistants; their perspective is clearly important since most often nurse assistants provide a bulk of hand-on care to older adults, and have been shown to often absorb caregiving related tensions, but it is not complete (Decker, et al., 2009; Garland, et al., 1989). Direct care workers' priorities have been found to have significant impact (Ejaz, et al., 2008). It is important to understand home health aides' perspectives on job satisfaction and intent to quit, and the predicting factors that can influence home health aides when organizations implement workplace interventions to enhance job satisfaction.

4.2 COMMITMENT TO ORGANIZATIONS AND JOBS AMONG HOME HEALTH AIDES

With job satisfaction, workers' commitment is one of the important indicator to understand workers' attitudes toward jobs and organizations. In this vein, commitment has received so much attention as an important variable to predict workers' intention to quit and quitting behaviors. In the literature about organizational behaviors and development, commitment is a topic for study about workers' attitudes toward the organizations and jobs (Meyer & Herscovitch, 2001; Oliver, 1990; Porter, Steers, Mowday, & Boulian, 1974). From the point of view of health care organizations, it is important to retain competent and highly motivated workforce to assure quality of care provided. Existing literature describes that organizational commitment refers to the

nature and the values of connection between workers and organizations. It also explains the degree to which individual workers have identifications with a particular organization. Individual workers express their commitment to the workplaces with the following three methods: “1) a strong belief in and acceptance of the organization’s goals and values, 2) a willingness to exert considerable effort on behalf of the organization, and 3) a definite desire to maintain organizational membership” (Porter, et al., 1974, p. 604). It is assumed that those who are highly committed to their workplace tend to devote more energy toward the goals of the organizations and decide to remain in the workplace (Porter, et al., 1974).

In addition, there are three types of commitment shown by employees in the workplaces: affective, continuance, and normative commitment (Meyer & Allen, 1991, 1997). First, affective commitment to the organization refers to cohesive attachment to the organizations (Meyer & Allen, 1991; Meyer, et al., 1993). For example, those who have affective commitment to the organizations develop strong close attachment to the group and the organizations they have participated in. They tend to make close relationship and attachment with the organizations. Second, continuance commitment is related to the motivation to stay continuously grown from the needs. It is explained that this type of commitment occurs when there is “a profit associated with continued participation and a cost associated with leaving” (Kanter, 1968, p. 504; Meyer, et al., 1993). For example, individuals decide to remain with the organizations based on occurrence of loss or cost of leaving the organization and job. Third, normative commitment refers to the obligation to stay in organizations and personal norms to be loyal to the organizations and employers (Meyer, et al., 1993; Y. Wiener, 1982).

Individual workers tend to express loyalty to their employers through appropriate experiences from the organizations. For example, when they receive benefits from employers such as training, health insurance, and travel reimbursement, they have a sense of obligation to remain with the organization and loyal to their employers.

Previous researches also describe that commitment indicates good relationships between workers and organizations, and a match with their job and tasks of employees in the workplace (J. Choi, et al., 2011; Ingersoll, et al., 2002; Karsh, et al., 2005; Kiyak, Namazi, & Kahana, 1997). Some research has focused on the factors affecting employees' commitment (Meyer, et al., 1993; Rodwell, Noblet, Demir, & Steane, 2009). For example, turnover is highly associated with negative commitment to organizations and to jobs. Moreover, management support such as training, salary and wages, benefits, supervisory activities, and involvement and encouragement in tasks are critical factors that can influence positive commitment of employees and decisions to stay at an organization.

Those who are highly committed to their organizations and jobs tend to have good relationships with other team members, staff, and patients in health care facilities (Rosati, Marren, Davin, & Morgan, 2009). It can lead to positive performance of organizations and positive patient satisfaction (Rosati, et al., 2009). Building employee commitment to the organizations and their tasks is essential. Leadership should develop strategies that increase employee commitment.

It is important to understand the work environment of health care staff, influencing workers' commitment to organizations and jobs. Home health agencies have

a diverse workforce of nurses and home health aides. Literature suggests that it is essential to make a therapeutic work environment for various employees in home health care organizations (Dutcher & Adams, 1994). This study compared the perceptions of work environment between nurses and home health aides in home health agencies. The authors describe the work environment that enhances workers' ability to perform tasks effectively are highly associated with positive commitment to organization/jobs (Dutcher & Adams, 1994). The results suggest that organizations need to examine their work environment.

4.3 INTENT TO QUIT BY HOME HEALTH AIDES

Many factors influence decisions to quit a job among workers. For example, stressful factors in job environments, lack of job satisfaction, and other personal and organizational factors affect workers' quitting behaviors (Firth, Mellor, Moore, & Loquet, 2004; Parsons, Simmons, Penn, & Furlough, 2003). More specifically, Firth and colleagues (2004) suggested that four factors were consistently associated with intent to quit as follows: "1) the experience of job-related stress; 2) the range of factors that lead to job-related stress; 3) lack of commitment to the organizations; and 4) job dissatisfaction" (Firth, et al., 2004, p. 171). At the final cognitive step, intent to quit is recognized as an important factor to predict actual turnover among employees. Between the two factors, job satisfaction and actual turnover, intent to quit as an ultimate outcome of this study is a mediating role to predict quitting behavior of employees. Intent to quit is a final step for complex pathways to predict workers' turnover. Firth and colleagues also suggested that personal factors may influence those four factors and the variables are influenced by environmental and organizational factors (Firth, et al., 2004).

In addition, negative life events at the personal level, and factors that can control life events play important roles to mitigate intention to quit among the workers (Moore, 2001; Waters & Moore, 2002). For example, it is suggested that negative experiences in life such as unemployment, influence low job satisfaction and higher intention to quit from jobs. Furthermore, the unemployed tend to have low self-esteem. Those who have low self-esteem are likely to have psychological problems and maladaptive behaviors with low job satisfaction. These can lead to high intention to quit. In this situation, social support and other interventions from organizations such as supportive behaviors from supervisors are found to reduce the level of intention to quit by nurses and other workers (Moore, 2001).

Intent to quit by health care workers is a critical issue in health care organizations and organizational psychology (Alexander, Lichtenstein, Oh, & Ullman, 1988; Chen, Ployhart, Thomas, Anderson, & Bliese, 2011; J. Choi, 2010; Currivan, 1999; Griffeth, Hom, & Gaertner, 2000; Kiyak, et al., 1997). Recruiting highly motivated health care workers is highly associated with organizational success and positive outcomes of patients. It is well documented that job satisfaction and commitment to job or organizations directly or indirectly influence intent to quit and actual turnover among employees (Currivan, 1999). In addition, structural and individual factors positively or negatively affect intent to quit and turnover (Karsh, et al., 2005).

There is evidence of correlations between organizational structures, work environment, and job satisfaction and other outcomes, and intent to quit among health care workers (Brannon, et al., 2007; Currivan, 1999; Eisenberger, et al., 2002; Ellenbecker, Porell, Samia, Byleckie, & Millburn, 2008; Firth, et al., 2004; Karantzas et

al., 2012; Mittal, Rosen, & Leana, 2009; Timmreck, 2001). Brannon and colleagues found that work load and education opportunity for upward mobility are highly associated with intent to quit (Brannon, et al., 2007). Moreover, they also found that those who have positive assessment of their supervisors are less likely to leave their jobs.

Mittal et al. (2009) examines how respect, management style, conflict with family and with work, difficulty of work, and job openings are associated with turnover and retention of workers. Based on the Herzberg theory, one study presents that some motivation factors worked to increase job satisfaction in the health care work environment (Timmreck, 2001). The following motivational factors were identified as follows: achievements, recognition, work itself, responsibility, advancement, money/pay, self-interest, and so on (Herzberg, 1965; Timmreck, 2001).

In aspects of organizational process, direct care workers' priorities have been found to have a significant impact (Ashley, et al., 2010; Buelow, et al., 1999). It is important to understand direct care workers' perspectives on tasks in delivering home healthcare and services, and in the perceptions on the job that home health aides perform when they are struggling to meet the needs in performing their tasks in their organizations. Job satisfaction is an important result in organizational behaviors that employees can show and it plays an important role for employees to decide whether they quit their job earlier or not (Chen, et al., 2011). Job satisfaction has a negative relationship with intent to quit among employees.

In the extant literature, five studies examined intent to quit among direct care workers including certified nurse assistants (CNAs) (Ayalon, 2010; Brannon, et al., 2007;

J. Choi & Johantgen, 2012; Decker, et al., 2009; Parmelee, Laszlo, & Taylor, 2009).

These studies classified various types of intent to quit among direct care workers, primarily CNAs. For example, it is suggested that there are three types of different intent to quit from jobs: thinking about leaving, thinking about job searching, and searching for a job. One study conducted in nursing homes identified intent to leave from facility and intent to leave from current profession as two different types of intent to quit by nursing assistants (Stearns & D'Arcy, 2008). This study examined the predictors of two different intent to quit using personal, organizational, and environmental factors. For example, income and education have significantly negative relationship with intent to leave from the profession. Facility characteristics (e.g., supervisor quality, training/safety, and benefits) were significantly associated with intent to quit from facility.

Other studies identified various factors that affect intent to quit by direct health care workers. For example, age, education, job tenure, job training, citizenship status, profit status, and job opportunities for better-payment have influenced workers' intention to leave among nursing assistants (Brannon, et al., 2007; Castle, Engberg, Anderson, & Men, 2007; Decker, et al., 2009; Stearns & D'Arcy, 2008). After the review of the extent literature, as interventions to reduce intent to quit in the health care workplaces, it can be summarized that supervision and payment and benefits were found as important factors to affect reducing intent to quit by direct care workers.

With regard to the predictors influencing outcomes of home health aides, job satisfaction and intent to quit among them, a variety of organizational level characteristics and external economic environmental factors have been reported (Aiken, Clarke, & Sloane, 2002; Burbridge, 1993; J. Choi, 2010; Muntaner et al., 2004; Muntaner

et al., 2006; Rodwell, et al., 2009). The following section reviewed organizational characteristic factors and external factors as a nested variables for individual home health aides associated with intent to quit among home health aides focusing on selected variables for this study.

4.4 ORGANIZATIONAL-LEVEL FACTORS INFLUENCING OUTCOMES OF HOME HEALTH AIDES

It is important to build an appropriate workplace environment for alleviating workforce turnover in health care settings. The culture change movement in long-term care shifted the paradigm for resident care to “resident-centered approach” or “person-centered approach” (Koren, 2010). The adoption of culture change has influenced organizational changes in long-term care settings and home health agencies. Under the new model for long-term care, organizations have to make efforts to create a roadmap for facilities changing decision making processes, leadership, staff roles, physical environment, and organizational design (Koren, 2010). Much responsibility and control are given to direct care workers such as nurse aides and home health aides. Importance of workforce enhancements and satisfying work environment is emphasized to improve quality of care and workers’ performance in their organizations (Brannon, et al., 2007). Rodwell et al. (2009) study also supports that work-related environment has influenced job satisfaction and intent to quit of home health aides and other health care workers (Rodwell, et al., 2009). It is recognized that employees are influenced by the workplace environment and the structural attributes of health care organizations (R. Stone & Dawson, 2008). Therefore, it is important to understand the workplace environment,

including structures and culture at an organizational level, to retain the workforce in health care organizations (Dutcher & Adams, 1994).

As organizational and structural features of health care facilities, it is well documented that staffing related factors, including staff levels and staffing, physical conditions of facilities, management styles, leadership styles, resources, and other aspects, influenced staff turnover and intention to leave from workplaces (Aiken, et al., 2002; Bliesmer, Smayling, Kane, & Shannon, 1998; J. Choi, 2010; J. Choi, et al., 2011; J. Choi & Johantgen, 2012; Harrington, et al., 2000). As described in the previous section, direct care workers including nurse aides and home health aides are supervised by registered nurses (RN) or licensed practical nurses (LPN) in providing care to patients. In the process of providing care, they are generally assigned to take care of multiple patients in a day. Supervisor behaviors (e.g., clear instruction, supportive relationship, and listening to direct care workers) and values from organizations and other staff are more important for direct care workforce than other staff (Bowers, Esmond, & Jacobson, 2003). They are more sensitive to whether they are appreciated and valued by organizations for their tasks. Appreciation and respect by organizations and supervisors in organizations are important factors that influence job satisfaction and turnover (Bowers, et al., 2003).

Several studies demonstrated that supervisor quality is highly associated with intent to quit by direct care workers such as CNAs and personal aides (Brannon, et al., 2007; Morgan, Sherlock, & Ritchie, 2010; Parsons, et al., 2003). Administrator's leadership styles may influence turnover, (Morgan, et al., 2010) as it is important to have a good relationship with their supervisors. Consequently, the importance of direct care

workers' perception of supervisor behaviors is an indicator of intent to quit among direct care workers and their job satisfaction (Morgan, et al., 2010). In this sense, this study uses supervisor behavior variables, labeled supervisor quality, to examine the impact on intent to quit by home health aides at organizational level using hierarchical linear modeling.

In health care facilities, moreover, it needs to understand the effect of adopting electronic medical records on direct care workers' outcomes. Across health care sectors, EMRs are significant components to benefit agencies and patients by effective care coordination. As a cost effective approach, long-term care facilities, including home health and hospice care agencies, are highly encouraged to adopt EMRs in providing their services (Cherry, Ford, & Peterson, 2011). It is evident that agencies are significantly benefited from the return on investment to the adoption of EMRs with increased access to patient information and accuracy of the information. Therefore, home health agencies are also highly motivated to adopt and implement EMRs in coordinating home health care services to patients. With the implementation of OASIS for home health care, home health agencies are encouraged to provide comprehensive patient health information using electronic medical records (EMRs) under the Medicare. Therefore, it is important to understand organizations' capabilities to use health information technology for patients in home health agencies and workers' perception of using EMRs in their agencies. Among home health care workers, positive experiences with EMRs in home health care environment may be highly associated with improved workers' satisfaction with their job (Cherry, Ford, & Peterson, 2011). It is designed to improve the efficiency of health care delivery and the home health care quality and to compare the home health agencies for

patients and their families. In 2007, it is reported that 43 percent of home health and hospice agencies use EMRs (Bercovitz, et al., 2011). From 2000 to 2007, the use of electronic medical records has increased in all agencies (33.1%), home health only (20.2%), hospice only (164%), and mixed agencies (64.8%), respectfully (Bercovitz, et al., 2011).

Many existing studies present that the use of EMRs in long-term care and home health care settings could lead to improved quality outcomes (Babbott et al., 2014; Sockolow, Bowles, Adelsberger, Chittams, & Liao, 2014; Weinfeld, Davidson, & Mohan, 2012). The use of EMR is aimed at improving patient safety, improving quality of care, and reducing medication errors. The EMRs are a very useful tools to make work conditions more effective for workers and patients in health care settings (Sockolow, et al., 2014; Weinfeld, et al., 2012).

Some studies conducted explored the experiences of using electronic medical records in long-term care facilities and examined the relationship between the use of electronic medical records and job satisfaction among physicians (Babbott, et al., 2014; Cherry, Ford, & Petersen, 2011; Dastaqir et al., 2012; Moreland, Gallagher, Bena, Morrison, & Albert, 2012). Cherry et al. (2011) suggested that adoption of electronic medical records has positive effects on operational improvement in long-term care facilities. For example, interviewees such as nurse aides, administrators, and nurses responded that they had positive experiences on easy access to resident records, increased documentation accuracy, and implementation of evidence-based practices; this lead to improvement in quality care and workers' satisfaction (Cherry, Ford, & Petersen, 2011).

Dastaqir et al. (2012) described that training of physicians with electronic health records (EHRs) and the adoption of it is highly associated with improvement in self efficiency and job satisfaction. Moreover, it is suggested that implementation of electronic medical records is positively associated with the improvement in overall satisfaction with jobs of nurses, perception of improvement in workload, and teamwork (Moreland, et al., 2012). However, Babbott et al. (2014) suggested that the use of EMRs is associated with physician stress and low job satisfaction in high EMR function clustered group. With regard to using EMR, moreover, it is presented that time pressure was significantly associated with intent to leave within the high EMR cluster (Babbott, et al., 2014). However, the existing studies emphasized that initial training is necessary to improve job satisfaction and stress by the adoption and use of electronic medical records among direct care workers and health care staff.

Very few studies have been conducted to investigate the effect of EMRs on job satisfaction and intent to quit among home health care aides and other direct care workers. Home health aides have increasingly used health information technology, including electronic medical records, under the supervision of nurses. However, there is little evidence as to whether using EMRs affect intent to quit among home health aides in home health care agencies due to a lack of data. As an important variable for job condition in health care settings, more studies are needed to investigate the use of EMRs on intent to quit by this workforce.

4.5 EXTERNAL ECONOMIC ENVIRONMENT FACTORS INFLUENCING OUTCOMES OF HOME HEALTH AIDES

The contextual environment in which the agencies and workers exists include a variety of external factors that can influence workers' quality and quantity of work, turnover rate, and agencies' performance (Burbridge, 1993; Jia, Muenning, & Gold, 2004). The environmental contexts in the community are inherent to the characteristics of the community in which home health aides perform their duties on a daily basis. Community level factors potentially influence worker's attitudes toward their job and life (Burbridge, 1993). Workers who have worked in highly disadvantaged areas significantly tend to behave disrespectfully in the communities than others who work in the advantaged neighborhoods (Jia, et al., 2004).

In the health care market, direct care workers such as home health aides are much more influenced by the economic conditions they have faced in their environment (Burbridge, 1993). Considered a low wage job, the home health care market is more vulnerable to competition than other high skilled groups (Ashley, et al., 2010; Burbridge, 1993). Since the 1990s, home health aides grew very fast (Ashley, et al., 2010; Burbridge, 1993). This trend is still continuing in the health care market. Unfavorable economic conditions are highly associated with psychological distress and life satisfaction of individual workers (Fenwick & Tausig, 1994; Turner, 1995). The home health aides assigned to economically disadvantaged communities are less satisfied with their jobs due to inherent disadvantages the workers also face or observe. The disadvantaged situations can negatively influence workers' work related perception and the intention to leave from their jobs in the near future. This study, using multilevel

modeling analysis, would like to explore how nested factors in organizations and in community will affect the outcomes of home health aides, the outcomes being satisfaction levels. However, few studies actually assess the impact of economic disadvantage on job satisfaction or intent to quit (Fenwick & Tausig, 1994; Tay & Harter, 2013; Turner, 1995). Particularly, the broader economic environmental constructs at community level are often unmeasured for home health aides.

Other studies emphasized the importance of economic environments of health care workers' labor market areas (Fenwick & Tausig, 1994; Muntaner, et al., 2004; Muntaner, et al., 2006; Tay & Harter, 2013; Turner, 1995). They found that economic characteristics of labor market areas are associated with depression of health care workers. Some studies also found that residential characteristics such as income inequality are associated with depression (Muntaner, et al., 2006; Turner, 1995).

Muntaner and the colleagues (2004) found that for-profit ownership, emotional strain, managerial pressure, and lack of seniority pay increases influence depression (Muntaner, et al., 2004). Applying multilevel analysis and using Gini index for counties where conducted survey to nursing assistants lived, voting for Democratic party, percentage of African Americans, and median family income as controls, they found that labor market factors and depression are related in nested environment from the neighborhoods (county). However, they found that external environmental economic factors were not significantly associated with depression. In addition, Tay & Harter (2013) found that national GDP and unemployment are associated with job satisfaction (Tay & Harter, 2013). Furthermore, they discovered that economic factors and labor

market forces influence worker's subjective wellbeing including job satisfaction and life satisfaction.

Unemployment rates have been significantly associated with increased stress and lower level of life satisfaction (Fenwick & Tausig, 1994; Turner, 1995). Turner's study (1995) indicated that unemployment effects were stronger to the group of the previously unemployed and in low unemployment communities. Reynold (1997) found that economic stress at the industrial level has a direct positive effect on distress, in addition, economic stress is stronger to workers in complex jobs.

Health and social services provided from government tend to be coordinated at the county level (Muntaner, et al., 2006). Economic and social forces play important roles in determining the coordination of services and industry in low wage counties (Muntaner, et al., 2006). Workers' well-being and perception on their jobs are influenced by the factors within the context of unemployment and poverty.

4.6 GAPS IN RESEARCH

Few studies have examined the full relationships among factors involved in the process of providing home health care. Specifically, little has been done to examine the effects of organizational structure and processes of care on the relationships between home health aides' job satisfaction and intent to quit. There is not sufficient evidence and information on what factors predict the improvement in home care workers' outcomes. Despite some existing research on the quality of health care and healthcare workers outcomes, there are still unanswered questions.

First, most of the studies have focused on professional staff such as nurses in institutionalized settings such as hospitals and nursing homes. This may reflect that conventional roles of health care workers still remain dominant in our social values. However, the roles of home health aides and personal aides are higher than ever before with the increased needs and demands of clients and families. Because of the enhanced roles of home health aides in delivering services to clients, and the focus on early detection of health and functional conditions of clients and the improving functional ability related to ADLs, association among organizational structure characteristics and process, and the outcomes of employees must be a research priority. For these reasons, studies on home healthcare must include home health aides.

Second, there is little research on home health care agencies characteristics and process factors in the home care workers gap in delivering home healthcare services, although there is evidence of its variation across agencies. Because the roles of home health aides and personal aides vary across agencies, studies of agency variation in providing home healthcare may investigate these relationships. More specifically, some factors related to the home care workforce as well as organizational factors have worked as variations in quality of home health care (Bowers & Becker, 1992; Delp, et al., 2010; Denton, et al., 2002). As described above, intent to quit from jobs and turnover of health care workers may be factors that reduce the effectiveness of organization and that decrease the quality of health care. Therefore, it is important to keep employees longer in their workplace with high satisfaction in their jobs to produce high quality services. This study will contribute to an understanding of the variables for home health aides to predict their outcomes, which will ensure better quality in home health care.

Third, there are very few studies conducted to analyze the relationship between individual level factors and organizational variation in job satisfaction among home health aides at individual level as well as organizational level. People's decisions and behaviors are influenced by their surrounding environment. However, most studies do not consider the effects of individual level variables and organizational level variables in analyzing the outcomes of home health aides' job satisfaction. Very few studies have been conducted to analyze the relationship with one dimensional approach, either at individual level or organizational level, to explain job satisfaction of health care workers. Furthermore, very few studies have been conducted on the effects of community level environmental factors on the relationship between individual level characteristics and job satisfaction of home health aides. Therefore, the current study includes theoretically and empirically relevant community level variables into the analysis to enhance the understanding of the impact of community contexts on job satisfaction or intent to quit by home health aides. Economic disadvantages such as unemployment rate, poverty level, and median household income are included in a multilevel analysis to explore the relationship between work-related factors or job perception and job satisfaction or intent to quit by home health aides.

4.7 RESEARCH QUESTIONS AND HYPOTHESES

Guided by Donabedian's stress process outcome model (1968; 1988), some organizational theories, and the extant literature, this study investigates the following research questions and hypotheses. More specifically, this study attempts to fill the gaps in the literature by examining the following areas concerning job satisfaction and intent to quit among home health aides: (a) the association among organizational structures,

personal characteristics, organizational processes, job satisfaction, and intent to leave, (b) the association among organizational management process/work environment, care process, and task reward/motivation, and (c) factors influencing job satisfaction and intent to quit.

Research Question 1: What are the degree of within and between group variations in job satisfaction or intent to quit by home health aides across agencies and communities?

Hypothesis 1a: The degree of within and between group variations in job satisfaction will vary across home health agencies.

Hypothesis 1b: The degree of within and between group variations in intent to quit will vary across home health agencies.

Hypothesis 1c: The degree of within and between group variations in job satisfaction will vary across communities.

Hypothesis 1d: The degree of within and between group variations in intent to quit will vary across communities.

Research question 2: What are the relationships between organizational level variables, individual level factors, and job satisfaction/intent to quit?

Hypothesis 2a: Work-related environmental factors and other individual level characteristics and perceived supervisor quality and organizational level factors at organizational level will influence job satisfaction.

Hypothesis 2b: Work-related environmental factors and other individual backgrounds and perceived organizational values and organizational level factors at organizational level will influence job satisfaction.

Hypothesis 2c: Job perception and other individual characteristics and perceived supervisor quality and organizational level factors at organizational level will influence job satisfaction.

Hypothesis 2d: Job perception and other individual characteristics and perceived organizational values and other factors at organization-level will influence job satisfaction.

Hypothesis 2e: Work-related factors and other individual level characteristics and perceived supervisor quality and organizational level factors will influence intent to quit.

Hypothesis 2f: Work-related factors and other individual backgrounds and perceived organizational values and organizational level factors will influence intent to quit.

Hypothesis 2g: Job perception and other individual characteristics and perceived supervisor quality and organizational level factors will influence intent to quit.

Hypothesis 2h: Job perception and other individual characteristics and perceived organizational values and other factors at organization-level will influence intent to quit.

Research question 3: Does organizational level predictors explain individual variations in the relationship between individual level variables and job satisfaction or intent to quit, controlling for individual characteristics? (Random intercept and slope model)

Hypothesis 3a: The association between job satisfaction and individual level predictors including work-related environmental factors vary with perceived supervisor quality.

Hypothesis 3b: The association between job satisfaction and individual level predictors including work-related factors vary with organizational values.

Hypothesis 3c: The association between job satisfaction and individual level predictors including job perception vary with perceived supervisor quality.

Hypothesis 3d: The association between job satisfaction and individual level predictors including job perception vary with organizational values.

Hypothesis 3e: The association between intent to quit and individual level predictors including work-related factors vary with perceived supervisor quality.

Hypothesis 3f: The association between intent to quit and individual level predictors including work-related factors vary with organizational values.

Hypothesis 3g: The association between intent to quit and individual level predictors including job perception vary with perceived supervisor quality.

Hypothesis 3h: The association between intent to quit and individual level predictors including job perception vary with organizational values.

Research question 4: Does supervisor quality/organizational support moderate the relationship between individual level variables and job satisfaction or intent to quit by home health aides, controlling for individual characteristics? (Cross level moderator)

Hypothesis 4a: Perceived supervisor quality moderate the relationship between job satisfaction and individual level predictors including work-related factors.

Hypothesis 4b: Organizational values moderate the relationship between job satisfaction and individual level predictors including work-related factors.

Hypothesis 4c: Perceived supervisor quality moderate the relationship between job satisfaction and individual level predictors including job perception.

Hypothesis 4d: Organizational values moderate the relationship between job satisfaction and individual level predictors including job perception.

Hypothesis 4e: Perceived supervisor quality moderate the relationship between intent to quit and individual level predictors including work-related factors.

Hypothesis 4f: Organizational values moderate the relationship between intent to quit and individual level predictors including work-related factors.

Hypothesis 4g: Perceived supervisor quality moderate the relationship between intent to quit and individual level predictors including job perception.

Hypothesis 4h: Organizational values moderate the relationship between intent to quit and individual level predictors including job perception.

Research question 5: To what extent do community environmental factors affect job satisfaction or intent to quit of home health aides? (Means-as-Outcomes Model)

Hypothesis 5a: Job satisfaction vary by community level factors characterized by unemployment rate, poverty level, and median household income.

Hypothesis 5b: Intent to quit vary by community level factors characterized by unemployment rate, poverty level, and median household income.

Research Question 6: What are the effects of community level factors on job satisfaction or intent to leave, after controlling for individual level variables? (Intercepts-as-Outcomes Model)

Hypothesis 1a: The community-level factors that home health aides work (characterized by high unemployment, poverty rate, and low mean household income) will influence the level of job satisfaction among home health aides.

Hypothesis 1a: The community-level factors that home health aides work (characterized by high unemployment, poverty rate, and low mean household income) will influence the level of intent to quit among home health aides.

CHAPTER V

THEORETICAL FRAMEWORK

This study is about the outcomes of home health care workers working in home health agencies – job satisfaction and intent to quit. In the home health care industry, the structural factors and the environmental factors in which organizations operate and employees work are factors bearing upon the quality of care and the outcomes of workers in performing their duties in the organizations. This study focuses on that workers share the same perceptions of the work environment and the organizations within the same organization and the perceptions may be different across the organizations. In industry, the business organizations that share similar management styles and structural aspects could drive isomorphic processes in providing care and services to patients that can affect workers-related outcomes and quality of care (DiMaggio & Powell, 1983; Flood & Fennell, 1995).

In this chapter, the author reviews literature on the theories linking business organizations providing home health care and outcomes of home health care workers working in home health agencies. The author further explores the work-related environment of home health care workers, organizations' structural characteristics, and environmental contexts surrounding organizations and workers, and workers' outcomes. For this study, the author incorporates elements of the Donabedian Structure, Process, and Outcome Model with other components from organizational theories such as agency

theory, the Maslow hierarchy of needs model, and the motivation-hygiene model and job satisfaction and retention models. Moreover, social exchange theory and the perspective of person-environment fit are also useful to explain home health aides' behavior and outcomes (Donabedian, 1966; Eisenhardt, 1989; Herzberg, 1965; Maslow, 2000; Price & Mueller, 1981; Thibaut & Kelly, 1959).

5.1 DONABEDIAN MODEL

Many researchers seeking to measure health care quality have advocated to use the Donabedian framework as the basis for the health care quality measures. In health care quality of care research, this framework is extensively used to measure the home health care quality. With regard to the quality of health care, the Donabedian model emphasizes multidimensional aspects of health care in assessing the effectiveness in terms of three criteria: structure, process, and outcomes (Donabedian, 1966, 1968).

Structure is defined as attributes of settings in which care occurs (Donabedian, 1978, 1988). It includes material resources, human resources, and organizational structures that are involved in providing care to patients. Process refers to what is actually done in giving and receiving care (Donabedian, 1988). For example, patient activities to seek care and practitioner activities in implementing treatment are considered process in health care. With regard to structure and process measures, some research provides possible variables to use in a survey and analysis. For example, caregiver training in caregiving, adequacy of care plan in quality of care, and staffing factors (e.g., staff ratios and composition, compensation, and training) can be considered the dimensions for process and structure in caregiving under the long-term care quality concerns (Spector,

Schaffer, Hodlewsky, De La Mare, & Rhoades, 2002). They emphasized that caregiving can play important roles to bridge quality of care and quality of life. Therefore, concerns about the technical skills and interpersonal skills of caregivers, such as home health aides, are very important aspects affecting their works and performance of organizations (Spector, et al., 2002). Outcomes refers to the effects of care on health status of patients and populations. Health status and health-related quality of life (HRQL) can be the best sources in evaluating quality of care provided. Such changes in health status can be attributed to the care from and many aspects of organizations and caregivers.

In the quality of care measure, patient preferences are advocated as important sources to evaluate responsiveness in the caregivers such as home health aides (Berry, 2011). However, it is asserted that quality can be observed in the process of delivering care and services (Parasuraman, Zeithaml, & Berry, 1985, 1994). In general, service providers and patients interact with each other in the process of care. Although quality of care has been measured via patient outcomes, attention to the needs of various stakeholders, particularly caregivers and providers, has continuously been increased because improved outcomes of patients are not possible without improved outcomes for caregivers (Berry, 2011; Parasuraman, et al., 1994). Therefore, it is important to investigate work-related outcomes and organizational behaviors for home health aides as caregivers that can influence beneficial outcomes for patients.

Among the three dimensions of the structure, process, and outcome, although the outcome is the best source for measuring quality of care, some advocate examining the structure related to quality and processes to evaluate quality (Berry, 2011; Donabedian, 1978). In general, this study begins with the Donabedian framework to measure quality

of care in a home health environment. In this vein, the author also began with the extent literature related to work environment for home health aides and their satisfaction with their jobs and turnover intention. Structure, process, and outcomes for home health aides can be explained by home health agencies' characteristics and the outcomes for home health aides (Berry, 2011; Scala, 2008). As the highly ranked topics related to direct care workforce, this dissertation study focuses more on the structural and process dimensions of home health aides work environment, including organization types and ownership, staffing, training, wages, benefits, supervisor behaviors, support from organizations for employees, management practice, and organizational values for home health aides work in the agencies (Scala, 2008).

5.2 AGENCY THEORY

One of the major theoretical frameworks to analyze the behaviors of agents and principals in delivering services is the agency theory. As a theoretical perspective developed in economics, this theory provides an approach to analyze how conflicting objectives and different information and risk tolerance influence decision making of individual and organizations. Agency theory can be used to explain the relationships between the principals (organizations) and the agents (employees) (Eisenhardt, 1989; Wright, Mukherji, & Kroll, 2001). Currently, it has been frequently applied to organizational theory in the research about organizational management. Agency theory also shares similar sets of principles and assumptions with the theories of exchange and transaction costs (Nilakant & Rao, 1994). In this theoretical perspective, most organizations present “a set of contracting relationships among individuals” (Jensen & Meckling, 1976, p. 310).

According to this theory, the agents tend not to behave in a way to maximize the interests of the principal. But, the principals in economic exchange may authorize agents to behave on their behalf (Jensen & Meckling, 1976; Wright, et al., 2001). Therefore, the principals' welfare may be affected by the decisions and behaviors of the agents. The well-being of the principals can be maximized by a cooperative relationship with the agents (Wright, et al., 2001). Based on the assumptions, it is possible to explain that employees (agents) may decide to act for their organizations (principals) when the principals develop appropriate incentive and compensation systems consistent with the objectives desired by the principal (Eisenhardt, 1989; Wright, et al., 2001).

5.2.1 The Principal-Agent Relationship In The Context of Health Care Settings

As described the above, agency theory has been used to describe the relationship between a principal and an agent (Jensen & Meckling, 1976). Specifically, this theory explains that agency relationship is formed in the process that a principal gives work to an agent. For example, managers perform their duties for their business owners and attorneys work for their clients. This study focuses on direct care workers, in particular home health aides, for employers in home health agency. Agency theory explains there are contractual relationships between both parties: a principal and an agent in an organization (Jensen & Meckling, 1976; Nilakant & Rao, 1994). In the health care settings, such contractual relationships also exist between the providers, the patients, the payers, and the organizations.

Through the process of delegating work to the home health aides who actually perform the direct care work, the agency staff and the nurses arrange the services and

supervise their tasks with sharing the goals within an agency (Forgione, Vermeer, Surysekar, Wrieden, & Plante, 2005). Based on the perspectives of agency theory, it is possible to explain that the payers like Medicare and Medicaid are interested in controlling costs for home health care provided and the agency managers are interested in maximizing return for costs of care provided. In the contractual relationships with employers, the providers who provide direct care such as home health aides and certified nurse assistants are interested in maximizing their well-being and managing better life through receiving appropriate level of incentives and benefits from agency (Forgione, et al., 2005).

In regard to relationships, agency theory explains that there are two types of problems such as agency problems, which arise from conflicting goals and the problems related to information (Jensen & Meckling, 1976; Nilakant & Rao, 1994). These problems can lead to imperfect agency relationships. For example, managers or directors as a principal are oriented to achieve the goals for the agency. However, home health aides as an agent are motivated by self-interest such as higher income and more benefits from the agency. Problems related to information refers to information asymmetries. Both parties may have limited access to all of the information they need. In this situation, it is explained that both parties can have difficulties in sharing the goals and can misinterpret them (Zazzali, 2003). In this relationship, each party may have different attitudes toward risk (Nilakant & Rao, 1994). These problems can lead to uncertainty in the relationship of organizations. Based on the work of Fama (1980), it is argued that it can make “some forms of trust more difficult to achieve”(Zazzali, 2003, p. 241).

Various transactions exist between workers and employers and between health care organizations and patients/health care professionals (Flood & Fennell, 1995). Such transactions can also exist within health care organizations and between the organizations. Much of the work in health care organizations such as home health care agencies depend on the relationship between patients, managers, and various types of health care workers such as nurses, certified nurse practitioners, and home health aides (Christen, Iyer, & Soberman, 2006; Flood & Fennell, 1995). Agency theory would be a useful tool to evaluate the relationships at the micro levels or at the macro levels.

5.3 MASLOW HIERARCHY OF NEEDS MODEL

In a given situation facing great challenge to home health care industry, it is necessary to understand the needs of the workers to make the work environment healthier and the workers' outcomes. The concerns for what motivate individual workers and how supervisors and managers can motivate the workers in home health care agencies are continuously increasing among the stakeholders, including the practitioners, patients, researchers, and policy makers (Benson & Dundis, 2003). It is necessary to understand job satisfaction and intent to quit by direct care workers in health care settings. The factors are the one of critical factors that should be met to achieve patients' satisfaction and well-being.

5.3.1 Basic Principles of Maslow Model

A theory developed by Abraham Maslow, Maslow's theory of need hierarchy provides the perspectives and frameworks for human behaviors (Maslow, 2000). This theory has tremendously contributed to explain how people are fully functioning in the

field of human motivation. It can be applied to any business settings that provide means to influence workers' behaviors and motivation. This theory explains how to motivate employees in healthcare organizations (Benson & Dundis, 2003; Maslow, 2000).

The Maslow model suggests a number of essential elements that should be considered in organizations in order to meet the demands of their workers (Benson & Dundis, 2003; Maslow, 2000). Maslow used a pyramid that is composed of five levels in explaining human behaviors and motivation in organizations (Maslow, 2000). The premise is that people can move for higher levels of motivation when they met their basic level of needs (Maslow, 2000). For example, at the bottom stage of the pyramid, if employees are satisfied with the wage, they seek safety on their jobs. Moreover, they can use training from their workplaces to seek security. At the third stage of pyramid, workers move to the next level to seek social belongings in the workplaces. At this stage, they make friendships and relationships with colleagues and others. Then, workers may move to the next stage, referred to as self-esteem. Self-esteem can be maximized by the appraisals, incentives, and rewards for their performance. At this stage, individuals can feel confident for their work done. Finally, workers may move to self-actualization that they can take risks and feel more confident in their duties.

These aspects could be important components in reorganizing and increasing the needs of employees in organizations. It is important to consider how organizations with fewer resources motivate employees to meet the increasing demands (Maslow, 2000). According to this model, new technology and training may be used to meet the needs (Benson & Dundis, 2003). If employees feel secure, they will have more enhanced feelings of self-esteem. Then they will be more motivated and committed to their jobs

with more opportunity for self-actualization. Therefore, it can be summarized that if the workers are allowed to have opportunities for growth and acquisition of higher level of needs from the jobs, they are more likely to report satisfaction with their jobs.

5.3.2 Application of Maslow Model to Home Health Care Agencies

In general, Maslow's theory can be applied to direct care workforce such as home health aides, support from organizations, the work environment, and the caring behaviors. In this study, this theory is primarily used to understand the outcomes of home health aides from their perspectives and to use the knowledge of hierarchy of needs to provide organizational supports such as appropriate levels of wage, benefits, training, supervisor styles, and values from organizations. They are important factors that meet the needs of home health aides and help them to reach the highest goals in their workplace.

Stone (2004) noted that many agencies face high vacancy and turnover rates among direct care workers such as home health aides, certified nurse practitioners, and personal care aides. It is also argued that many factors such as low wages, poor benefits, and inadequate training cause the problems in home health care agencies (Benson & Dundis, 2003; R. Stone, 2004). Physiological needs and safety are good examples at the bottom levels of need. In the workplace, monetary compensation, such as wages and entry level wages, should be considered basic needs that should be met in recruitment and retention of the workforce (Zalenski & Raspa, 2006). When people feel that they are satisfied with the basic needs, the employees tend to move up to the next tier, seeking safety. In the working environment, providing appropriate levels of benefits, such as insurance, pensions, other benefits, and training opportunities for career development,

may help people to have mental and physical safety in an organization (Zalenski & Raspa, 2006). In the next tier, the direct care workforce often to seeks respect from supervisors and from patients; recognition; and values toward their jobs in the workplace. After they feel that self-esteem is filled in, they can escalate to the next tier – increase of job satisfaction and decision of commitment to organization in self-actualization. In this stage, highly motivated employees tend to perform their tasks at the highest potential and decide to stay more at the workplace (Arruda, 2005; Taormina & Gao, 2013; Zalenski & Raspa, 2006).

From Maslow's basic principles, home health aides' level of satisfaction with their directors and nurses supervising skills were found to be very critical to their work environment. Studies suggest that attitudes and behaviors of immediate level of supervisors to direct care workers such as home health aides are more impact on them than overall agency policies and procedures (Friedrich, 2001; Ingersoll, et al., 2002; Karsh, et al., 2005). Friedrich (2001) wrote that direct care staff more prefer supervisors who are supportive in providing resources, training, and opportunities than other staff in health care settings. In addition, it is important to facilitate and support this type of direct care workers in the components of leadership styles. Based on the above concepts, the framework of Maslow model may be applied to understand and evaluate the outcomes of direct care workforce in a rapidly changing home health care industry.

5.4 MOTIVATION-HYGIENE THEORY

In addition to Maslow's theory, Herzberg's theory of motivation has contributed to explain organizational behaviors in the workplaces and the human motivation. This

theory states that those who are satisfied with their jobs deal with the factors that motivate them (Herzberg, 1987). Herzberg (1965) argues certain factors that motivate people and cause satisfaction are not simply considered the opposite of factors that cause dissatisfaction. Herzberg (1965) further explains the factors that can contribute to the level of motivation with two dimensions: hygiene and motivation.

Motivation-Hygiene theory contends that work environments and the surroundings in which workers perform their tasks play important roles to determine job satisfaction and dissatisfaction (Herzberg, 1965; Timmreck, 2001). Herzberg mentions that work itself can be the cause of job satisfaction. According to this theory, it is also argued that work characteristics created by satisfaction can be different than the work with built in dissatisfaction (Herzberg, Mausner, & Snyderman, 1993).

Herzberg (1965) identifies that the motivators as intrinsic factors refer to the nature of work itself. Therefore, it is described that these are the factors that influence job satisfaction through accomplishing the high level needs such as recognition and opportunity for growth (Herzberg, et al., 1993). Maidani (1991) suggested that the hygiene factors as extrinsic factors are work conditions; wage and pay; benefits; and relationship within organizations. It explains that these factors are critical components that must be met to prevent dissatisfaction. However, this theory describes that eliminating the bad hygiene factors cannot be connected with satisfaction (Naumann, 1993). Even though motivators exist when people are satisfied with their jobs, it cannot be said that removing motivators automatically lead to dissatisfaction (Naumann, 1993). In essence, as factors relating to job's ability to achieve higher level of needs, hygiene factors are important things that influence job satisfaction in the workplaces (Maidani,

1991; Naumann, 1993). In contrast to the Maslow theory, Herzberg explains that security is an extrinsic hygiene factor. Herzberg (1987) explains that hygiene factors are needed to ensure workers are not dissatisfied. Furthermore, motivators are needed to motivate them to achieve high performance in the workplaces. Therefore, it is suggested that if organizations want to increase satisfaction with the job, they need to have concerns about the nature of the work itself – personal growth, opportunities for gaining status, and self-actualizations (Herzberg, et al., 1993; Naumann, 1993). If organizations wish to reduce dissatisfaction, they should focus on making the job-related environment favorable (Timmreck, 2001).

5.5 SOCIAL EXCHANGE THEORY

For this dissertation study, the social exchange theory was used to explain exchange relationships in employment. The author believes that the perspectives of this theory are congruent with the purposes of this study. The social exchange theory explains that exchange is a social behavior that can result in individual outcomes (Coyle-Shapiro & Kessler, 2001). According to this theoretical perspective, it is possible to explain that employers and employees have formal and informal transactions in employment relationship (Coyle-Shapiro & Kessler, 2001; Gakovic & Tetrick, 2003). This theory presents, “Interpersonal behavior is the process of exchanging resources to maximize benefits and minimize costs” (Cox, 1999, p. 181). Therefore, it describes that social exchange is interdependent and is regulated by reciprocal norms (Blau, 1964). The theory also explains that workers’ perceptions of cost and benefits may influence individual determination of terminating relationships and exchange behaviors between managers and coworkers (Blau, 1964; Cox, 1999). There are two types of exchange in exchange

relationship: social exchange and economic exchange. Social exchange involves trust feeling and loyalty (Milward & Hopkins, 1998). It is not limited to time frame and is not related to the monetary rewards. On the contrary, economic exchange refers to the idea that transactions depend on market parameters such as market price (Milward & Hopkins, 1998). For example, economic agreement such as wages and pay for performance is an important factor to the economic exchange.

Social exchange theory also explains individual development and behaviors influenced by different situations and environment (Thibaut & Kelly, 1959). Specifically, people tend to act and to develop relationship with others for maximizing rewards and benefits and for minimizing costs (Crede, Chernyshenko, & Stark, 2007; Thibaut & Kelly, 1959). This theory emphasizes the importance of exchange of social and material resources for human interactions (Blau, 1964). According to this theoretical perspective, people form social association through “exchange of activity, tangible or intangible, and more or less rewarding or costly, between at least two persons” (Homans, 1961, p. 13).

Within this theoretical perspective, it is possible to explain how people materialize and quantify the outcomes from different environment and the factors influencing particular behaviors and perceived outcomes (Kane-Urrabazo, 2006). This theoretical perspective explains that social exchange refers to “voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others” (Blau, 1964, p. 91). Therefore, this theory can explain why and how workers behave in ways that maximize rewards and benefit in response to favorable working environments and conditions in organizational behavior (Crede, et al., 2007; Kane-Urrabazo, 2006).

Within the social exchange theoretical framework, it is explained that there are perceived organizational support, perceived supervisor behaviors, and organizational rewards in operationalizing social and economic exchange (Rhodes & Eisenberger, 2002). Perceived organizational support refers to the degree to which the organization and supervisor values the tasks workers perform in organizations. It can influence employees' deciding their attitude toward the organizations and the degree of commitment to the organization (Rhodes & Eisenberger, 2002). In addition, organizational rewards include recognition, respects from organization and supervisors, pay, and benefits. Therefore, Rhodes & Eisenberger (2002) suggested that organizational rewards and perceived supervisor behaviors can influence perceived organizational support.

Social exchange theory explains that there are factors positively associated with job satisfaction and desire to stay in organizations (Rhodes & Eisenberger, 2002). Therefore, social exchange theoretical perspectives present that how such individual level factors influence quitting behaviors of individual workers (Miller, 1996). Furthermore, in the process of exchange resource to maximize rewards and minimize the costs, satisfaction and commitment can address the individual level determinants to contribute to quitting behaviors such as turnover (Miller, 1996). Consequently, it can be explained that satisfaction and commitment can be important factors that influence employees to make the ultimate decision to either stay at the job or to voluntarily leave from the job (Cardenas, 2003; Miller, 1996).

5.6 PERSON-ENVIRONMENT FIT PERSPECTIVE

In organizational behavior research, the perspective of person-environment fit as derived from the ideas of Lewin and Murray has also been widely used to explain the outcomes of workers in organizations (Edwards & Shipp, 2012; Lewin, 1935; Murraray, 1938). In general, this approach is primarily used to investigate the relationship between this perspective and workers' outcomes such as job satisfaction, commitment, turnover, and well-being. It is explained that this approach has advantages to explain response to stressors in work environment (Yang, Che, & Spector, 2008). According to this theoretical perspective, it explains that person and environment work together as determinants of workers' job satisfaction, turnover, and well-being.

With regard to person environment fit perspectives, three assumptions are drawn from the existing research (Cable & Judge, 1996; Kristof, 1996; Mitchell, Holtom, Lee, Sablynski, & Erez, 2001; Spokane, 2000; Verquer, Beehr, & Wagner, 2003). First assumption is that fit between person and environment is highly associate with positive outcomes such as job satisfaction and more commitment to organizations (Kristof, 1996; Spokane, 2000; Verquer, et al., 2003). Second, it is also assumed that person environment fit would have same effects 'across different sets of person and environment' (Edwards & Shipp, 2012, p. 210; Mitchell, et al., 2001). Third, it is assumed that the fit between person and environment produce same effects 'regardless of the absolute levels of the person and environment or the direction of their difference' (Cable & Judge, 1996; Edwards & Shipp, 2012, p. 210).

The perspective of person-environment fit explains the interaction between persons and environment (Edwards, 2007; Yang, et al., 2008). This perspective focuses “more on reactions of stressors in the environment” (Yang, et al., 2008, p. 567). In this framework, it is important to understand the roles of environmental conditions and their interactions related to well-being. It is also possible to explain how person and environment work together for workers’ individual behaviors and their psychological outcomes in work places (Edwards, 2007; Judge, Bono, Thoresen, & Patton, 2001). This theoretical perspective contends that supplies and supports from work environment and the resources play important roles for individual workers to fit with their environments and situations in their organizations (Edwards & Shipp, 2012; Yang, et al., 2008). Moreover, this perspective covers that workers can feel stress when there may be existence of imbalance and mismatch between demands from their jobs and workplaces and their capabilities (Edwards, 2007, 2008; Edwards & Shipp, 2012).

5.7 JOB SATISFACTION RELATED MODELS

Through the extant literature, it is well documented that job satisfaction is the determinants of intent to leave from jobs and voluntarily turnover among the direct care workers and other professionals in health care settings. Job dissatisfaction can be the cause of leave their jobs among health care staff. Many factors affect job satisfaction and dissatisfaction that can influence either to stay with the organization or to leave from the jobs (Price & Mueller, 1981). It is well known that health care staff work with positive job satisfaction because it is significantly related to patient’s well-being. Many researchers have developed causal models to guide researches to explain the dimensions

of the factors that influence job satisfaction and intent to leave among health care workers (Aiken, et al., 2002; Delp, et al., 2010; Price & Mueller, 1981).

Job satisfaction related models provide important perspective on job satisfaction for health care professionals and direct care staff such as home health care workers (Delp, et al., 2010; Price, 1977; Price & Mueller, 1981). Home healthcare nurse retention model developed by Ellenbecker (2004) suggests that job satisfaction and other factors (individual nurse characteristics, agency characteristics, market characteristics and so on) influence intent to stay and retention of home healthcare nurses (Ellenbecker, 2004; Ellenbecker, et al., 2008).

Some research developed the conceptual frameworks to describe the causal factors to influence job satisfaction of health care workers (Delp, et al., 2010; Karasek, 1979). They suggested that job related stress, control, and support are the critical factors that directly affect job satisfaction. Moreover, they describe that job satisfaction is fostered by intrinsic rewards supported by organizations. They also present that extrinsic rewards and physical and emotional demands of providing care can affect job satisfaction.

Price & Mueller (1981) suggested a conceptual model that explain the causal factors influencing voluntary leaving from organizations (Price & Mueller, 1981). To explain actual turnover by nurses, they used some variables such as determinants and intervening variables for analyzing direct or indirect relationship with the ultimate outcomes (Price & Mueller, 1981). For example, seven determinants such as repetitive work, participating in job related decisions, information about job related issues, having

close relationships in organizations, payment, compensation, and opportunity work to increase job satisfaction. These determinants indirectly affect turnover through job satisfaction (Price & Mueller, 1981). In addition, they explain that job satisfaction positively influence intent to stay among nurses.

In addition, three factors such as increased dedication to occupational standards of performance and general training would work to decrease intent to stay for nurses. As another factor, kinship responsibility would affect to increase intent to stay for them. Furthermore, they describe that these determinants have indirect impact on turnover through intent to stay for them (Price & Mueller, 1981). They also mention that intent to stay has direct negative impact on turnover. With this model, they found that intent to stay, opportunity, general training, and job satisfaction have greatly effect on turnover for nurses (Price & Mueller, 1981).

CHAPTER VI

RESEARCH METHODS

This chapter describes the data and methods that are used to examine the effects of individual-, organizational- and community-level factors on the relationships among work-related factors, job perceptions, and job satisfaction or intent to quit among home health care workers. Organizational supportiveness (organizational values and supervisor quality) is examined as a moderator of the relationships. In this study, secondary data is used to address the particular relationship. This chapter also presents data collection procedures, data source, conceptual frameworks, model components and the variables, and data analysis plans.

6.1 OVERVIEW OF RESEARCH DESIGN

As a correlational study, this study used secondary data from the 2007 National Home and Hospice Care Survey (NHHCS), the 2007 National Home Health Aides Survey (NHHAS), and the Area Health Resource File. This study explains the relationship between individual home health aides' outcomes, job satisfaction and intent to quit at two different levels: the individual workers (level 1) are nested within organizations or communities (level 2). This study employs a hierarchical linear modeling (HLM), called as multilevel modeling analysis to test the effects of organizational and community-level variables (e.g., counties) on the relationships among individual level predictors and job satisfaction or intent to quit of home health aides. In

this study, therefore, the author involves a design that focuses on home health care workers nested within home health agencies or counties. The combined model demonstrates how organizational-level or community-level predictors relate to the relationships between individual-level predictors and outcomes.

This method can be applied when a dataset has some nested structure of individual-level observations (Raudenbush & Bryk, 2002). This modeling is useful to understand the relationships between home health care workers' job satisfaction or intent to quit and their perception of their jobs and supervisor quality or values from organizations (Ployhart, 2005; Raudenbush & Bryk, 2002).

6.2 CONCEPTUAL FRAMEWORK

This study focuses on the outcomes involved in home health aides' work. This study is guided by theoretical models that incorporate the determinants of job satisfaction or intent to quit of home health care workers. This study also explores organizations and community-level factors affecting home health aides' job-related decisions. Workers' job satisfaction or intent to quit depends on work environment, including the work itself and the surrounding environment for the work, as well as the organization itself (Edwards, 2007; Judge, et al., 2001).

However, there is evidence of a problem in high rates of turnover for this direct care workforce. To date there are very few studies which attempt to explain the issues of job satisfaction and intent to quit in terms of a theoretically-guided framework for home health aides. The extant literature suggests a need for increased knowledge about job satisfaction or intent to quit by home health care workers (Baron, et al., 2009; Benjamin

& Matthias, 2004). Therefore, this study is designed to outline the roles of predictors of job satisfaction and intent to quit by home health care workers.

The framework for the present study proposes to explore the relationships among components of the model and the outcomes experienced by health care workers working in home health and/or hospice care agencies. More specifically, this framework attempts to determine which factors affect the job satisfaction and intent to quit of individual home health care workers and to determine how factors at the agency or neighborhood (county) level affect the relationships between individual-level factors and job satisfaction or intent to quit by home health care workers. This conceptual framework illustrates the relationship that will be tested in this study.

Figure 6.1 illustrates the relationships between the individual and organization/community levels. The top box illustrates the influence of the contextual environment factors on individual workers. The second box illustrates the influence of organizational characteristics on individual home health aides. As mentioned earlier, individual home health aides are naturally nested in agencies that differ in ownership, geographical location, agency size, payment revenue sources, and staffing levels. Naturally, these different agencies have unique impacts on the job satisfaction and intent to quit of their home health aides. The remaining boxes illustrate the relationship between different personal characteristics, work-related factors, job perception and the outcome variables such as job satisfaction and intent to quit. Each home health aide has a unique age, education, household income, race, and job tenure that influences his/her level of job satisfaction, commitment to the organization, and intent to quit from their job. The first model examines the level of job satisfaction regarding the overall duties of individual

home health aides. The second model examines the intent to quit of home health aides and includes job satisfaction and commitment to the organization. Organizational support (i.e. values from organizations and supervisor quality) moderates the relationships among personal characteristics, work-related factors, and job satisfaction or intent to quit at the individual level of analysis.

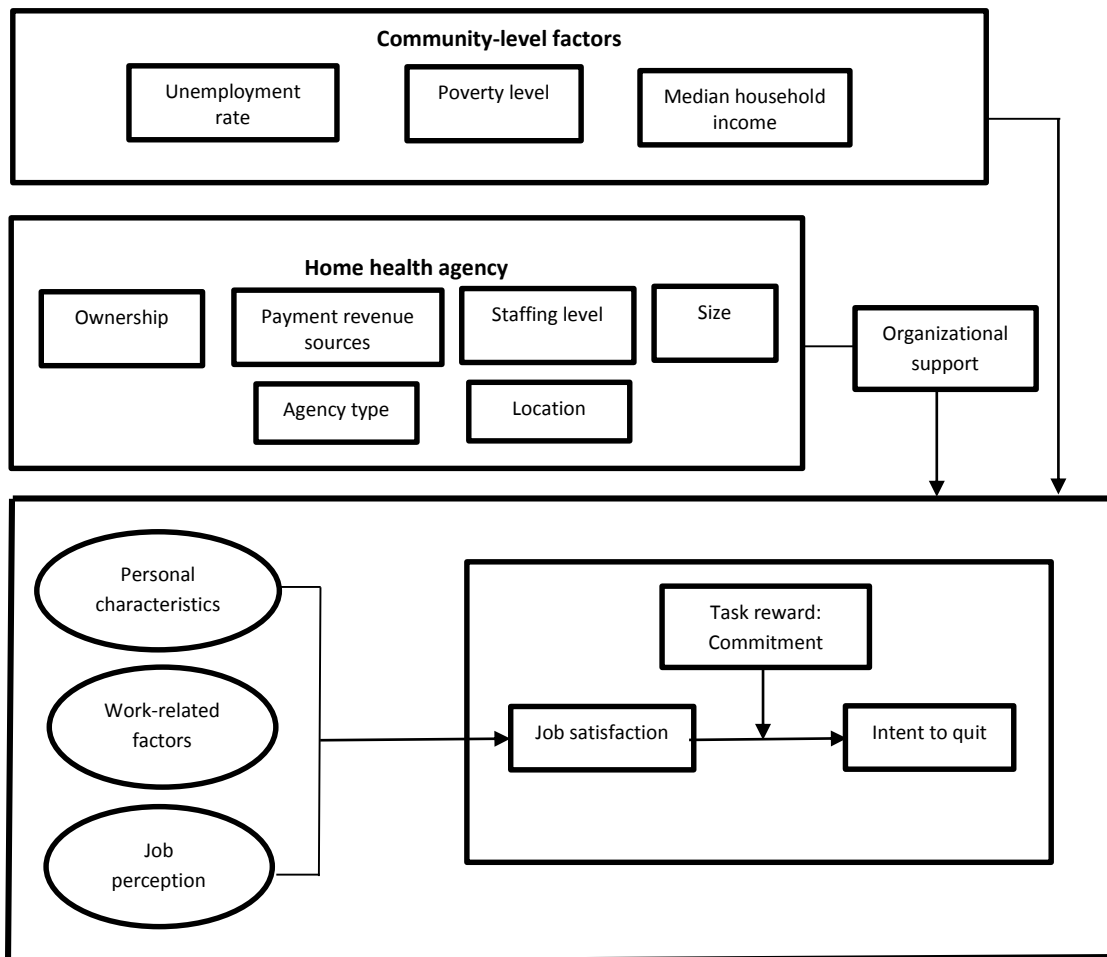


Figure 6.1 Proposed Conceptual Framework

This study uses the conceptual framework shown above. The framework can be explained as follows:

1. Home health agency characteristics are facility attributes that account for the variations in management practices of organizations. For example, different types of organizations have different levels and types of management policies for employees, and they also have different leadership styles. All the characteristics can affect job satisfaction and intent to quit among home health aides.
2. Home health agencies and their practices vary according to the types of workers they hire. Different individuals have different perceptions or attitudes toward the managerial support practiced by their organizations. Their different experiences may lead to different levels of job satisfaction and intent to quit.
3. In the environment, economic factors at the community level follow geographic patterns such as counties and states. This study used the data from the county level. Management styles and practices tend to be influenced by the factors which are derived from the county or state (e.g., unemployment, poverty, and policy). Structural economic factors play important roles in determining organizational management styles and policies for employees, as well as in providing opportunity structures for people in the community. Therefore, the economic environmental characteristics of home health agencies' market areas may be associated with workforce issues. The economic characteristics of residential areas can affect the outcomes of low-income direct care workers through their effects of local labor markets (Muntaner, et al., 2004).
4. In the organizational process of managerial support for employees, organizational supportiveness reflects how organizations implement interventions to motivate employees and to increase job satisfaction that can reduce intent to quit of home

- health aides. For example, leadership style (e.g., perception of supervisor behaviors) and organizational values toward the workers' roles are good indicators of an organization's support or lack of support for its workers.
5. Work-related factors are those which characterize the home health aides' work in health care fields. For example, each agency has different levels and types of benefits such as salary and health insurance. In addition, training, hourly rate of wages, health insurance, patient assignment, and benefits are important factors in influencing the outcomes of home health aides. These factors can directly lead to the behavioral and psychological outcomes of home health aides.
 6. Task rewards/motivation is influenced by supportive managerial support in organizations. Specifically, employees tend to decide whether they are committed to their job/tasks and organizations based on levels of support and other experiences from their workplaces.
 7. Job satisfaction can be a useful predictor of intent to quit of home health aides. Home health aides who have positive job satisfaction are likely to show low levels of intent to quit from their workplaces. Furthermore, each dimension of job satisfaction may differently affect intent to quit of home health aides. In the process by which organizational support influences intent to quit, job satisfaction may play a mediating role.
 8. Finally, intent to quit by home health aides may result from home health aides' loss of commitment to their jobs and organizations. Imbalance between stress and job rewards can negatively affect the career intent of home health aides. In

addition, commitment to the organization and job satisfaction are highly associated with intent to quit of home health aides.

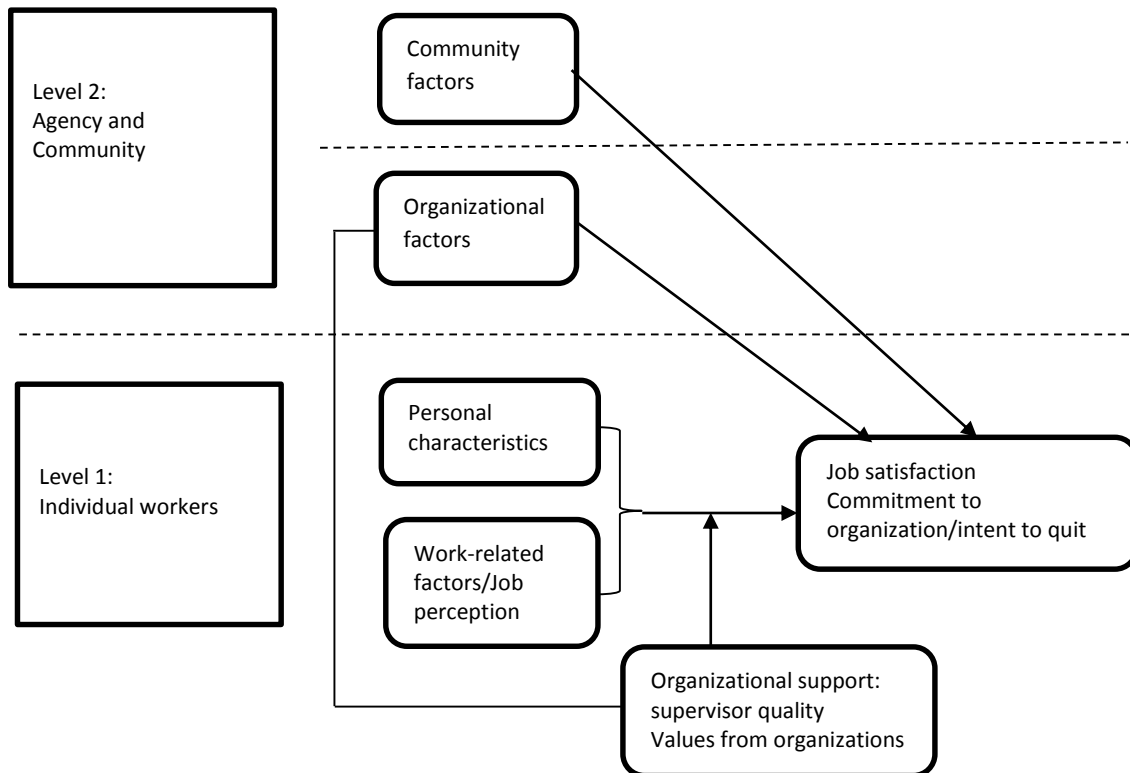


Figure 6.2 Empirical model of job satisfaction/intent to quit by home health aides

Figure 6.2 shows the empirical model that is examined in this study. This model outlines the theoretical relationships among the factors that are suggested by the literature and the conceptual model. Individual workers and agencies are the units sampled at level 1 and level 2. In this model, personal characteristics, organizational characteristics, or the interaction of organizational variables and individual worker factors can influence the outcomes of individuals, job satisfaction or intent to quit. The model also examines the effects of county level contexts on job satisfaction or intent to quit by home health aides.

One hypothesis of this study is that personal characteristics and work-related factors are associated with job satisfaction or intent to quit among home health aides at the individual level. Personal characteristics and job perception are also predicted to affect job satisfaction or intent to quit by home health aides. In addition, this study hypothesizes that it is hypothesized that organizational characteristics influence the relationships among individual-level variables within an agency.

Since the study involves units at two levels of a nested hierarchy, the empirical model has to explore the interaction of individual-level variables of level 1 with the organizational characteristics of level 2. In this cross-level analysis, organizational support, including organizational values toward the home health aide jobs and supervisor quality, may moderate the relationship between work-related factors or job perceptions and employee job satisfaction or intent to quit.

Economic contexts at the county level may affect the relationship between work-related factors or job perception and job satisfaction or intent to quit by home health aides. This study hypothesizes that those who work in socially disadvantaged communities tend to have relatively low satisfaction with their jobs and higher intention to leave their jobs than those who work in better-off communities.

In recent years, hierarchical linear models have been widely used to explain the multilevel nature of the data in the educational and organizational studies. In this study, two-level hierarchical linear models are used to examine the effects of organizational-level factors or county-level factors on this study outcomes. At level 1, the units are home health aides represented as a function of a set of individual characteristics. At level 2, the

units are home health agencies or the county where the workers are employed and the agencies are located. Therefore, the equations for level 1 and level 2 could be basically written as follows (Raudenbush & Bryk, 2002; Snijders & Bosker, 2012):

Level 1 model:

$$Y_{ij} = \beta_{0j} + \beta_{1j} X_{1ij} + \beta_{2j} X_{2ij} + \dots + \beta_{nj} X_{nij} + \gamma_{ij}$$

This equation represents a simple level-1 model with individual home health aide-level predictors where Y_{ij} is the outcomes for i th individual workers nested within the j th home health agency or community. β_{0j} is the random variable intercept, reflecting the average job satisfaction or intent to quit of individual workers in j th agency or community. $\beta_{1j} \dots \beta_{nj}$ is the regression coefficient associated with level 1 predictors ($X_{1ij} \dots X_{nij}$) for the j th level 2 unit. γ_{ij} is the random error associated with the j th level 1 unit nested within the j th level 2 unit.

Level 2 model:

Model 1 (Random Intercept Model):

$$\beta_{0j} = \gamma_{00} + \gamma_{01} W_{1j} + \gamma_{02} W_{2j} + \dots + \gamma_{0n} W_{nj} + \mu_{nj}$$

$$\beta_{1j} = \gamma_{10}$$

Where β_{0j} and β_{1j} are the intercept and slope for the j th level 2 unit (agency or county). γ_{00} and γ_{10} are the overall mean intercept and slope adjusted for W , respectively. W_{nj} is the level 2 predictor or covariate. γ_{01} is the regression coefficients associated with the level 2 predictor W relative to the level 2

intercepts and slopes, respectively. μ_{nj} is the random effects of the j th level 2 unit on the intercept and slope, adjusted for W. In this type of two-level model, the random intercept model, the scores for job satisfaction or intent to quit for each individual home health aide observation are predicted by the intercept that varies across agencies or counties.

Model 2 (Random Coefficient Model – Random Intercept and Random Slope

Model):

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_{1j} + \gamma_{02}W_{2j} + \dots + \gamma_{0n}W_{nj} + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}W_{1j} + \gamma_{12}W_{2j} + \dots + \gamma_{1n}W_{nj} + \mu_{1j}$$

Where a unique set of predictors, W_1, W_2, \dots, W_{nj} may be specified for each β_n .

In the level 2 model, β_{nj} is the intercept and slope for the j th level 2 unit (agency and county). γ_{00} and γ_{10} are the overall mean intercept and slope adjusted for W, respectively. W_{nj} is the level 2 predictor or covariate. γ_{n1} is the regression coefficients associated with the level 2 predictor W relative to the level 2 intercepts and slopes, respectively. μ_{nj} is the random effects of the j th level 2 unit on the intercept and slope, adjusted for W. The difference between the equation of random intercept model and random coefficient model is the inclusion of μ_{1j} in the equation for β_{1j} . In this random coefficient model, the dependent variables, job satisfaction or intent to quit are the slopes for the independent variables at level 1 in the agencies or in the counties as level 2.

Means-as-outcomes Model: County-Level Analysis

Random coefficient model with means-as-outcomes models are used to estimate the effects of individual-level variables and county-level variables on job satisfaction or intent to quit. They were conducted to estimate the means from each of many groups as outcomes to be predicted by community characteristics. Therefore, the means of job satisfaction or intent to quit were explained by county characteristics.

Level 1:

$$\text{Job satisfaction/Intent to quit} = \beta_{0j} + \gamma_{ij}$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{unemployment rate}) + \mu_{0j}$$

Intercepts-as-outcomes Model: County-Level Analysis

Random coefficient model with intercept-as-outcomes models are used to examine the effects of both level 1 and level 2 predictors on job satisfaction or intent to quit simultaneously. They were estimated to test the effects of all predictors on job satisfaction or intent to quit simultaneously.

Level 1:

$$\begin{aligned} \text{Job satisfaction (Y}_{ij}) = & \beta_{0j} + \beta_{1j} (\text{Training}) + \beta_{2j} (\text{Health insurance}) + \beta_{3j} \\ & (\text{Benefit}) + \beta_{4j} (\text{Hourwage}) + \beta_{5j} (\text{Patient assignment}) + \beta_{6j} (\text{Respect}) + \beta_{7j} \\ & (\text{Involvement}) + \beta_{8j} (\text{Trust}) + \beta_{9j} (\text{Confident}) + \beta_{10j} (\text{Age}) + \beta_{11j} (\text{Race}) + \\ & \beta_{12j} (\text{Education}) + \beta_{13j} (\text{Household Income}) + \beta_{14j} (\text{Job tenure}) + \gamma_{ij} \end{aligned}$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Unemployment rate}) + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10}, \beta_{2j} = \gamma_{20}, \beta_{3j} = \gamma_{30}, \beta_{4j} = \gamma_{40}, \beta_{5j} = \gamma_{40}, \beta_{5j} = \gamma_{50}, \beta_{6j} = \gamma_{60}, \beta_{7j} = \gamma_{70}, \beta_{8j} = \gamma_{80}, \beta_{9j} = \gamma_{90}, \beta_{10j} = \gamma_{10}, \beta_{11j} = \gamma_{11}, \beta_{12j} = \gamma_{12}, \beta_{13j} = \gamma_{13}, \beta_{14j} = \gamma_{14},$$

Full model with intent to quit: County-Level Analysis

Level 1:

$$\begin{aligned} \text{Intent to quit } (Y_{ij}) = & \beta_{0j} + \beta_{1j} (\text{Job Satisfaction}) + \beta_{2j} (\text{Commitment to job}) + \beta_{3j} \\ & (\text{Training}) + \beta_{4j} (\text{Health insurance}) + \beta_{5j} (\text{Benefit}) + \beta_{6j} (\text{Hourwage}) + \beta_{7j} \\ & (\text{Patient assignment}) + \beta_{8j} (\text{Respect}) + \beta_{9j} (\text{Involvement}) + \beta_{10j} (\text{Trust}) + \\ & \beta_{11j} (\text{Confident}) + \beta_{12j} (\text{Age}) + \beta_{13j} (\text{Race}) + \beta_{14j} (\text{Education}) + \beta_{15j} \\ & (\text{Household Income}) + \beta_{16j} (\text{Job tenure}) + \gamma_{ij} \end{aligned}$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Unemployment rate}) + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10}, \beta_{2j} = \gamma_{20}, \beta_{3j} = \gamma_{30}, \beta_{4j} = \gamma_{40}, \beta_{5j} = \gamma_{40}, \beta_{5j} = \gamma_{50}, \beta_{6j} = \gamma_{60}, \beta_{7j} = \gamma_{70}, \beta_{8j} = \gamma_{80}, \beta_{9j} = \gamma_{90}, \beta_{10j} = \gamma_{10}, \beta_{11j} = \gamma_{11}, \beta_{12j} = \gamma_{12}, \beta_{13j} = \gamma_{13}, \beta_{14j} = \gamma_{14}, \beta_{15j} = \gamma_{15}, \beta_{16j} = \gamma_{16}$$

6.3 PROPOSED THEORETICAL FRAMEWORK FOR THIS STUDY

Guided by theoretical perspectives that the author reviewed, the conceptual framework is developed based on the above theoretical perspectives. The model conceptualizes job satisfaction and intention to quit of home health care workers as a complex series of personal-, organizational- and county-level influences. The literature suggests a need for increased knowledge about the relationship between the various

factors and job satisfaction or intent to quit among home health care workers. Based on the conceptual framework presented in the above section, this section proposes theoretical frameworks that are testable in this study.

In general, structure, process, and outcomes are the dimensions of quality assessment related to medical care as suggested by Donabedian (Donabedian, 1966). In the case of home health care settings, direct care workers play important roles in providing care to patients. In the home health care industry, direct care workers are a first line of contact in providing care to patients. Even though this author advocates using all dimensions of Donabedian's framework, structure and process measures can provide insights related to delivering quality of care. In addition, some researchers advocate paying attention to caregiver and direct care workers in seeking positive outcomes for patients (Eaton, 2000; Rosati, et al., 2009; Scala, 2008). As has been discussed previously, home health aides became important in caregiving roles because they replaced traditional caregivers' roles in providing care to patients in their homes. Therefore, their tasks are important to increase both quality of care for organizations and quality of life for clients. In this sense, the literature rationalizes that it is necessary to investigate the well-being and work-related outcomes for home health aides as a direct care workforce. Therefore, this study will focus on quality of work and work environments for direct care workers. Specifically, appropriate process of care and structures are critical to outcomes for home health aides because improved outcomes for clients are not possible without improved outcomes for direct care workers.

In addition, the author focuses strongly on the relationship between employees and organizations in home health care settings. Based on the agency theory, it is possible

to explain that individual home health aides perform their tasks to maximize their benefits in agencies (Eisenhardt, 1989). Therefore, organizations need to provide sufficient incentives and rewards for their workers. This study focuses on the hypothesis that when workers feel they received appropriate incentives from the organizations, they may have more respect for their organizations and may be more likely to stay in their current jobs.

Based on a combined model of Maslow hierarchy of needs model and motivation-hygiene theory, it is possible to explain that employees are motivated by meeting their needs and demands (Benson & Dundis, 2003; Maslow, 2000). Therefore, attitudes towards jobs, including being respected from organizations and staff, being trusted from organizations, and being confident in their ability can affect employees' motivation, increasing commitment to their job and organization, as well as increasing job satisfaction.

Furthermore, social exchange theory and person-environment fit can be combined to provide a framework of the process in which organizational support and task rewards affect job satisfaction that can lead to intention to quit of home health care workers. According to social exchange theory, if rewards exceed costs that people have expended (e.g., time, money, and effort), people tend to maintain positive relationships and to stay in their current environments or organizations (Thibaut & Kelly, 1959). More specifically, if individual workers' behaviors are rewarded in the agency, they will continue in the work that they have performed. Moreover, person-environment fit perspectives also explain that when personal characteristics and the work environment fit together, "positive outcomes for individuals such as satisfaction, adjustment, commitment, and lower turnover intentions" can be produced (Ostroff & Schulte, 2007, p. 3).

With social exchange theory, person-environment fit perspective has theoretical foundations to explain how organizational culture, values, and climate influence the perceptions, attitudes, and behaviors of individual home health aides in the organizations. Furthermore, it is also possible to explain that work-related characteristics, agency structure, staffing, and reward systems as part of the environmental context of an organization can be important factors in improving positive outcomes of individual workers. Previous literature suggests that social exchange and person-environment fit effects vary depending upon circumstances and situations of organizations and the nature of the job of home health aides (Coyle-Shapiro & Kessler, 2001; Crede, et al., 2007; Edwards, 2008; Edwards & Shipp, 2012). Using this perspective, we can investigate how a person fits with a job and how a person fits with an organization at the individual level. In addition, we can also investigate how organization and county influence the relationship between individual characteristics, organizational characteristics, task rewards, job satisfaction and intent to quit of home health aides at the nested environmental context. Therefore, the proposed combined theoretical framework of social exchange theory and person-environment fit need to be investigated not only in terms of whether the effects are realized, but also what environmental factors are necessary for the effects to be realized.

According to the person-environment perspective, it is possible to explain that the work-related environment inside an organizations and the external economic environment in the community can be important factors that individuals in sample clusters may share to a certain degree (Cable & Judge, 1996; Edwards, 2007; Edwards & Shipp, 2012). This study is intended to test the effects of organizational structural characteristics and county-

level economic environments on job satisfaction or intent to quit of home health aides, and how the effects vary in the larger community contexts of home health agencies.

The suggested framework explains the dimensions used to identify the effects of organizational and community environmental factors on job satisfaction and intent to quit. In organizational psychology, supervisor quality and the value that organizations place on the work of home health aides may be indispensable factors to motivate and elevate home health aides' job satisfaction and to reduce their intention to quit (Kane-Urrabazo, 2006; Thibaut & Kelly, 1959; Yang, et al., 2008). These factors are critical to host workers' outcomes in health care facilities. In addition, county-level economic environmental factors affect management practices and policies for human resources of organizations that can affect job satisfaction and employees' intent to stay or quit their jobs. All the factors are important influences on workers' job satisfaction and intent to quit.

6.3.1 Model Components and the Variables Needed for Analysis

In the proposed conceptual framework, there are some components to be studied. The proposed conceptual framework for this study was presented and discussed above. Components of this model are discussed with a short description from the literature. The variables for each component are also listed here.

Individual level

In the analysis, the author uses a home health care workers' job satisfaction as one of the outcomes for this study. Job satisfaction is defined as positive emotions toward a particular job or work role (Currivan, 1999). Specific aspects of job satisfaction include

doing challenging work, benefits, salary or wages, and learning new skills. However, this study uses an overall job satisfaction variable. As another ultimate outcome of this study, intent to quit refers to an intention of workers' behavioral decisions to leave their jobs and workplaces in the near future and exerts a strong negative influence on actual turnover (Currivan, 1999).

In the processes of care, task reward/motivation refers to the rewards for the tasks that workers perform intrinsically and extrinsically. In this study, it is measured with the variable of commitment to organizations. Commitment to organization refers to the degree to which care workers feel loyalty to their organizations (Price & Mueller, 1981). Along with job satisfaction, this factor is an important indicator of workers' next steps with regard to intention to leave their jobs and the organizations, as well as to actual turnover.

Individual home health aides bring unique, inherent characteristics to their work or tasks. This reflects a theoretically and empirically distinct dimension of home health aides' outcomes. Individual workers' demographic features, such as age, gender, race, education, job tenure, health status, and marital status can be used to explain individual home health aides' job satisfaction and intent to quit. Personal characteristics refer to the description of the population in this study. For this study, personal characteristics include age, race, education, household income, and job tenure.

Work-related factors include such factors such as training, wage and salary (rewards), benefits, patient assignment, and availability of health insurance. Job perception refers to how home health aides perceive to their job. It is measured with the

following variables: respected by my agency, involved in challenging work, trusted to make patient care, and confident in ability.

Organization-Level Factors

As described the above, organizational-level factors are composed of the factors in the employees' workplace environment. In the organizational-level factors, organizational structures refer to the objective characteristics and attributes of agencies. Organizational structures are measured with the following variables: geographical location, types of agency and ownership – thereby paralleling previous research. In organizational structures, staffing refers to the staffing adequacy. It can be defined as staffing levels necessary for providing the required services and care (Aiken, et al., 2002).

Individual-level factors have limited ability to explain job satisfaction at all levels. However, other work-related factors at the organizational level are also important predictors of job satisfaction and intent to quit among home health aides. Specifically, an agency's characteristics and staffing at the agency level also contribute to the variation in job satisfaction of home health aides. In this study, organizational-level variables involve ownership, staffing level (number of direct care workers/service providers per 100 patients), and percentage of Medicare or Medicaid as patient revenue sources. As another important factor in the provision of services, agency size is also included to explain organizational context.

In addition, organizational support refers to the support, both financial and directly work-related, that organizations provide for their workers. More specifically, it

can be defined as management support and supervisory support that shape the work environment for employees as aspects of work and work environment (Eisenberger, et al., 2002). This can be an indicator of an organization's attitudes toward its employees. Leadership style and organizational values toward home health aides' jobs are important indicators of a supportive culture within an agency. In this study, therefore, perceptions of supervisory behaviors and values or appreciation from organizations are included to measure the supportiveness of an organization's culture.

Community-level factors

External economic environments reflect economic factors that can affect individual and organizational outcomes. These community-level factors are associated with economic environments in the community and reflect the ability of the community to respond to situation-related health services and organizations (Edwards & Shipp, 2012). These factors are inherent characteristics of communities in which home health care workers perform their tasks on a daily basis. Moreover, these factors relate both to individual workers and to other factors surrounding the home health agencies.

External economic environment at the community level reflects important structural economic environmental factors and the ability of the community that can force to organize services and practices of organizations and industry, as well as to determine structural changes in managerial practices of organizations. These factors are essential factors because the services of health care agencies are organized and the relevant policy interventions are coordinated at the county and state levels. The community-level data in this study is drawn from counties in the United States because counties are "the primary

legal divisions of most states whose functions vary from state to state” (Muntaner, et al., 2006). Both organization- and community-level variables can be considered environmental factors affecting behavioral and psychological outcomes of health care workers. At the community level, the present study employs unemployment rate, percent of persons below poverty level, and median household income.

6.4 DATA SOURCE

To accomplish the above aims, this research uses data from two subsets of a nationally representative home health care survey (National Home and Hospice Care Survey 2007) including both agency-level (n = 1,036) and home health aides-level data (n = 3,377) (National Center for Health Statistics, 2011). As another data source, the present study uses the Area Health Resource File. For analysis at the agency level, this study links two 2007 data files, the 2007 National Home and Hospice Care Survey (NHHCS) and the National Home Health Aides Survey (NHHAS). For analysis at the community level, the author merges the datasets with the Area Health Resource File.

6.4.1 2007 National Home and Hospice Care Survey

The National Home and Hospice Care Survey is a nationally representative sample survey of home health and hospice care agencies in the United States (National Center for Health Statistics, 2011). The survey provides descriptive information about home health and hospice care agencies, their staffing characteristics, their services, and their patients. The data were collected through interviews with agency directors and their staffs. This survey was first conducted in 1992. Since then, the study has been repeated six times (1993, 1994, 1996, 1998, 2000, and 2007). The 2007 National Home and

Hospice Care Survey was conducted between August 2007 and February 2008. The 2007 study added the survey of home health aides after a break of seven years.

6.4.2 2007 National Home Health Aides Survey

As a supplement to 2007 NHHCS, the NHHAS was first conducted to provide information about the characteristics of home health aides who work for an agency that provides home health and/or hospice care (National Center for Health Statistics, 2011). At the individual level, this dataset provides information about the experiences and phenomena that are associated with direct care workers' outcomes such as job satisfaction, intent to leave, and job turnover. From this data, the author was able to obtain information on individual home health aides' perception of job, work-related environment, job satisfaction, perception of being valued by their organizations and patients, intent to leave, payment, and benefits provided.

6.4.3 Area Health Resource File

In addition, the author obtained data for external economic environmental factors of home health agencies from the 2007 Area Health Resources File (AHRF) to control for differences across counties (Health Resources and Services Administration, 2007). AHRF data include information about health facilities, health professions, measures of resource scarcity, health status, economic activity, health training programs, and socioeconomic and environmental characteristics at both the county and national levels (Health Resources and Services Administration, 2007). This information comes from various sources such as the American Hospital Association annual hospital survey, the U.S. Census of Population and Housing, the Centers for Disease Control, and the

National Center for Health Statistics. AHRF data are aggregated into various groupings at the county level. Detailed information about the data can be found on the AHRF website (<http://arf.hrsa.gov/overview.htm>). Using this data, the author examined the effects of poverty level, unemployment, and median household income in various counties on the outcomes of home health aides.

6.5 POPULATION AND SAMPLING PROCEDURES

The sampling design of the National Home and Hospice Care Survey (NHHCS) and the National Home Health Aides Survey (NHHAS) was based on a stratified, two-stage probability sample (National Center for Health Statistics, 2011). At the first stage, home health agencies were selected from the frame of about 15,000 agencies. The agencies were selected from primary sampling strata such as agency type and metropolitan statistical areas. Within the strata, agencies were sorted using census region, ownership, certification status, state, county, ZIP code, and size (number of employees). The agencies included in the sampling frame were home health agencies, hospice agencies, and mixed agencies. All agencies certified by Medicare and/or Medicaid or were licensed by a state to provide home health were included. “Agencies that provided only homemaker services or housekeeping services, assistance with instrumental activities of daily living, or durable medical equipment and supplies, were excluded from the survey” (National Center for Health Statistics, 2011). Only the home health agencies (n = 341), hospice agency (n = 359), and mixed-type agencies that provided both home health care and hospice care (n = 336) were selected for this study (Table 6.1). The sample size of the agencies is 1,036. In other words, 1,036 home health agencies were in the 2007 dataset which is used in this research.

For the National Home Health Aides Survey (NHHAS), a random sample method was used to select up to six aides from each agency eligible for the NHHCS. If the aides worked for the agency and provided assistance with ADLs, including eating, toileting, bathing, dressing, and transferring, they are eligible for this study. Of the 1,036 agencies participated in the survey, 52 agencies were excluded because they had no aides. Also, 29 agencies excluded from the survey because they refused to participate in the survey and interviewer could not able to complete the aide sampling. Consequently, 955 agencies were included in this study as eligible agencies. In this dataset, home health aides, home care aides or personal care attendants, hospice care aides, certified nursing assistants, and others were included. Among the eligible sample of over four thousand, 3,377 were selected because they completed telephone interviews. 1,866 home health aides were working in home and hospice care agencies. 133 were working as home care aide or personal care attendant at the agencies. 372 were working as hospice aide or certified hospice and palliative nursing assistants. 938 were working as certified nursing assistants (CNAs). As for other staff, including both licensed nursing assistants and home health aides, 68 were working at the agencies.

Table 6.1 Type of agency

	Frequency	Percent
Home health agency only	341	32.92
Hospice agency only	359	34.65
Both home health and hospice agency	336	32.43
Total	1,036	100.00

Table 6.2 Types of aides providing home health care

	Frequency	Percent
Home health aide	1,866	55.26
Home care aide or personal care attendant	133	3.94
Hospice aide or certified hospice and palliative nursing assistant	372	11.02
Certified nursing assistant (CNA)	938	27.78
Other (e.g. licensed nursing assistant or both home health aide)	68	2.01
Total	3,377	100.00

As a final note, a county is a division of local government in the United States. In most of states, counties are the primary legal divisions to function enforcing the law, recording documents, and maintaining public works. Currently, there are 3,086 counties in the United States. The data from the 2007 AHRF came from 330 counties. Therefore, this study includes 3,377 individual home health aides nested in 330 counties. The descriptive information of the final samples is fully described in the results section.

6.5.1 Characteristics of Sample

For this study, the author included home health aides who work for home health agencies, hospice, and mixed agencies. The target sample of this study was home health aides working in agencies providing home health care and/or hospice care. Therefore, the target sample of 3,377 home health aides and home care aides or personal care attendant was included in this study. This study used a complex survey sampling design to allow the sample of 3,377 home health aides from the representative population of 160,720 direct care workers who worked at home health or hospice care agencies in the U.S. home health care industry.

Table 6.3 shows the demographic characteristics of the target sample of home health aides. The weighted sample was similar to the unweighted sample except race, ownership, and agency location. The average age was 45.64 years in the weighted sample. The majority of home health aides were female (95.03%), white (53.3%), and had a high school education or less (59%). The majority had a total household income less than \$40,000 (67.3%). The majority had worked between 2 and 20 years as home health aides at the agencies (76.28%).

Table 6.3 Demographic characteristics of individual home health aides

	Unweight Sample (n = 3,377)		Weighted Sample (n = 160,720)	
	Mean	SD	Mean	SD
Age	45.56	11.67	45.64	12.08
	Frequency	Percentage	Frequency	Percentage
Gender				
Female	3,274	96.95	152,725	95.03
Male	103	3.05	7,995	4.97
Race				
White	2,391	70.8	85,657	53.30
Black	725	21.47	56,141	34.93
Other	261	7.73	18,922	11.77
Education				
Less than high school	424	12.66	23,732	14.77
High school graduate	1,696	50.63	71,193	44.30
More than high school	1,230	36.72	63,566	39.55
Missing	27	.79	2,229	1.39
Household income				
Less than \$20,000	614	18.89	34,543	21.49
20,000 – under 30,000	906	27.88	40,794	25.38
30,000 – under 40,000	642	19.75	32,886	20.46
40,000 or more	1,088	33.48	44,071	27.42
Missing	127	3.76	8,426	5.24
Job tenure				
Less than 2years	279	8.26	13,967	8.69
2 – 5 years	660	19.54	33,578	20.89
6 – 10 years	652	19.31	32,812	20.42
11 – 20 years	1,241	36.75	56,211	34.97
More than 20 years	545	16.14	24,152	15.03
Marital status				
Married	1,874	55.49	71,564	44.50
Living with	221	6.54	9,203	5.73
Separate	118	3.49	7,404	4.61

Divorced	569	16.85	32,416	20.20
Widowed	175	5.18	11,544	7.18
Never married	391	11.58	26,342	16.40
Missing	29	.86	2,247	1.40
Ownership				
For profit	1,049	31.06	101,702	63.28
Others	2,328	68.94	59,018	36.72
Agency location				
Metropolitan	1,308	38.73	135,044	84.02
Micropolitan	1,201	35.56	16,710	1.04
Rural	868	25.7	8,966	0.06

6.5.2 Power Estimation

As this study employed a population-weighted sample, the power may be less concerns to researchers. Because this study used multilevel modeling, however, the power depends on the number of clusters, the effect size, and the significance level. As a study using multilevel modeling, this study has sample for each level. For example, as a two-level study of home health aides nested in home health and hospice care agencies or home health aides nested in communities, there are 3,377 home health aides in 955 agencies. In addition, these aides are nested in 330 counties.

Among the programs for power analysis in multilevel modeling (e.g., ACluster, Optimal Design, PinT, and RMASS2), this study used Optimal Design Software for a sample size of 3,377 home health aides in 1,036 home health and hospice care agencies. As a result, it indicates that this study has nearly 100% power at a 0.05 significance level.

6.6 HUMAN SUBJECTS PROTECTION

This study was approved by the Institutional Review Board (IRB) at the University of South Carolina. As described above, the author used the method to link data from 2007 NHHCS and the NHHAS for organizational level analysis. In addition, the

author also linked data from the 2007 NHHAS and the 2007 AHRF for the analysis at the neighborhood level. The author should link the two data files at the NHCS research data center. The author used encrypted identifiers for individual home health aides and agencies to conduct the multilevel analysis. However, the author did not use the individual identifiers for real home health aides. Therefore, no individual information was needed for this study. This study do not identify individual home health aides or home health agencies for the report. Moreover, NCHS staff merged with randomized version of county variable then they removed the county variable. Therefore, this study cannot identify individual counties for the analysis. Therefore, this study does not involve human subjects, and it meets the requirements for exemption under the protection of human subject regulations (45 CFR 46.102). For this reason, this study was exempted from the IRB review.

6.7 MEASURES AND SPECIFICATIONS OF VARIABLES

Table 6.3 provides a summary of the variables used in this study. For each variable, conceptual and operational definitions of terms used in this study are provided in the table.

Table 6.4 Variables of Interest

Variables	Item Definition and Label	Source
Dependent Variables		
Job satisfaction	Overall satisfaction with their job (Satisfied = 1, Dissatisfied = 0)	NHHAS
Intent to leave	Intent to leave this job at agency in the next year (Likely to leave = 1, Not at all likely = 0)	NHHAS
Independent Variables		
Individual Level – Personal Backgrounds		
Age	Age	NHHAS
Age 1	(Less than 24 years old)	
Age 2	(25 – 34 years old)	
Age 3	(35 – 44 years old)	

Age 4	(45 – 54 years old)	
Race	Race	NHHAS
Race 1	White	
Race 2	Black	
Education	Highest grade or year completed in school (More than 1 year college/trade school = 1, Others = 0)	NHHAS
Household income	Total household income in past year	NHHAS
Household income 1	(Less than \$20,000 = 1, Others = 0)	
Household income 2	(20,000 – under 30,000, Others = 0)	
Job tenure	Number of years in work	NHHAS
Job tenure 1	(Less than 2 years = 1, Others = 0)	
Job tenure 2	(2 – 5 years = 1, Others = 0)	
Job tenure 3	(6 – 10 years = 1, Others = 0)	
Work-related environment		
Training	Classroom or formal training received to become a home health aide (Yes = 1, No = 0)	NHHAS
Hourly rate	Hourly rate of pay	NHHAS
Health insurance available	Availability of health insurance coverage at agency (Yes = 1, No = 0)	NHHAS
Benefit	Number of benefits provided by the agency	NHHAS
Same patients assignment	Patient assignment during work (Same patients = 1, Others = 0)	NHHAS
Job perception		
Respect	Respected by my agency (Agree = 1, Disagree = 0)	NHHAS
Challenge	Involved in challenging work (Agree = 1, Disagree = 0)	NHHAS
Trust	Trusted to make patient care decisions (Agree = 1, Disagree = 0)	NHHAS
Confidence	Confident in ability (Agree = 1, Disagree = 0)	NHHAS
Task reward/motivation		
Commitment to job	Recommend this job to others (friends or family members) (Yes = 1, No = 0)	NHHAS
Facility Level – Organizational Factors		
Supervisor Quality (Centered on group mean)	Home health aides' perception of supervisor supportiveness (Centered on group mean with mean score of the 4 items)	NHHAS
Valued or appreciated by organizations	Valued or appreciated by the organization as a home health aide (Centered on group mean)	NHHAS
Geographical location	Metropolitan Statistical Area Status	NHHCS
Location 1	(Metropolitan = 1, Others = 0)	
Location 2	(Micropolitan = 1, Others = 0)	
Ownership	Type of ownership of agency (1=For-profit, 2=Others)	NHHCS
Agency types	Types of agency	NHHCS
Agency 1	(Home health care only = 1, Others = 0)	
Agency 2	(Hospice care only = 1, Others = 0)	
Agency 3	(Mixed agency = 1, Others = 0)	
Medicare revenue source	Percentage of Medicare as the agency's patient care revenue	NHHCS
Medicare 1	(Above 75 percent = 1, Others = 0)	
Medicare 2	(50 – 74 percent = 1, Others = 0)	
Medicare 3	(25 – 49 percent = 1, Others = 0)	
Medicaid revenue source	Percentage of Medicaid as the agency's patient care revenue	NHHCS
Medicaid 1	(Above 50 percent = 1, Others = 0)	
Medicaid 2	(25 – 50 percent = 1, Others = 0)	
Medicaid 3	(10 – 24 percent = 1, Others = 0)	
Size	Number of home health and hospice care patients	NHHCS
Large size	(Above 500 = 1, Others = 0)	

Medium size	(100 – 499 = 1, Others = 0)	
Small size	(Below 100 = 1, Others = 0)	
Staff level per 100 patients	$((\text{HHA}+\text{RN}+\text{LPN}+\text{AIDE}) * 100) / \text{size}$	NHHCS
Staffing ratios	Number of FTE RN/LPN employees on staff per 100 patients	NHHCS
HHA	Home health aides $(\text{HHA} / (\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) * 100$	
RN	Registered nurses $(\text{RN} / (\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) * 100$	
LPN	Licensed practical nurses $(\text{LPN} / (\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) * 100$	
AIDE	Non-certified aides $(\text{AIDES} / (\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) * 100$	
Community Level – Community Environment Context		
Unemployment rate	Unemployment rate	ARF
Poverty level	Percentage of persons below the poverty level	ARF
Median household income		ARF

6.7.1 Dependent Variables:

The dependent variables are 1) job satisfaction and 2) intent to quit as desired outcomes of home health aides. *Job satisfaction:* In the survey, home health aides provided their level of satisfaction in several different aspects of their jobs: morale, salary, benefits, challenging works, and learning new skills. Then overall job satisfaction was measured in a single item. The author used a single item measure to provide more reliability and validity. A sample item is “How they are satisfied with their current job as home health aides” The responses to the item are scored as 1=extremely satisfied, 2=somewhat satisfied, 3=somewhat dissatisfied, and 4=extremely dissatisfied. Categories in the regression need to be converted into dummy variables. Therefore, job satisfaction variable as categorical variable cannot be used as dependent variable without converting it into the variable like “satisfied” and “not satisfied.” The author truncated this variable into a dichotomous variable for statistical analysis (satisfied = 1, dissatisfied = 0).

Intent to quit: Intent to quit refers to a worker’s plan to leaving his/her job in the near future. In this study, this item was measured with the following question: “How likely is it

you will leave this job at (agency) in next year?” The responses to this item are scored as 1 = very likely, 2 = somewhat likely, and 3 = not at all likely. The author also truncated this variable into a dichotomous variable for the analysis (intent to leave = 1, not intended = 0).

6.7.2 Independent Variables:

Individual-Level

Work-related factors and job perception variables are included: training, hourly rate of payment, health insurance, and benefits. These variables are the factors that explain the environment in which individual workers perform their tasks. *Training* was measured with the variable, “Did you receive any classroom or formal training to become a home health aides?” This variable is answered as 1 = yes and 0 = no. *Health insurance* was measured with the variable of availability of health insurance in the organization (1 = Yes, 0 = No). *Benefit* indicates the number of benefits from a given list that home health aides reported as available at each sampled agency. The following benefits were included from a list of benefits provided by the sample agencies: paid sick leave, paid holidays off, paid vacation and personal days off, pensions, extra pay for working on holidays, paid child care, dental care or vision care, paid disability, and paid bonus. Scores ranged from 0 to 9. *Patient assignment* was measured with the question, “Are you assigned to care for the same patients on most weeks you work, or do the patients you are assigned to change each week you work?” (same patients = 1, others = 0). *Job perception* was measured with the following variables: *respected by my agency*, *involved in challenging work*, *trusted to make patient care*, and *confident in ability*. The score of each question is ranged from strongly disagree (1) to strongly agree (4). In the present study, the scale indicating job

perception had good internal consistency (Cronbach's $\alpha = .82$). All the variables were also truncated into dichotomous variables (agree = 1, others = 0).

In the domain of organizational process, *task reward/motivation* is also an important factor that explains intrinsic rewards that employees receive from their tasks and organizations. That is to say, task reward and motivation are influenced by environment factors. Home health aides can feel rewarded and motivated when they experience respect from their organizations and fellow staff members. Environmental factors help home health aides decide their level of commitment to their organizations. *Commitment to organization* is defined with the question, "If a friend or family member needed care and asked your advice about receiving home health care from agency, would you (4 = definitely recommend, 3 = probably recommend, 2 = probably not recommend, and 1 = definitely not recommend)?" This variable was also truncated into a dichotomous variable (recommend = 1, not recommend = 0).

Individual differences are employed for this study. Individual differences may be defined as individual background information for home health aides. These differences can be measured through sociodemographic profiles such as age, gender, race, marital status, education, household income, current health status, and job tenure. For this study, the author used age (less than 24 = 1, 25 – 34 years old = 2, 35 – 44 years old = 3, 45 – 54 years = 4, and more than 55 = 5), race (white = 1 and black = 1), education (fewer than 12 years/12 years = 0, more than 1 year college/trade school = 1), household income (less than \$20,000 = 1 \$20,000 – \$30,000 = 1), and job tenure (less than 2 years =1, 2 – 5 years = 1, 6 – 10 years = 1).

Organizational-Level

The author employed organizational structures as the variables that characterize the agencies. *Organizational structures*, within this model, mean the factors that explain the characteristics and types of organizations. Under this broad concept, organizational structures can be explained as the factors affecting work environment and the outcomes of workers in the environment. They are measured according to the following variables: ownership types, agency types, geographical location, percent of patient revenue sources, and staffing ratio.

Ownership type is defined as the type of ownership of the agency (e.g. for-profit, private nonprofit, city/county/state government, Department of Veteran Affairs, and other federal agencies) (for-profit = 1, others = 0). Agency types are defined as the types of agency (e.g., home health agency only, hospice agency only, or both home health and hospice agency). *Revenue sources for patients* are defined with the question, “About what percentage of this agency’s patient revenue comes from each of the following?” (Medicare, Medicaid, Private insurance, patient payments, and other sources). Among the revenue sources, the study focused on the revenue sources of Medicare and Medicaid for the analysis. The Medicare revenue source variable was categorized into three variables (More than 75 percent, 50 – 75 percent, 25 – 50 percent). Medicaid revenue source variable was categorized into three variables (more than 50 percent, 25 – 50 percent, 10 – 25 percent). *Agency size* was measured with the variables of the number of patients receiving home health services and/or the number of hospice patients. This variable was categorized into three variables (< 100 = small size, 100 – 500 = medium size, more than 500 = large size).

With regard to the characteristics of staffing, the author includes the number of direct care workers such as home health aides and personal care aides and the number of service care staff, such as Registered Nurses and Licensed Practical Nurses. This study also includes the staffing level variable indicating the level of direct care workers per patients. The variable for staffing level of direct care workers is calculated with the following equation: $((\text{HHA} + \text{RN} + \text{LPN} + \text{personal aides}) \times 100) / \text{size}$. The staffing ratios for each workforce will be calculated with the following equation: for home health aides, $(\text{HHA}/(\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) \times 100$; for Registered Nurses, $(\text{RN}/(\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) \times 100$; for Licensed Practical Nurses, $(\text{LPN}/(\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) \times 100$; and for non-certified personal aides, $(\text{AIDES}/(\text{HHA}+\text{RN}+\text{LPN}+\text{AIDES})) \times 100$. *Geographical locations* are recoded to two categories, metropolitan and micropolitan.

The model posits that organizational support is important because organizations function as domains housing the organizational processes that support home health aides in delivering home health care and services. *Organizational support* has been used as a term combined with managerial support in the field of management to describe aspects of the internal work environment of health care organization, and home health agencies. To explore the supportiveness of an organizational culture, this study used variables that determined workers' perceptions of supervisory behaviors and whether or not the workers felt valued and appreciated by their organizations. These variables were used to determine whether they moderate the relationship between work-related factors, job perception, job satisfaction, and intent to quit of home health aides. For example, supervisor quality was measured with the variables of *clear instructions*, *supportive*,

listen to me, and tell me for doing a good job. The score of the questions is ranged from strongly disagree (1) to strongly agree (4). In the present study, the supervisor quality scale had good internal consistency (Cronbach's $\alpha = .81$). The variable is centered on the group mean.

Value or appreciates from organizations indicates the degree of supportiveness from organizations to their workers. It was measured using the variable: "How much do you think the organization at (agency) values or appreciates the work you do as a home health aide? The score is ranged from not at all (1) to very much (3). The variable is centered on a group mean.

Community-Level

In the healthcare market, *external economic environmental factors at community level* may be associated with workers' job satisfaction and intent to quit. As described in the section on conceptual framework, economic inequality has a severe effect on low-wage workers such as home health aides and nurse assistants. In this study, the author used the following community-level control variables: unemployment rate, percent of persons below the poverty level, and median household income for county of residence. The data on external environmental factors was obtained from the 2007 ARF to control for differences across areas. All the variables are centered on grand mean.

6.8 DATA ANALYSIS

This section presents the several statistical techniques used to examine the effects of organizational-level factors and community contexts on job satisfaction or intent to quit among home health aides. The author conducted three types of analytical methods:

univariate analysis, bivariate analysis, and multivariate method using multilevel modeling. Because the study uses the multilevel modeling method, this section also describes the information on the linkage of two national datasets and analytical strategies to use complex survey datasets.

6.8.1 Descriptive Statistics Analysis

Firstly, the author conducted univariate analysis to describe the information about the population of home health aides and the characteristics of home health agencies in the study by various characteristics as outlined above. Means of continuous variables and percentages for categorical variables were calculated. Using the mean and standard errors in univariate analysis, the author performed a descriptive analysis to determine the level of job satisfaction and intent to quit by home health aides.

6.8.2 Bivariate Analysis

The author conducted bivariate regression analysis to examine the relationships between each independent variable and each dependent variable, such as job satisfaction and intent to quit of home health aides, respectively. This method is an appropriate approach to investigate how much the amount of variance in outcome variable is accounted for by the predictors.

Multiple tests of correlation were conducted to test the relationship between job satisfaction and the predictors and among intent to quit, commitment to organization, job satisfaction, and other predictors. Furthermore, it was important to diagnose multicollinearity to detect collinearity problems among independent variables (Tabachnick & Fidell, 2007). The correlation matrix was examined to detect

multicollinearity problems. This also provide information about the strength of bivariate relationships.

6.8.3 Construction of Data File

The data set structure for this study is multilevel. For example, home health aides are nested in home health agencies and in counties. For this study, the author primarily used the data from the 2007 NHHAS. This is the main data source for analyzing the outcomes of individual home health aides. The dataset is publicly available from the National Center for Health Statistics (NCHS) website. The data file includes individual-level variables assigned to home health aides. The individual-level variables as follows: personal factors (age, race, education), work-related factors (hourly rate of payment, benefits provided by agencies, training), job perception, and individual level outcomes (job satisfaction, intent to quit).

In addition, this study includes agency-level characteristics (ownership, agency types, agency size, patient revenue sources, location of agencies) from the 2007 NHHCS. However, this study cannot be used with pseudo-agency identifier to conduct multilevel analysis linking to the 2007 NHHAS data. In order to obtain some restricted variables for agency characteristics and conduct multilevel analysis, the NHHCS and the NHHAS data must be linked, and the agency identifier must be used as the linking variable. Without permission from the NCHS RDC Center, the two data files cannot be linked for analysis because of confidentiality concerns.

Additionally, the author needed to obtain the variables (i.e., unemployment rate, percentage of persons who fall below the poverty level, and median household income) to characterize the neighborhood-level environmental contexts. Individual-level variables

from the 2007 NHHCS need to be linked with the 2007 Area Health Resource File (AHRF) for multilevel analysis at the neighborhood level. In order to link the two data files, the author should obtain the variables of county FIPS codes from the RDC.

Therefore, the author needed to contact the NCHS Research Data Center (RDC) for assistance from their staff. After the author obtains the approval, the analysts at the NCHS RDC provides the linked dataset incorporating the publicly available variables from the NHAS and the restricted variables of NHHCS and the NHHAS for the analysis.

The NCHS provides instructions for merging data files in the dataset. For analysis at organizational level, the author was able to merge the data files from the 2007 NHHCS and the 2007 NHHAS datasets with the agency ID with assistance from the analyst at the NCHS RDC. For the community-level analysis, the author was able to merge the 2007 NHHAS file and the necessary variables from the 2007 AHRF with county FIPS code. Given that the NHHAS data are from a complex sample survey and the study is designed to employ Multilevel Modeling (i.e., mixed model), the NCHS recommends that researchers use an appropriate statistical software program, such as SAS-callable SUDDAN or STATA to account for clustering, stratification, and unequal probability sampling and to obtain correct standard errors (Chantala & Suchindran, 2006). The author performed multilevel analysis using STATA program (version 13) because it allowed the author to consider sampling weights and data clustering simultaneously. All analyses for this study were conducted during an on-site visit to the NCHS.

6.8.4 Multivariate Analysis – Hierarchical Linear Modeling

Individual workers from the same agency may have similar perceptions of their organizational culture and the support they receive from their organization. This study

focuses on the hypothesis that direct care workers' job satisfaction and intent to quit are likely to be affected by their shared experiences with support at the organization-level. The author assessed differences in job satisfaction or intent to quit across home health agencies and across the counties. Therefore, this study employed hierarchical linear modeling technique for handling hierarchically nested data structures.

Hierarchical linear modeling is an appropriate method to explore this issue. The author used this analytic technique to study home health aides working at home health agencies, hospice care agencies, and mixed-type agencies nested in the communities. This study constructs two-level multilevel models to investigate the relationship of work-related factors, job perceptions, and job satisfaction or intent to quit, as well as to examine the roles of organizational supportive cultures (supervisor quality and an organization's value and appreciation for its workers) and the county-level economic environment in the relationship.

The data for this study was collected through a stratified sampling method. This sampling method produces a nested dataset in which individual home health aides are nested within the study sites (i.e., organizations or counties). In this study, two-level hierarchical linear models were estimated to examine the roles of agency-level variables and the effects of community-level factors on the study outcomes (Raudenbush & Bryk, 2002). At level 1, the units were individual home health aides. At level 2, the units were home health agencies that represent either individual workplaces or counties. The main strategy of this study is to identify the relationship between the individual-level job satisfaction/intent to quit and characteristics from two different levels: the individual level and either the organization level or the community level.

In this study, the author conducted two-level logistic regression analysis for dichotomous responses of the outcomes using GLLAMMs (Generalized Linear Latent And Mixed Models) in STATA 13.0/SE (Rabe-Hesketh, et al., 2004). As a preliminary analysis, one-way ANOVA with random effect models was used to determine the degree of variation within and between groups with regard to job satisfaction and intent to quit of home health aides across home health agencies and communities (counties). When the results of this analysis indicated a variance in job satisfaction and intent to quit both within and between agencies and within and between communities, the author went on to conduct multivariate analysis using HLM.

The author built the models to estimate the variation in job satisfaction and intent to leave by home health aides that could be explained by individual- and agency-level factors. In conducting HLM analysis, the author used the random-intercept model, a regression model where the intercept is a random variable (Snijders & Bosker, 2012). As described above, in this model the scores on the dependent variables, job satisfaction or intent to quit for each individual observation are predicted by the intercept that varies across agencies. Then random-coefficient model (RCM) was used to test the effects of individual-level variables and organizational-level factors on job satisfaction or intent to quit of home health aides (Raudenbush & Bryk, 2002). In the random coefficient model, the slope and the intercept were allowed to vary across clusters (Raudenbush & Bryk, 2002).

For community-level factors, the author employed a regression method with means-as-outcome models to test whether community-level factors predict individual

outcomes. Also, the author used intercept-as-outcomes models to examine the effects of individual- and community-level variables on individual outcomes.

This analysis was composed of fixed and random parts. The random effects showed the extent to which intercepts and slopes vary across agencies and how much of the variance in job satisfaction and intent to quit is accounted for by both individual and agency-level variables. The model included three types of fixed effects. The individual-level fixed effects tell about the relationship between individual-level variables and job satisfaction or intent to quit by home health aides. The agency-level fixed effects show whether the variables affect an individual worker's job satisfaction or intent to quit. The cross-level interaction effects show whether the relationship between the variables and job satisfaction or intent to quit vary in accordance with supervisor quality and organizational values in agencies.

More specifically, this model is employed to examine whether organizational-level factors of cross-agency variation in the individual-level relationship can be explained. The author uses a p-value of $\leq .05$ to determine a statistical significance for particular variables. In all regression equations, the author included random intercepts to explain variation in job satisfaction or intent to quit across agencies and communities.

In the multilevel analysis, the author needs to explain clustering, stratification, and unequal probability sampling and to obtain correct standard errors because the individual units and the cluster units can be sampled with unequal probabilities (Pfeffermann, Skinner, Holmes, Goldstein, & Rasbash, 1998). When estimating the models based on complex survey data, the author implemented maximum likelihood estimation to obtain correct standard errors using a sandwich estimator that could account

for clustering and stratification in complex survey design (Heeringa, West, & Berglund, 2010). To fit multilevel models based on complex survey design, it is suggested that two level sampling weights should be scaled for running a multilevel model (Asparouhov, 2006; Carle, 2009). Therefore, sampling weights are assigned at one or both levels. Scaled sampling weights should be applied rather than using raw weights because of unequal probability sampling. Among the three common scaling methods, the author used the rescaled weights sum to the actual cluster size (Carle, 2009). These scaled sampling weights were applied to all analyses.

6.9 ANALYTIC PLAN

To accomplish each specific aim, the author used different HLM analyses for each outcome variable: job satisfaction and intent to quit. This section presents a description of the analytical strategies for examining the research questions and proposed hypotheses. The author ran a separate series of two-level models for job satisfaction or intent to quit in several steps.

Hierarchical Linear Modeling (HLM): Job satisfaction – Organizational level analysis

This model is designed to test the relationships between job satisfaction and the preceding factors at level 1 and level 2. To examine whether job satisfaction varies by home health agency, a one-way ANOVA model with random effect models was employed to determine the degree of variation within and between groups with regard to job satisfaction across home health agencies (H1a) (Raudenbush & Bryk, 2002; Snijders & Bosker, 2012). This method is the simplest model of HLM. This unconditional model includes only the outcome variable and no predictors. The model is as follows:

Level 1: Job satisfaction_{ij} = $\beta_{0j} + \gamma_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \mu_{0j}$

In this model, the level 1 model represents variation in home health aides' level of job satisfaction within each home health agency. The level 2 model accounts for variation in job satisfaction between home health agencies. The intra-class correlation (ICC) represents the proportion of variance in job satisfaction that is accounted for by differences across agencies (Snijders & Bosker, 2012). ICC can be calculated on the basis of two variance components. It will be estimated by the following equation. In the random intercept logit model, using the GLLAMM which obviously produce a variance for the random effect, the ICC will be calculated with the following equation. The range of ICC is from 0 to 1. If ICC is greater than 0, it will be determined that job satisfaction varies by home health agency.

$$ICC (\rho) = \frac{\sigma_{\mu}^2}{\sigma_{\mu}^2 + \pi^2/3}$$

σ_{μ}^2 = the between level variance component (variance of the random intercept)

$\pi^2/3$ = the variance of logistic distribution

Model 1: Work environment factors at level 1 and supervisor quality at level 2

In this model 1, first-level personal factors (e.g., age, race, education, household income, and job tenure) and work-related factors (e.g., training, hourly wage rate, health insurance, benefits) were added; and supervisor quality and agency-level characteristics [e.g., own, location, staffing, agency types, agency size (patient number receiving home health and hospice care) and Medicare and Medicaid percent of patient revenue sources] were entered into the model. This model is designed to test whether the association

between job satisfaction and work-related environment factors still exist when perceived supervisor quality and other agency-level effects are controlled using HLM. To examine the hypothesis (H2a), a random-intercept model was performed to test the effects of all predictors at both level 1 and level 2 on job satisfaction.

Under research question 3, the author conducted a random coefficient model to test the hypothesis of whether the roles of supervisor quality in the relationships between work environmental factors and job satisfaction, controlling for personal characteristics variables, vary by agency factors (H3a). In other words, this model is utilized to investigate whether supervisor quality and the organizational-level factor coefficients with respect to the individual level slope for individual-level predictors for job satisfaction vary by agency. In addition, a cross-level interaction was included to test whether supervisor quality moderate the relationship between individual-level predictors and job satisfaction as specified in hypothesis 4a. For the random intercept and slope model, the ICC will be calculated with the following equation.

$$ICC (\rho) = \frac{\sigma_{\mu}^2}{\sigma_{\mu}^2 + \sigma_e^2}$$

σ_{μ}^2 = the between level variance component

σ_e^2 = the within level variance component

Model 2: Work environment factors at level 1 and organizational values at level 2

In this model 2, the author added the first-level personal factors (e.g., age, race, education, household income, and job tenure) and work-related factors (e.g., training,

hourly wage rate, health insurance, benefits) and entered organizational values and agency-level characteristics [e.g., ownership, location, staffing, agency types, agency size (number of patients receiving home health and hospice care) and Medicare and Medicaid percentage of patient revenue sources] for the analysis. The author tested the hypothesis of whether the association between job satisfaction and work-related factors still existed when perceived organizational values regarding the work of home health aides and other agency-level effects are controlled using HLM (H2b). For this analysis, the author ran the random-intercept model to test the effects of all predictors of job satisfaction at both the individual level and the agency level.

In addition, the author performed a random-coefficient model to test the hypothesis of whether value from organizations and other organizational-level factor coefficients with respect to the individual-level slope for individual-level predictors of job satisfaction (H3b) vary by agency. In other words, this model is utilized to investigate whether organizational values and the organizational-level factor coefficients with respect to the individual level slope for individual level predictors in predicting job satisfaction vary by agency. In addition, a cross-level interaction was included to test whether supervisor quality moderate the relationship between individual level predictors and job satisfaction as specified in hypothesis 4b.

Model 3: Job perceptions at level 1 and supervisor quality at level 2

In this model 3, the first-level personal factors (e.g., age, race, education, household income, and job tenure) and job perception factors (e.g., respect, trust, confidence, being involved in challenging work) were added and supervisor quality and agency-level characteristics [e.g., ownership, location, staffing, agency types, agency size

(number of patients receiving home health and hospice care) and Medicare and Medicaid percentage of patient revenue sources] were entered for the analysis.

The addition of the employees' job perception variables to this model is used to examine the hypothesis of whether the association between job satisfaction and job perception still exists when perceived supervisor quality and other agency-level effects are controlled using HLM (H2c). A random intercept model was also performed to investigate the effects of all predictors of job satisfaction at both the individual level and the agency level.

RCM is also used to test the hypothesis of whether supervisor quality in the relationships between job perception and job satisfaction, controlling for personal characteristics variables, varies by agency factors (H3c). By adding the cross-level interaction, this model also reveals whether supervisor quality moderates the relationship between individual-level predictors and job satisfaction as specified in hypothesis 4c.

Model 4: Job perception at level 1 and organizational values at level 2

In this model 4, the author performed a random-intercept model to test the hypothesis of whether the association between job satisfaction and job perception still exists when perceived organizational values and other agency-level effects are controlled using HLM (H2d). In addition, the author also employed a random-coefficient model to test the hypothesis of whether perceived value from organizations and other organizational variables in the relationships between job perception and job satisfaction, controlling for personal characteristics variables, vary by agency factors (H3d). This model also reveal whether perceived value from organizations at organizational level

moderates the relationship between individual-level predictors, including job perception and job satisfaction, varies across agencies specified in hypothesis (H4d).

Hierarchical Linear Modeling (HLM): Intent to Quit – Organizational Level Analysis

Similar to the model for job satisfaction by home health aides, this model is designed to test whether the association between intent to quit and individual-level predictors exists when organizational-level factors are controlled in a similar way to the previous model for job satisfaction. To examine whether intent to quit varies by agency, the author also conducted a one-way ANOVA model with random effect and calculated ICC with the same equations used for the analysis of job satisfaction. This null model is conducted to test the proposed hypothesis (H1d).

As a full model for this study, the author added the variables of commitment to job and job satisfaction in the equations as important predictors of intent to quit by home health aides. In these analyses, the same methods were applied as in the previous models for the ultimate outcome, intent to quit by home health aides.

Community-Level Analysis

In this model, a one-way ANOVA model with random effect models is also employed to determine the degree of variation in job satisfaction across communities within and between groups (H1c). Therefore, the level-1 model represents variation in home health aides' level of job satisfaction within each community. The author also calculate the ICC representing the proportion of variance in job satisfaction between home health agencies with the above same equation as above.

For the community-level analysis, the author used the means-as-outcomes model to test whether the community characteristics (e.g., unemployment rate, poverty level, mean household income) predict the outcome (job satisfaction). This model was used to determine whether the means of outcomes were explained by community-level characteristics. Therefore, community-level factors were added to level-2 predictors. The models are expressed as follows:

$$\text{Level 1: Job satisfaction}_{ij} = \beta_{0j} + \gamma_{ij}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Unemployment rate}) + \mu_{0j}$$

The intercepts-as-outcomes models were used to test the effects of all individual-level and community-level variables on job satisfaction.

$$\begin{aligned} \text{Level 1: Job satisfaction (Y}_{ij}) = & \beta_{0j} + \beta_{1j} (\text{Training}) + \beta_{2j} (\text{Health insurance}) + \\ & \beta_{3j} (\text{Benefit}) + \beta_{4j} (\text{Hourwage}) + \beta_{5j} (\text{Patient assignment}) + \beta_{6j} \\ & (\text{Respect}) + \beta_{7j} (\text{Involvement}) + \beta_{8j} (\text{Trust}) + \beta_{9j} (\text{Confidence}) + \\ & \beta_{10j} (\text{Age}) + \beta_{11j} (\text{Race}) + \beta_{12j} (\text{Education}) + \beta_{13j} (\text{Household} \\ & \text{Income}) + \beta_{14j} (\text{Job tenure}) + \gamma_{ij} \end{aligned}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \gamma_{01} (\text{Unemployment rate}) + \mu_{0j}$$

$$\begin{aligned} \beta_{1j} = \gamma_{10}, \beta_{2j} = \gamma_{20}, \beta_{3j} = \gamma_{30}, \beta_{4j} = \gamma_{40}, \beta_{5j} = \gamma_{40}, \beta_{5j} = \gamma_{50}, \beta_{6j} = \gamma_{60}, \\ \beta_{7j} = \gamma_{70}, \beta_{8j} = \gamma_{80}, \beta_{9j} = \gamma_{90}, \beta_{10j} = \gamma_{10}, \beta_{11j} = \gamma_{11}, \beta_{12j} = \gamma_{12}, \beta_{13j} = \\ \gamma_{13}, \beta_{14j} = \gamma_{14} \end{aligned}$$

For the intent to quit variable, the one-way ANOVA with random effects model and ICC were also conducted to investigate hypothesis 1d, using the same equation as above for job satisfaction. The author also conducted means-as-outcomes models to

examine whether community characteristics predict the intent to quit by home health aides by adding the variables of job satisfaction and commitment to organization in level-1 variables. In addition, the author employed the intercepts-as-outcomes models to test the effects of all individual-level and community-level variables on intent to quit by home health aides.

In addition to HLM analysis, the author conducted tests for missing data, outliers, and statistical assumptions (normality and multicollinearity) to ensure the quality of analysis. It was particularly important to handle missing data because analysis with missing variables would produce biased coefficients (Schafer & Graham, 2002).

CHAPTER VII

RESULTS

This chapter presents the results from analytical techniques used to examine whether the relationship between predictors at individual level and individual home health aides' job satisfaction or intent to quit vary by the factors at organizational and community levels.

Firstly, descriptive statistics in individual, organizational, and community levels are presented. Second, the author conducted bivariate regression analysis to investigate the relationship between each predicting variables and the dependent variables such as job satisfaction and intent to quit by home health aides. Finally, the author conducted multivariate analysis using multilevel modeling techniques. In this modeling, one-way ANOVA with random effects model are firstly used to examine the degree of within and between agency variation in job satisfaction or intent to quit across agencies and communities (counties). Random intercept model and random coefficient model are employed to estimate the effects of individual home health aides related variables, and agency level factors on job satisfaction or intent to quit. Means-as-outcomes and intercepts-as-outcomes models are conducted for community level analysis.

7.1 DESCRIPTIVE ANALYSIS RESULTS

7.1.1 Characteristics of Home Health Aides

Table 7.1 presents the personal characteristics for home health aides and the descriptive statistics of key study variables. Weighted percentages and means are

reported with standard errors. Of the 3,377 home health aides in the sample, the majority of home health aides were 45 years and older (56.46%; see Table 7.1). With regard to the race, 53.3 percent of the sample is comprised of Whites. About thirty five percent were Blacks in home health aides. The majority of aides were at more than 12 years in their education (40.11%). Moreover, the majority of workers had worked over 2 years in their organizations (41%). The majority of home health aides reported that they were satisfied with their work (52.27%). About thirty five percent of home health aides reported that they currently looked for different jobs and had intention to leave their current jobs within one year. However, the majority of home health aides reported that they will recommend their agencies to others (74.86%). Also, about eighty three percent of home health aides reported that they were assigned to same patients. In addition, the workers reported that nearly eighty four percent received training at the agency. Nearly seventy five percent of home health aides reported that health insurance was available from the agency. Eighty six percent of home health aides agreed that they were respected by their agency for their work. Seventy one percent of home health aides also agreed that they were involved in challenging work. About eighty percent of them agreed that they were trusted to make patient care decisions. Seventy four percent agreed that they were confident in their ability to do their job. For the variable hourly rate of payment in the sample of home health aides, a typical deviation from the mean of \$10.69 is about \$4.62. For the variable benefits, a typical deviation from the mean of 4.24 is about 2.76.

Table 7.1. Descriptive statistics of home health aides sample

Variables	Total (n = 3,377)	
Dependent Variables	%	SE
Intent to quit		
Yes	35.16	2.22
No	64.84	2.22
Job satisfaction		
Satisfied	52.27	2.23
Dissatisfied	47.23	2.23
Independent Variables	Mean	SE
Hourly rate	10.69	4.62
Benefits (range 0 – 9)	4.24	2.76
	%	SE
Commitment to job		
Yes	74.86	2.41
No	25.14	2.41
Work-related environments		
Patient assignment		
Same patients	82.58	1.81
Others	17.42	1.81
Training		
Yes	83.92	1.95
No	16.08	1.95
Health insurance		
Yes	74.88	2.99
No	25.12	2.99
Job perceptions		
Respect		
Strongly agree	85.57	1.83
Disagree	14.43	1.83
Involvement		
Strongly agree	71.04	2.07
Disagree	28.96	2.07
Trust		
Strongly agree	79.53	2.24
Disagree	20.47	2.24
Confident		
Strongly agree	74.12	2.29
Disagree	25.88	2.29
Personal characteristics		
Age		
Age 1 (Less than 24)	5.06	1.06
Others	94.94	1.06
Age 2 (25 – 34)	17.11	1.88
Others	82.89	1.88
Age 3 (35 – 44)	21.37	1.75
Others	78.63	1.75
Age 4 (45 – 54)	28.53	2.00
Others	71.47	2.00
Age 5 (More than 55)	27.93	2.01
Others	72.07	2.01
Race		
White	53.3	3.33
Others	46.7	3.33

Black	34.93	3.42
Others	65.07	3.42
Education		
More than 1 year college/trade school	40.11	2.18
Others	59.89	2.18
Household income		
Household income 1		
Less than \$20,000	22.68	2.38
Others	77.32	2.38
Household income 2		
\$20,000 – Under \$30,000	26.79	2.20
Others	73.21	2.20
Job tenure		
Job tenure 1		
Less than 2 years	8.69	1.36
Others	91.31	1.36
Job tenure 2		
2 – 5 years	20.89	1.90
Others	79.11	1.90
Job tenure 3		
6 – 10 years	20.42	2.41
Others	79.58	2.41

Note: Sampling weights were applied to all descriptive statistics.

7.1.2 Characteristics of Home Health Agencies and Community

Table 7.2 shows that sixty three percent of home health aides worked in for-profit agencies. Among Medicare and Medicaid as the primary source of payment for home health care services, the majority of home health agencies get more than 75 percent of their patient care revenue from Medicare (36.5%). The agencies that 50 – 74% of patient care revenue come from Medicare were 21.58%. The agencies that 25-49% of patient care revenue come from Medicare were about 6%. The agencies that the above 50% of patient care revenue come from Medicaid were about 30.61%. The agencies that 25-49% of patient care revenue come from Medicaid were about 6%. The agencies that 10-24% of patient care revenue come from Medicaid were about 15%. The majority of home health aides worked in home health only agency (74%), in hospice only agency (12.44%), and in mixed agency (13.37%). Small size agencies having less than 100 patients were 46.75%. As a medium size agency, 44.5% of the agencies have greater than or equal to 100 to less than

500. Big size agencies indicating greater than or equal to 500 patients were 8.76%. The majority of home health agencies were located in metropolitan area (84.02%). Nearly ten percent of agencies were located in micropolitan area. For the staffing level variable indicating the level of direct care workers per patients, a typical deviation from the mean of 57.56 is about 13.65. For the staffing ratio of home health aides among direct care workforce, a typical deviation from the mean of 35.07 is about 25.70. For registered nurse among the workforce, a typical deviation from the mean of 41.04 is about 25.27. For licensed practice nurses, a typical deviation from the mean of 14.70 is about 16.02. For personal aides, a typical deviation from the mean of 9.19 is about 18.03.

For the variable unemployment rate among the neighborhood characteristics, a typical deviation from the mean of 5.14 is about 2.47. For the variable poverty level, a typical deviation from the mean of 14.62 is about 6.85. For the variable median household income, a typical deviation from the mean of \$41,791.47 is about \$14,515.68.

Table 7.2. Descriptive statistics of home health agencies and neighborhood level variables

Variables	N	%	Mean	SE
Independent Variables				
Level 2 – Organization				
Supervisor quality			3.59	.03
Organizational values			2.64	.29
Ownership				
For profit	1,049	63.28		4.09
Others	2,328	36.72		4.09
Agency types 1				
Home health	965	25.81		2.62
Others	2,412	74.19		2.62
Agency types 2				
Hospice agency	1,203	12.44		1.26
Others	2,174	87.56		1.26
Agency types 3				
Mixed agency	1,209	13.37		2.16
Others	2,168	86.63		2.16
Size				
Small size (< 100)	1,590	46.75		4.77
Others	1,712	53.25		4.77
Medium size (Size >= 100 and < 500)	1,472	44.5		4.61
Others	1,830	55.5		4.61
Large size (Size >= 500)	240	8.76		2.40

Others	3,062	91.24	2.40
Location 1			
Metropolitan	2,069	84.02	1.72
Others	1,308	15.98	1.72
Location 2			
Micropolitan	1,201	10.04	1.40
Others	2,176	89.6	1.40
Staffing			
Staff per 100 patients		57.56	13.65
Staffing ratio			
HHA		35.07	3.01
RN		41.04	2.59
LPN		14.70	1.78
AIDE		9.19	2.03
Medicare revenue source			
Medicare revenue source (Above 75 percent)	1,870	36.5	4.16
Others	1,370	63.5	4.16
Medicare revenue source (50 – 74 percent)	738	21.58	3.84
Others	2,502	78.42	3.84
Medicare revenue source (25 – 49 percent)	298	6.36	1.68
Others	2,942	93.65	1.68
Medicaid revenue source			
Medicaid revenue source (Above 50 percent)	319	30.61	5.03
Others	2,925	69.39	5.03
Medicaid revenue source (25 – 49 percent)	276	5.96	1.61
Others	2,968	94.04	1.61
Medicaid revenue source (10 – 24 percent)	869	14.92	2.77
Others	2,375	85.08	2.77
Level 2 – Community			
Unemployment rate		5.14	.10
Poverty level		14.62	.24
Median household income		41,791.47	555.08

7.1.3 Characteristics of Home Health Aides by Agency Characteristics

For more detailed information, this section presented how individual workers showed different responses for each outcome by agency characteristics (e.g., agency types and ownership status).

Table 7.3. Descriptive statistics of home health aides sample by agency types for job satisfaction

Job satisfaction (Satisfied = Yes)	Agency Types		
	Home health agency	Hospice agency	Mixed agency
	Frequency (Percent)	Frequency (Percent)	Frequency (Percent)
Race			
White	359 (71.94)	517 (66.80)	575 (83.45)
Black	104 (20.84)	195 (25.19)	65 (9.43)
Other	36 (7.21)	62 (8.01)	49 (7.11)
Age			
Less than 24	13 (2.61)	38 (4.91)	33 (4.79)

25 – 34	76 (15.23)	128 (16.54)	88 (12.77)
35 – 44	114 (22.85)	196 (25.32)	133 (19.30)
45 – 54	143 (28.66)	227 (29.33)	213 (30.91)
More than 55	153 (30.66)	185 (23.90)	222 (32.22)
Education			
More than 1 years college/trade school	157 (31.46)	257 (33.29)	245 (35.71)
Others	342 (68.54)	515 (66.71)	441 (64.29)
Health insurance			
Yes	399 (81.10)	724 (93.78)	620 (90.25)
No	93 (18.90)	48 (6.22)	67 (9.75)

Among the workers' sample, Table 7.3 shows that white workers tend to be more satisfied with their jobs than other racial groups. Those who worked at mixed agencies and hospice agencies were more satisfied with their jobs than those who worked at home health agencies. For all agencies, younger age workers tend to be less satisfied with their jobs than older age groups. Moreover, less educated workers are more likely to be satisfied with their jobs than those who have higher level of education. It is also presented that direct care workers who have health insurance from the agencies tend to have higher level of job satisfaction than those who have no insurance from the organizations for all types of agencies. With regard to health insurance, workers who worked at hospice agencies and mixed agencies tend to have higher level of job satisfaction than those who worked at home health agencies.

Table 7.4. Descriptive statistics of home health aides sample by ownership types for job satisfaction

Job satisfaction (Satisfied = yes)	Ownership	
	For-profit Frequency (Percent)	Others Frequency (Percent)
Race		
White	329 (62.43)	1,122 (78.19)
Black	154 (29.22)	210 (14.63)
Other	44 (8.35)	103 (7.18)
Age		
Less than 24	23 (4.36)	61 (4.25)
25 – 34	103 (19.54)	189 (13.17)

35 – 44	127 (24.10)	316 (22.02)
45 – 54	142 (26.94)	441 (30.73)
More than 55	132 (25.05)	428 (29.83)
Education		
More than 1 years college/trade school	178 (33.90)	481 (33.59)
Others	347 (63.19)	951 (66.41)
Health insurance		
Yes	420 (80.77)	1,323 (92.45)
No	100 (19.23)	108 (7.55)

Table 7.4 shows the workers' characteristics by ownership status for job satisfaction outcome. Among the workers' sample who responded satisfaction with their jobs, whites working in non-profit agencies tend to be more satisfied with their jobs than others who working in for-profit agencies. Also, older aged workers who working in non-profit agencies are more likely to have higher level of job satisfaction than those who working in for-profit agencies. Moreover, it is presented that more educated workers tend to be less satisfied with their jobs than those who are less educated workers. With regard to this results, workers who worked in for-profit agencies are less likely to have lower level of job satisfaction than those who worked in non-profit agencies. Home health care workers who have health insurance provided by non-profit agencies tend to be more satisfied with their jobs than those who have no insurance from the for-profit agencies.

Table 7.5. Descriptive statistics of home health aides by agency types for intent to quit

	Agency type					
	Home health agency		Hospice agency		Mixed agency	
	Intent to quit	Not intent to quit	Intent to quit	Not intent to quit	Intent to quit	Not intent to quit
Race						
White	169 (60.57)	478 (71.45)	145 (50.88)	606 (66.74)	213 (75.27)	760 (82.61)
Black	80 (28.67)	148 (22.12)	119 (41.75)	223 (24.56)	50 (17.67)	95 (10.33)
Other	30 (10.75)	43 (6.43)	21 (7.37)	79 (8.70)	20 (7.07)	65 (7.07)
Age						
Less than 24	26 (9.32)	18 (2.69)	16 (5.61)	36 (3.96)	15 (5.30)	40 (4.35)
25 – 34	47 (16.85)	101 (15.10)	63 (22.11)	163 (17.95)	57 (20.14)	108 (11.74)
35 – 44	53 (19.00)	156 (23.32)	80 (28.07)	242 (26.65)	62 (21.91)	185 (20.11)
45 – 54	79 (28.32)	206 (30.79)	77 (27.02)	264 (29.07)	71 (25.09)	304 (33.04)

More than 55	74 (26.52)	188 (28.10)	49 (17.19)	203 (22.36)	78 (27.56)	283 (30.76)
Education						
More than 1 years college/trade school	116 (41.73)	228 (34.13)	131 (45.96)	295 (32.56)	134 (47.52)	321 (34.97)
Others	162 (58.27)	440 (65.87)	154 (54.04)	611 (67.44)	148 (52.48)	597 (65.03)
Health insurance						
Yes	186 (68.63)	536 (81.46)	243 (85.87)	847 (93.59)	241 (85.16)	845 (92.05)
No	85 (31.37)	122 (18.54)	40 (14.13)	58 (6.41)	42 (14.84)	73 (7.95)

According to Table 7.5, white home health care workers who worked at both hospice agencies and mixed agencies tend to have no intention to leave from their jobs than other workers who worked at the agencies providing only home health care services. Moreover, it is presented that older workers who worked at both hospice care agencies and mixed agencies are less likely to intend to leave from their jobs than those who worked at home health care agencies. Younger workers groups have similar results with older workers. In addition, less educated workers who worked at home health care agencies tend to have no intention to leave from their jobs than those who are more educated in the agencies. Furthermore, those who are less educated working in both hospice agencies and mixed agencies tend to have no intention to leave from their jobs than those who are working in home health agencies. Also, workers who have health insurance tend to have no intention to leave from their jobs than those who have no insurance from their agencies. This result shows that those who worked at both hospice agencies and mix agencies are less likely to intend to leave from their jobs than those who worked at home health agencies.

Table 7.6. Descriptive statistics of home health aides by ownership status for intent to quit

	Ownership			
	For-profit		Others	
	Intent to quit	Not intent to quit	Intent to quit	Not intent to quit
Race				
White	167 (49.41)	424 (60.92)	360 (70.73)	1,420 (78.85)
Black	138 (40.83)	206 (29.60)	111 (21.81)	260 (14.44)
Other	33 (9.76)	66 (9.48)	38 (7.47)	121 (6.72)
Age				
Less than 24	27 (7.99)	30 (4.31)	30 (5.89)	64 (3.55)
25 – 34	80 (23.67)	137 (19.68)	87 (17.09)	235 (13.05)
35 – 44	75 (22.19)	171 (24.57)	120 (23.58)	412 (22.88)
45 – 54	94 (27.81)	198 (28.45)	133 (26.13)	576 (31.98)
More than 55	62 (18.34)	160 (22.99)	139 (27.31)	514 (28.54)
Education				
More than 1 years college/trade school	155 (46.13)	226 (32.61)	226 (44.40)	618 (34.35)
Others	181 (53.87)	467 (67.39)	283 (55.60)	1,181 (65.65)
Health insurance				
Yes	225 (67.98)	559 (81.37)	445 (87.94)	1,669 (93.03)
No	106 (32.02)	128 (18.63)	61 (12.06)	125 (6.97)

According to Table 7.6, white workers who worked at the non-profit agencies tend to have less intention to leave from their jobs than those who are in other racial groups and work in for-profit types of agencies. Moreover, workers who are aged over 35 years old in non-profit agencies tend to have less intention to leave from their jobs than those who are in younger age groups and work in for-profit agencies. In addition, it is also presented that less educated workers who worked at non-profit agencies have highest level of no intention to leave from their jobs than other workers who are more educated and work in for-profit agencies. Also, workers who have health insurance and work at non-profit agencies tend to have less intention to quit their jobs than other workers who have no insurance and work at for-profit agencies.

7.2 BIVARIATE ANALYSIS RESULTS

Table 7.3 summarizes how each individual level variable was associated with job satisfaction or intent to quit among home health aides. It indicates that the availability of health insurance in agency was significantly associated with workers' job satisfaction. The benefits received were also very significantly associated with their job satisfaction. With regard to their job perceptions, respect, challenge, trust, confident were significantly associated with their job satisfaction. The age was significantly associated with job satisfaction among home health aides.

For intent to quit, the table shows that job satisfaction and commitment to organizations were significantly associated with intent to quit among home health aides. The health insurance availability and benefits received were significantly associated with workers' intent to quit. Moreover, workers' job perceptions including respect, challenging, trust, and confident were also significantly associated with intent to quit among home health aides. In addition, age and race were significantly associated with intent to quit. The job tenure was also significantly associated with intent to quit by home health aides.

Table 7.7. The results for bivariate analysis: Individual-Level Variables

Variables	Job Satisfaction		Intent to Quit	
	OR	SE	OR	SE
Job satisfaction			.149***	.032
Commitment to organization			.209***	.046
Work-related environments				
Patient assignment	.911	.217	.802	.173
Training	1.351	.298	.896	.239
Hourly rate	1.020	.024	.955	.022
Health insurance	1.844**	.433	.436***	.103
Benefit	1.132***	.035	.857***	.029
Job perceptions				
Respect	2.502**	.662	.484**	.123
Involvement	3.714***	.832	.344***	.074
Trust	3.292***	.875	.394***	.085

Confident	2.857***	.670	.414***	.080
Personal characteristics				
Age				
Less than 24 years	.387*	.156	3.300**	1.355
25 – 34 years	.882	.196	1.011	.278
35 – 44 years	.898	.203	1.028	.268
45 – 54 years	.783	.147	.959	.231
More than 55 years	1.880**	.407	.741	.168
Race (White)	1.377	.277	.539**	.123
Education	.873	.182	1.432	.292
Household income				
Less than 20,000	.773	.167	1.595*	.330
20,000 – Under 30,000	1.260	.248	.697	.160
Job tenure				
Less than 2 years	1.333	.425	.769	.292
2 – 5 years	.634	.166	1.855**	.405
6 – 10 years	1.114	.279	1.280	.344

* p < .05, ** p < .01, *** p < .001

Table 7.8. The results for bivariate analysis: Organization and Neighborhood-Level Variables

Variables	Job Satisfaction		Intent to Quit	
	OR	SE	OR	SE
Level 2 – Organization				
Supervisor quality	1.628***	.105	.711***	.048
Organizational values	5.935***	1.723	.391***	.103
Ownership (for-profit)	.664*	.113	1.985***	.338
Agency types				
Home health agency	.642**	.095	1.344	.228
Hospice agency	1.920***	.278	.666	.104
Mixed agency	1.131	.200	.892	.195
Size				
Small size	1.092	.195	1.537*	.295
Medium size	1.003	.182	.680*	.132
Large size	.752	.184	.852	.178
Location				
Metropolitan	.850	.158	.997	.197
Micropolitan	.947	.216	1.252	.276
Staff per 100 patients	1.000	.001	1.000	.001
Staffing				
HHA	.996	.004	1.007	.004
RN	1.006	.004	.986***	.004
LPN	.996	.005	1.001	.006
AIDE	.999	.005	1.011**	.004
Medicare revenue sources				
Above 75 percent	1.718**	.297	.641*	.136
50 – 74 percent	1.104	.220	.648*	.113
25 – 49 percent	.891	.164	.988	.231
Medicaid revenue sources				
Above 50 percent	.552*	.137	2.051***	.404
25 – 49 percent	1.411	.330	1.013	.287
10 – 24 percent	.826	.157	.872	.173
Level 2 – Community				
Unemployment rate	1.033	.034	.951	.029
Poverty level	.999	.014	.990	.015
Median household income	.999	.007	1.000	.007

* p < .05, ** p < .01, *** p < .001

7.3 HIERARCHICAL LINEAR MODEL ANALYSIS RESULTS: ORGANIZATIONAL-LEVEL ANALYSIS

This section describes that results of the eight multivariate models for each of the two dependent variables. The results are presented with the tables in Appendix. The author describes below in narrative form. The fully unconditional models and corresponding ICC values, for all two dependent variables are described first. One-way ANOVA with random effects models are used to determine the degree of within and between group variations in job satisfaction and intent to quit across home health agencies.

7.3.1 Hierarchical Linear Model for Job Satisfaction

For each dependent variables, a series of increasingly larger models are presented, including: 1) random intercept models; 2) random intercept and slope models including the cross-level models demonstrating the influence of home health care agency characteristics on the relationship between work-related factors or job perception and job satisfaction among direct care workers.

One-Way ANOVA with Random Effects: In Appendix B, Table B.1 demonstrates that the results of a one-way ANOVA analysis, which was conducted to examine whether home health aides' level of job satisfaction varies between home health agencies in the U.S. The results from an unconditional model can be used to determine the amount of variation in job satisfaction within and between the agencies. In this model, the level 1 model represents variation in home health aides' level of overall job satisfaction within each agency: where the intercept (β_{0j}) represents the overall average job satisfaction of agency j , and the random effect γ_{ij} is assumed to be normally distributed with a mean of

zero and a variance of σ^2 . Similarly, the level 2 model accounts for variation in overall job satisfaction between agencies where the intercept represents the grand mean of home health aides' job satisfaction across all agencies. The random effect μ_{0j} is a random error.

Table B.1 shows that the average job satisfaction across agencies, reflect in the intercept term, is .163. The estimate for the agency-to-agency intercept is .241 with a standard deviation of .148. It is significant variation in agency means. It indicates that home health aides in the facilities expressed a higher level of overall job satisfaction on average. In this unconditional model, the intraclass correlation (ICC) represents the proportion of variance in overall job satisfaction between the agencies. It was estimated as $.24/((.24+\pi^2/3) = .068$ (6.8%). It indicates that roughly 7% of the variance in overall job satisfaction is between home health agencies. According to Fleiss (1986), minimum acceptable values of ICC ranged from 0.40 to 0.75 (Fleiss, 1986). Therefore, the value of ICC in this analysis can be accepted as fair to good.

7.3.1.1 The Influence of Work-Related Factors on Job Satisfaction

Random Intercept Model – Supervisor quality: With regard to work-related factors and supervisor quality on job satisfaction, Table B.2 presents the results of the final model for job satisfaction among home health aides. In the analysis of a random intercept model with a random intercept and fixed slopes, the GLLAMM variance estimate of the random intercepts is .0243 with a standard error of .0136. The variance component in home health aides' job satisfaction associated with the grand mean intercept was significant. However, as the value of the ICC was 0.70, it is minimally

acceptable. Therefore, a sufficient degree of between group variances was found in overall job satisfaction in this model.

Table B.2 also displays that some fixed effects of the personal-level work-related factors such as benefits, age (less than 24 years old), household income (\$20,000 – \$30,000), and job tenure (2 – 5 years) were significant factors of job satisfaction among home health aides. The estimates of the fixed effects are .141 for the benefit slope. It means that as the number of available benefits from the agency was increased by one unit, home health aides had 1.151 times greater odds of being satisfied with their job (OR = 1.151; 95% CI = 1.058, 1.252). The estimates of the fixed effects are -1.079 for the age (less than 24 years old) slope. It means that home health aides who were less than 24 years old were 66% less likely to be satisfied than those who were in other age groups (OR = .340; 95% CI = .152, .762). The estimates of the fixed effects are -.443 for the household income slope (\$20,000 – 30,000). Home health aides who had total income between \$20,000 and \$30,000 were 35.8% less likely to be satisfied with their job than those who were in other income groups (OR = .642; 95% CI = .435, .948). The estimates of the fixed effects are -.464 for the job tenure slope (2 – 5 years). Home health aides worked in 2 to 5 years as a home health aide were 37.1% less likely to be satisfied with their job than those who worked in other years on their job (OR = .629; 95% CI = .397, .996).

Some of the agency-level work-related factors were found to be significant in relation to job satisfaction among home health aides. The estimates of the fixed effects are .192 for the supervisor quality slope. For each one unit increase in supervisor quality, home health aides were 1.212 times more likely to be satisfied with their job (OR =

1.212; 95% CI = 1.004, 1.464). The estimates of the fixed effects are -.523 for the ownership slope. For for-profit agencies, home health aides were 41% less likely to be satisfied with their job (OR = .593; 95% CI = .392, .895). The estimates of the fixed effects are .565 for the agency type slope (hospice agency). In the type of hospice agency, home health aides were 1.759 times more likely to be satisfied with their job (OR = 1.759; 95% CI = 1.151, 2.688).

The estimates of the fixed effects are 1.269 for the slope of the more than 75% of the agency's patient care revenue source from Medicare. Home health aides working in the agency that more than 75 percent of patient revenue source came from Medicare were 3.557 times more likely to have higher satisfaction with their job compared to home health aides working in other agencies that different percentages come from Medicare as a patient revenue source (OR = 3.557; 95% CI = 1.496, 8.453). The estimates of the fixed effect are .908 for the slope of more than 50% of the agency's patient care revenue source from Medicaid. In Medicaid patient revenue source, home health aides working in the agency that more than 50 percent of patient revenue source came from Medicaid were 2.480 times more likely to have higher job satisfaction compared to those who working in other agencies that different percentages come from Medicaid as a patient revenue source (OR = 2.480; 95% CI = 1.004, 6.128). Home health aides who working in the agency that 25 to 50 percent of patient revenue source came from Medicaid were 2.103 times more likely to report high job satisfaction compared to home health aides working in other agencies having different percentages of their patient revenue source in Medicaid. In this model, the existence of variance at the agency level implied that the intercept could differ across home health agencies.

The results highlight several important points and provide partial support for the hypotheses described in the above. More specifically, the results revealed that direct care workers' benefits were positively associated with overall job satisfaction. In addition, workers who were less than 24 years old were negatively associated with job satisfaction. Workers who served 2 – 5 years were less satisfied with their jobs than were more experienced workers.

With respect to organizational-level factors, workers who worked in for-profit types of organization were less satisfied with their jobs. In addition, workers who worked in agency that provide hospice care were more satisfied with their jobs. Regarding the sources of patient care revenue, direct care workers working in agencies where 75% of their revenue came from Medicare were more job satisfaction. Moreover, workers working in agencies where 50% and 25 – 50% of their revenue came from Medicaid were significantly more satisfied with their jobs.

Random Intercept and Random Slope Model – Supervisor Quality: The results from the random intercept and slope model including interactions terms between variables from different levels and random slopes are presented. According to Table B.2, the average slope on benefit is .032 and the average intercept is .678, controlling for the value of patient assignment. The average slope on those who are less than 24 years old was estimated as -.232, controlling for patient assignment. The average slope on those who have \$20,000 – \$30,000 in their household income was estimated as -.096. The average slope on supervisor quality was estimated as .033. The average slope on ownership was estimated as -.114. The average slope on hospice agency was estimated as .124. The average slope on micropolitan area was estimated as -.115. The average

slope on more than 75% of agency's patient care revenue from Medicare was estimated as .244. Also, the average slope on 25 - 50% of patient care revenue from Medicaid was estimated as .162. The results for the variables were similar with a random intercept and random coefficients of other work-related factors including health insurance, hourly wage, benefit, and patient assignment.

The interaction effects were found between supervisor quality in the agency and the work-related factors in this model. When other things are equal, a significant positive interaction effect indicated that an increase in supervisor quality in the agency increased job satisfaction among home health aides who had training (OR = 1.019; 95% CI = .980, 1.060). Furthermore, a significant positive effect indicated that an increase in supervisor quality in the agency increased job satisfaction among home health aides who had more benefits from the agency (OR = 1.010; 95% CI = 1.002, 1.019). The crossed training/supervisor quality and benefit/supervisor quality are statistically significant. Therefore, it explains that supervisor quality moderates the relationships between training and job satisfaction and between benefits and job satisfaction among home health aides.

Table B.2 also shows that the within-agency or level 1 residual variance is estimated as .187 with a standard error of .009 for given patient assignment. Moreover, the agency-to-agency variance of patient assignment slope is estimated as .081 with a standard error of .033, while the variance of the intercept conditional on patient assignment is estimated as .020 with a standard error of .011. They explain that there are unit differences in job satisfaction among home health aides, controlling for the value of patient assignment ($\mu_{0j} = .020$). Furthermore, it shows that there are individual differences in the relationship between job satisfaction and patient assignment among

home health aides ($\mu_{5j} = .081$). The value of the ICC was 0.351, conditional on patient assignment. The variance of the intercepts conditional on patient assignment and the between agency variance of the slopes are statistically different from zero. Therefore, it explains that there are individual differences in the relationship between variables and job satisfaction, controlling just for the value of patient assignment among the work-related environmental factors.

Random-Intercept Model – Organizational values: With regard to work-related factors and organizational values, Table B.3 presents the results of the final model for job satisfaction among home health aides. In the analysis of random intercept with a random intercept and fixed slopes, Table B.3 shows that the GLLAMM variance estimate of the random intercepts is .137 with a standard error of .0136. The variance component in home health aides' job satisfaction associated with the grand mean intercept was significant. However, the intraclass correlation coefficient at agency-level was .040 in this model. This value of the ICC is also acceptable as fair to good. With regard to work-related factors and organizational values, a sufficient degree of between group variances was found in job satisfaction. This result suggests that there was sufficient variability in the agency-level of home health aides' job satisfaction in different agencies.

As shown in Table B.3, for the fixed effects of the individual-level work-related factors, benefits, age (less than 24 years old), household income (\$20,000 – \$30,000) were significant factors of job satisfaction among home health aides. Specifically, the estimates of the fixed effects are .136 for the benefit slope. It means that as the number of available benefits from the organization was increased by one unit, home health aides had about 1.145 times greater odds of being satisfied with their job (OR = 1.145; 95% CI =

1.047, 1.253). The estimates of the fixed effects are -1.028 for the age slope (less than 24 years old). It means that home health aides who were less than 24 years old were 64% less likely to be satisfied with their jobs than those who were in other age groups (OR = .357; 95% CI = .157, .814). The estimates of the fixed effects are -.493 for the household income slope (\$20,000 – 30,000). Home health aides who had total household income between \$20,000 and \$30,000 were 39% less likely to be satisfied with their jobs than those who were in other income groups (OR = .611; 95% CI = .399, .934).

For the fixed effects of agency-level work-related factors, some agency-level variables were found to be significant in relation to job satisfaction among home health aides. Specifically, the estimates of the fixed effects are 1.781 for the organizational value slope. For each one unit increase in organizational value, home health aides were 5.938 times more likely to be satisfied with their jobs (OR = 5.938; 95% CI = 3.465, 10.177). The estimates of the fixed effects are -.640 for the ownership slope. For for-profit agency, home health aides were 47% less likely to be satisfied with their job (OR = .527; 95% CI = .335, .831). The estimates of the fixed effects are .609 for the agency slope (hospice agency). In the type of hospice agency, home health aides were 1.838 times more likely to be satisfied with their job (OR = 1.838; 95% CI = 1.144, 2.955).

The estimates of the fixed effects are 1.366 for the slope of the more than 75% of the agency's patient care revenue source from Medicare. Home health aides working in the agency that more than 75 percent of patient revenue source came from Medicare were 3.919 times more likely to have higher satisfaction with their job compared to home health aides working in other agencies that different percentages come from Medicare as a patient revenue source (OR = 3.919; 95% CI = 1.462, 10.503). In Medicaid patient

revenue source, the estimates of the fixed effects are .781 for the slope of 25 – 50% of the agency's patient care revenue source from Medicaid. Home health aides who working in the agency that 25 – 50 percent of patient revenue source came from Medicaid were 2.184 times more likely to report high job satisfaction compared to home health aides working in other agencies having different percentages of their patient revenue source in Medicaid (OR = 2.184; 95% CI = 1.063, 4.489).

Of the home health agency-level factors examined in relation to job satisfaction, patient care revenue source from Medicare and Medicaid were significantly associated with job satisfaction among home health aides. Similarly, other variables at level 2 had strong effects on job satisfaction among workers. Hospice care agency was associated with having job satisfaction among care workers than other types of agencies. Micropolitan was more negatively associated with having job satisfaction among workers than metropolitan areas. For-profit ownership was negatively associated with having job satisfaction than other types of ownership. In this analysis, being valued from organizations had a significant effects on job satisfaction among direct care workers.

Random Intercept and Random Slope Model – Organizational Values: In model 2, the results from the random intercept and slope model including interactions terms between variables from different level and random slopes are also presented. According to Table B.3, the average slope on benefit is .024 and the average intercept is .648, controlling for the value of patient assignment. After controlling for the value of patient assignment, the average slope for those who are less than 24 years old was estimated as -.167. The average slope for those who have \$20,000 - \$30,000 in their household income was estimated as -.097. The average slope for organizational values was

estimated as .078. The average slope for the for-profit agency was estimated as -.113. The average slope for the hospice agency was estimated as .133. The average slope for micropolitan area was estimated as -.102. The average slope for more than 75% of agency's patient care revenue from Medicare was estimated as .281. The average slope for more than 50% of patient care revenue from Medicaid was estimated as .160. The average slope for 25 – 50% of patient care revenue from Medicaid was .165.

In addition, the interaction effects were found between organizational values in the agency and work-related factors in this model. When other things are equal, a significant positive interaction effect indicated that an increase in organizational values in the agency increased job satisfaction among home health aides who received higher level of hourly wage (OR = 1.032; 95% CI = 1.011, 1.052). Similarly, an increase in organizational values in the agency increased job satisfaction among home health aides who had training from the agency (OR = 1.082; 95% CI = .897, 1.307). When other things are equal, an increase in organizational values in the agency increased job satisfaction among home health aides who were assigned to same patients (OR = 1.504; 95% CI = 1.146, 1.973). Also, an increase in organizational values in the agency increased job satisfaction among home health aides who received benefits from the agencies (OR = 1.068; 95% CI = 1.020, 1.119). The crossed training/organizational values, patient assignment/organizational values, hourly wage/organizational values, and benefit/organizational values are statistically significant on job satisfaction. Therefore, it explains that being valued from organizations play important roles in the relationship between work-related factors and job satisfaction.

For given patient assignment, the within-level residual variance is estimated as .174 with a standard error of .008. The agency-to-agency variance of patient assignment slope is estimated as .089 with a standard error of .036, while the variance of the intercept conditional on patient assignment is estimated as .020 with a standard error of .012. For given patient assignment, there are unit differences in job satisfaction among home health aides ($\mu_{0j} = .020$). It also shows that there are individual differences in the relationship between job satisfaction and patient assignment among home health aides ($\mu_{5j} = .089$). The variance of the intercepts conditional on patient assignment and the between agency variance of the slopes are statistically different from zero. Therefore, it explains that there are individual differences in the relationship between variables and job satisfaction, controlling for the values of patient assignment among the work-related environmental factors. A sufficient degree of between and within group variations was found in overall job satisfaction, which was 0.385 of the ICC.

7.3.1.2 The Influence of Job-Perception on Job Satisfaction

Random Intercept Model – Supervisor quality: With regard to job perception and supervisor quality on job satisfaction, Table B.4 presents the results of the final model for job satisfaction among home health aides. In the analysis of a random intercept model with a random intercept and fixed slopes, the GLLAMM variance estimate of the random intercepts is .058 with a standard error of .002. The variance component in home health aides' job satisfaction with the grand mean intercept was significant. The intraclass correlation coefficient was .017 in this model. It means that there was not sufficient variability in the agency level of home health aides' job satisfaction in different agencies.

For the fixed effects of individual-level job perception variables, being involved in challenging work, being trusted, being confident, age (less than 24 years old), household income (\$20,000 – \$30,000), and job tenure (2 – 5 years) were found to be significant factors of job satisfaction among home health aides. The estimates of the fixed effects are .884 for the challenge slope. It means that as being involved in challenging work was increased by one unit, home health aides had 2.421 times greater odds of being satisfied with their jobs (OR = 2.421; 95% CI = 1.554, 3.773). The estimates of the fixed effects are .764 for the trust slope. It means that as being trusted to make patient care decisions was increased by one unit, home health aides had 2.147 times greater odds of being satisfied with their jobs (OR = 2.147; 95% CI = 1.240, 3.718). The estimates of the fixed effects are .657 for the confidence slope. It means that as being confident in their ability to do their job was increased by one unit, home health aides had 1.929 times greater odds of being satisfied with their jobs (OR = 1.929; 95% CI = 1.229, 3.027).

The estimates of the fixed effects are -1.003 for the age slope (less than 24 years old). It means that home health aides who were less than 24 years old were 63% less likely to be satisfied than those who were in other age groups (OR = .367; 95% CI = .148, .912). The estimates of the fixed effects are -.361 for the household income slope (\$20,000 – 30,000). It means that home health aides who had total income between \$20,000 and \$30,000 were 30% less likely to be satisfied with their job than those who were in other income groups (OR = .697; 95% CI = .435, .948). The estimates of the fixed effects are -.476 for the job tenure slope (2 – 5 years). It means that home health aides worked in 2 to 5 years as a home health aide were 38% less likely to be satisfied

with their job than those who worked in other years on their job (OR = .621; 95% CI = .397, .974).

Some agency-level factors were found to be significant in relation to job satisfaction among home health aides. The estimate of the fixed effects are .094 for the supervisor quality slope. For each one unit increase in supervisor quality, home health aides were 1.099 times greater odds of higher satisfaction with jobs (OR = 1.099; 95% CI = .910, 1.328). The estimates of the fixed effects are -.480 for the ownership slope. For for-profit agency, home health aides were 38% less likely to be satisfied with their job (OR = .619; 95% CI = .427, .897). The estimates of the fixed effect are .472 for the agency type slope (hospice agency). In the type of hospice agency, home health aides were 1.602 times more likely to be satisfied with their job (OR = 1.602; 95% CI = 1.070, 2.401). The estimates of the fixed effects are -.428 for micropolitan slope. It means that for each one unit increase in micropolitan, home health aides were 35% less likely to be satisfied with their jobs (OR = .652; 95% CI = .432, .984).

The estimates of the fixed effects are .981 for the slope of more than 75% of patient care revenue from Medicare. It means that home health aides working in the agency that more than 75 percent of patient revenue source came from Medicare were 2.666 times more likely to have higher satisfaction with their job compared to home health aides working in other agencies that different percentages come from Medicare as a patient revenue source (OR = 2.666; 95% CI = 1.123, 6.330). The estimates of the fixed effects are .694 for the slope of 25 – 50% of patient care revenue from Medicaid. It means that in Medicaid patient revenue source, home health aides who working in the agency that 25 to 50 percent of patient revenue source came from Medicaid were 2.000

times more likely to report high job satisfaction compared to home health aides working in other agencies having different percentages of their patient revenue source in Medicaid (OR = 2.000; 95% CI = 1.080, 3.708).

Several important points were found in this analysis. More specifically, the results revealed that being involved in challenging work, being trusted, and being confident were positively associated with having job satisfaction among home health aides. However, those who have a household income of \$20,000 – \$30,000 and workers who have worked 2 – 5 years were negatively associated with having job satisfaction among direct care workers.

With respect organization-level factors, for-profit in ownership status and micropolitan area were negatively associated with having job satisfaction among care workers. Regarding the sources of patient care revenue, direct care workers working in agencies where 75% of their revenue came from Medicare, 50% of their revenue came from Medicaid, and 25 – 50% of their revenue came from Medicaid were negatively associated with having job satisfaction.

Random Intercept and Random Slope Model – Supervisor Quality: The results from the random intercept and slope model including interaction terms between variables from different levels and random slopes are also presented. According to Table B.4, the average slope on respect is .131 and the average intercept is .141, controlling for the value of respect. The average slope on challenge is estimated as .172, controlling for the value of respect. After controlling for the values of respect, the average slope on trust is estimated as .192. The average slope for confident is estimated as .130. The average slope

for those who are less than 24 years old is estimated as $-.166$. The average slope for those who have \$20,000 – \$30,000 on their household income is estimated as $-.080$. The average slope for those who worked 2 – 5 years in the agency is estimated as $-.096$. The average slope for supervisor quality is estimated as $.033$. The average slope for for-profit agency is estimated as $-.086$. The average slope for hospice agency is estimated as $.098$. The average slope for micropolitan area is estimated as $-.096$. With a random intercept and random coefficients of confident, the results for the variables were similar with a random intercept and random coefficients of other job-perception factors including challenge, trust, and confident.

In addition, the interaction effects were found between supervisor quality and job-perception factors in this model. When other things are equal, significant positive interaction effects indicated that an increase in supervisor quality in the agency increased job satisfaction among home health aides who had higher perception of being respected from agency (OR = 1.083; 95% CI = 1.036, 1.133). Also, it is indicated that an increase in supervisor quality in the agency increased job satisfaction among home health aides who had higher perception of being trusted in the agency (OR = 1.066; 95% CI = 1.021, 1.113). The crossed respect/supervisor quality and trust/supervisor quality are statistically significant. Therefore, it explains that supervisor quality moderates in the relationships between respect and job satisfaction and between trust and job satisfaction among home health aides.

Table B.4 also explains that the within-agency level residual variance is estimated as $.191$ with a standard error of $.009$ for given respect. The agency-to-agency variance of respect slope is estimated as $.010$ with a standard error of $.002$, while the variance of the

intercept conditional on respect is estimated as .021 with a standard error of .007. Within-agency level or level 1 residual variance is estimated as .189 with a standard error of .007 for given confident. The agency-to-agency variance of being confident slope is estimated as .018 with a standard error of .014, while the variance of the intercept conditional on being confident is estimated as .018 with a standard error of .013.

They explain that there are unit differences in job satisfaction among home health aides, controlling for the value of respect ($\mu_{0j} = .021$). Moreover, it also shows that there are individual differences in the relationship between job satisfaction and respect among home health aides ($\mu_{1j} = .010$). Also, there are unit differences in job satisfaction among home health aides, controlling for the value of confident ($\mu_{0j} = .018$). Moreover, it also shows that there are individual differences in the relationship between job satisfaction and respect among home health aides ($\mu_{1j} = .018$).

The values of the ICC were ranged from 0.140 to 0.160, conditional on being respected and being confident, respectively. In this model, a sufficient degree of between and within group variation was found in job satisfaction by home health aides. Based on the results, the variance of the intercepts conditional on respect and confident and the between agency variance of the slopes are statistically different zero. Therefore, it explains that there are individual differences in the relationships between variables and job satisfaction for given value of respect and confident.

Random Intercept Model – Organizational values: With regard to job perception variables and organizational values, Table B.5 presents the results of the final model for job satisfaction among direct care workers. In the analysis of random intercept with a

random intercept and fixed slopes, Table B.5 shows that the GLLAMM variance estimate of the random intercepts is .002. The variance component in home health aides' job satisfaction associated with the grand mean intercept was not significant. It means that there was not sufficient variability in the agency level of home health aides' job satisfaction in different organizations. This result suggests that home health aides within agencies share similarities in having job satisfaction than those within other agencies.

As shown in Table B.5, the fixed effects of the individual-level job perception variables, challenge, trust, and confident were significant factors of job satisfaction. In addition, less than 24 years old in age, \$20,000 - \$30,000 in household income, and 2 – 5 years worked in job tenure were found to be significant factors on job satisfaction. The estimates of the fixed effects are .801 for the slope of challenge. It means that as being involved in challenging work was increased by one unit, home health aides had 2.229 times greater odds of being satisfied with their jobs (OR = 2.229; 95% CI = 1.437, 3.457). The estimates of the fixed effects are .707 for the trust slope. It means that as being trusted to make patient care decisions was increased by one unit, home health aides had 2.028 times greater odds of being satisfied with their jobs (OR = 2.028; 95% CI = 1.123, 3.665). The estimates of the fixed effects are .515 for the confidence slope. It means that as being confident in their ability to do their job was increased by one unit, home health aides had 1.674 times greater odds of being satisfied with their jobs (OR = 1.674; 95% CI = 1.036, 2.707).

For the fixed effects of agency-level factors, some factors were found to be significant in relation to job satisfaction among care workers. Specifically, the estimates of the fixed effects are -1.020 for the slope of workers who are less than 24 years old. It

means that home health aides who were less than 24 years old were 64% less likely to be satisfied with their jobs than those who were in other age groups (OR = .360; 95% CI = .143, .906). The estimates of the fixed effects are -.412 for the slope of those who have \$20,000 – \$30,000 in their household income. It means that home health aides who had total household income between \$20,000 and \$30,000 were 34% less likely to be satisfied with their jobs than those who were in other income groups (OR = .662; 95% CI = .453, .967). The estimates of the fixed effects are .708 for the slope of those who worked less than 2 years. It means that home health aides worked less than 2 years as a home health aide were 2.031 times greater odds of being satisfied with their jobs than those who worked in other years on their jobs (OR = 2.031; 95% CI = 1.029, 4.010).

The estimates of the fixed effects are 1.277 for the slope of organizational value. It means that as being valued for working for home health aides from organizations was increased by one unit, home health aides were 3.585 times greater odds of being satisfied with their jobs (OR = 3.585; 95% CI = 2.148, 5.984). The estimates of the fixed effects are -.544 for the ownership slope. For for-profit agency, home health aides were 42% less likely to be satisfied with their jobs (OR = .580; 95% CI = .389, .865). The estimates of the fixed effects are .467 for the slope of agency type (hospice agency). In the type of hospice agency, home health aides were 1.595 times more likely to be satisfied with their jobs (OR = 1.595; 95% CI = 1.039, 2.449).

The estimates of the fixed effects are 1.022 for the slope of more than 75% of agency's patient care revenue from Medicare. It means that home health aides working in the agency that more than 75% of patient revenue source came from Medicare were 2.778 times more likely to have higher satisfaction with their job compared to home

health aides working in other agencies that different percentages come from Medicare as a patient revenue source (OR = 2.778; 95% CI = 1.104, 6.992). The estimates of the fixed effects are .699 for the slope of 25 – 50% of patient care revenue from Medicaid. It means that in Medicaid patient revenue source, home health aides who working in agency that 25 to 50 percent of patient revenue source came from Medicaid were 2.012 times more likely to report high job satisfaction compared to home health aides working in other agencies having different percentages of their patient revenue source in Medicaid (OR = 2.012; 95% CI = 1.050, 3.858).

Random Intercept and Random Slope Model – Organizational Values: In model 4, the results from the random intercept and slope model including interactions terms between variables from different levels and random slopes are presented. According to Table B.5, the average slope on challenge is .155 and the average intercept is .232, controlling for the value of confident. After controlling for the value of confident, the average slope on trust is estimated as .129. The average slope on confident is estimated as .121. The average slope on those who are less than 24 years old is estimated as -.180. The average slope on those who worked less than 2 years is estimated as .119. The average slope on the for-profit agency is estimated as -.097. The average slope on hospice agency is estimated as .094. The average slope on more than 75% of agency's patient care revenue from Medicare is estimated as .200. The average slope on 25 – 50% of patient care revenue from Medicaid is estimated as .146.

However, the interaction effects were not found between organizational values and job perception variables (respect, challenge, trust, and confident) in this model.

Therefore, it indicates that organizational value does not moderate the relationship between organizational value and other job-perception variables.

Table B.5 explains that the within-level or level 1 residual variance is estimated as .186 with a standard error of .008 for given confident. The agency-to-agency variance of being confident slope is estimated as .030 with a standard error of .021, while the variance of the intercept conditional on being confident is estimated as .025 with a standard error of .014. A sufficient degree of between and within group variations was found in overall job satisfaction, which was 0.228 of the ICC. The variances of the intercepts conditional on confident and the between agency variance of the slopes are statistically different from zero. It indicates that there are unit differences in job satisfaction among home health aides, for given confident. Also, it shows that there are individual differences in relationship between job satisfaction and confident among home health aides for given confident.

7.3.2 Hierarchical Linear Model for Intent to Quit

One-Way ANOVA with Random Effects: In Appendix C, Table C.1 demonstrates that the results of a one-way ANOVA analysis, which was conducted to determine whether workers' level of intent to quit varies between home health agencies in the U.S. Table C.1 shows that the average intent to quit across agencies, reflect in the intercept term, is -.918. The variance component corresponding to the random intercept is .341 with a standard deviation of .280. It is significant variation in agency means. It indicates that home health aides in the facilities expressed a lower level of overall intent to quit from their jobs on average. In this unconditional model, the intraclass correlation (ICC)

was estimated as $.34/(\sqrt{.34+\pi^2/3}) = .094$ (9.4%). While the most of the unexplained variability is within home health aides, about 9.4% of the variability in home health aides' intent to quit is attributable to the home health agencies.

7.3.2.1 The Influence of Work-Related Factors on Intent to Quit

Random Intercept Model – Supervisor quality: With regard to work-related factors and supervisor quality on intent to quit, Table C.2 presents the results of the final model for intent to quit among care workers. In the analysis of a random intercept model with a random intercept and fixed slopes, the GLLAMM variance estimate of the random intercepts is .002 with a standard error of .006. The variance component in home health aides' intent to quit associated with the grand mean intercept was not significant. It means that there was not sufficient variability in the agency level of home health aides' intent to quit in different facilities. This result suggests that home health aides within agencies share similarities in having job satisfaction than those within other organizations.

As shown in Table C.2, for the fixed effects of the individual-level work-related factors, job satisfaction, commitment to organizations, health insurance, patient assignment, age (25 – 34 years old), and race (white) were significant factors of intent to quit among home health aides. Specifically, the estimates of the fixed effects are -1.406 for the slope of job satisfaction. It means that as the number of job satisfaction by home health aides was increased by one unit, home health aides had about 75% less likely to quit from their jobs (OR = .245; 95% CI = .165, .363). The estimates of the fixed effects are -.790 for the commitment slope. It means that as organizational commitment was

increased by one unit, home health aides had 55% lower likely to leave from their jobs (OR = .454; 95% CI = .255, .809). The estimates of the fixed effects are -.482 for the patient assignment slope. It means that home health aides who had same patients were 55% less likely to leave from their jobs (OR = .617; 95% CI = .415, .919). The estimates of the fixed effects are -.739 for the slope of those who are at 25 – 34 years old. It means that home health aides who were 25 to 34 years old were 52% less likely to leave from their jobs (OR = .477; 95% CI = .247, .921). The estimates of the fixed effects are -.976 for the slope of whites. It means that home health aides who were whites were 62% less likely to leave from their jobs (OR = .377; 95% CI = .188, .754).

For the fixed effects of agency-level factors, some agency-level factors were found to be significant in relation to intent to quit among home health aides. Specifically, the estimates of the fixed effects are -.571 for the slope of medium size agency. It means that home health aides who were working at medium size agencies were 43% more likely to leave from their jobs (OR = .565; 95% CI = .324, .983). The estimates of the fixed effects are .733 for the slope of micropolitan area. It means that home health aides who were working at the agencies located on micropolitan areas were 2.082 greater odds of leaving from their jobs (OR = 2.082; 95% CI = 1.260, 3.440).

Of the individual home health aides level factors examined in relation to intent to quit, job satisfaction and commitment to organizations were negatively associated with intent to quit among workers. Among work-related factors, health insurance and patient assignment had a negatively significant effects on intent to quit among workers. 25 – 34 years old in age variable and white in race were negatively associated with intent to quit among direct care workers. Among agency characteristics, medium size was negatively

associated with intent to quit among workers. However, micropolitan areas had a positively significant effect on intent to quit among workers. However, supervisor quality was not associated with intent to quit among home health aides.

Random Intercept and Random Slope Model – Supervisor Quality: In the model 5, the results from the random intercept and slope model including interaction terms between variables from different levels and random slopes are presented. According to Table C.2, the average slope on job satisfaction is $-.244$ and the average intercept is $.725$, controlling for the value of job satisfaction. After controlling for the value of job satisfaction, the average slope on organizational commitment was estimated as $-.151$. The average slope on patient assignment was estimated as $-.070$. The average slope on those who are in 25 – 34 years old was estimated as $-.115$. The average slope on white was estimated as $-.174$. The average slope on micropolitan area was estimated as $.102$.

After controlling for the value of commitment to organizations, the population-mean intercept and slope for job satisfaction are estimated as $.732$ and $-.244$, respectively. The average slope on organizational commitment was estimated as $-.141$. The average slope for patient assignment is estimated as $-.079$. The average slope for those who are in 25 – 34 years old was estimated as $-.111$. The average slope for whites was estimated as $-.173$. The average slope for micropolitan area was estimated as $.109$. After controlling for the values of health insurance and benefits, Table C.2 shows similar results. In this analysis, however, the interaction terms between individual-level work-related factors and supervisor quality at agency-level were not significant effects on the status of intent to quit among home health aides.

Table C.2 presents that the within-agency or level 1 residual variance is estimated as .149 with a standard error of .010 for given job satisfaction. Moreover, the agency-to-agency variance of job satisfaction slope is estimated as .015 with a standard error of .011, while the variance of the intercept conditional on job satisfaction is estimated as .021 with a standard error of .013. It indicates that there are unit differences in intent to quit among home health aides, controlling for the value of job satisfaction ($\mu_{0j} = .021$). Also, there are individual differences in the relationship between intent to quit and job satisfaction among home health aides ($\mu_{1j} = .015$).

The within-level or level 1 residual variance is estimated as .146 with a standard error of .009 for given organizational commitment. Moreover, the agency-to-agency variance of organizational commitment slope is estimated as .084 with a standard error of .044, while the variance of the intercept conditional on organizational commitment is estimated as .045 with a standard error of .023. It indicates that there are unit differences in intent to quit among home health aides, controlling for the value of organizational commitment. Also, there are individual differences in the relationship between intent to quit and organizational commitment.

The within-level or level 1 residual variance is estimated as .149 with a standard error of .009 for given health insurance. Moreover, the agency-to-agency variance of health insurance slope is estimated as .049 with a standard error of .028, while the variance of the intercept conditional on health insurance is estimated as .048 with a standard error of .024. It indicates that there are unit differences in intent to quit among home health aides, controlling for the value of health insurance. Also, there are individual differences in the relationship between intent to quit and health insurance.

The within-level or level 1 residual variance is estimated as .151 with a standard error of .010 for given benefit. Moreover, the agency-to-agency variance of benefit slope is estimated as .001 with a standard error of .0003, while the variance of the intercept conditional on benefit is estimated as .031 with a standard error of .022. It indicates that there are unit differences in intent to quit among home health aides, controlling for the value of benefit. Also, there are individual differences in the relationship between intent to quit and benefit. The ICC ranged from 0.175 to 0.469, conditional on job satisfaction, commitment to organizations, health insurance, and benefits. Therefore, the variance of the intercepts conditional on the variables and between agency variance of the slopes are statistically different from zero. In this model, a sufficient degree of between and within group variation was found in intent to quit by home health aides.

Random Intercept Model – Organizational value: With regard to work-related factors and organizational values on intent to quit, Table C.3 presents the results of the final model for intent to quit among direct care workers. In this analysis of random intercept with a random intercept and fixed slopes, the GLLAMM variance estimate of the random intercepts is .010 with a standard error of .003. The variance component in intent to quit by home health aides associated with the grand mean intercept was significant. Based on the results of the ICC (.003), a sufficient degree of between group variances was not found in overall intent to quit. It means that there was not sufficient variability in agency-level of home health aides' intent to quit in different organizations. Therefore, this result suggests that home health aides within agencies share similarities in having intention to leave their jobs than those within other organizations.

As shown in Table C.3, for the fixed effects of the individual-level work-related factors, job satisfaction, commitment to organizations, patient assignment, age, and white in race were significant factors of intent to quit among care workers. Specifically, the estimates of the fixed effects are -1.256 for job satisfaction slope. It means that as being satisfied with their jobs was increased by one unit, home health aides had about 72% not intent to quit from their jobs by home health aides (OR = .285; 95% CI = .193, .420). The estimates of the fixed effects are -.808 for patient assignment slope. It means that home health aides who had same patient 40% not to intent to quit among home health aides (OR = .597; 95% CI = .404, .880). The estimates of the fixed effects are -.768 for the slope of those who are at 25 – 34 years old. It means that home health aides who were 25 to 34 years old 54% not intent to quit from their jobs (OR = .464; 95% CI = .235, .916). The estimates of the fixed effects are -.986 for the slope of whites. It means that home health aides who were whites were 63% not intent to quit from their jobs (OR = .373; 95% CI = .183, .760).

For the fixed effects of agency-level variables, some agency-level variables were found to be significant in relation to intent to quit among workers. Specifically, the estimates of the fixed effects are -.729 for the organizational value slope. For each one unit increase in organizational value, home health aides were 52% not to intent to quit from their jobs (OR = .482; 95% CI = .289, .806). The estimates of the fixed effects are .728 for the micropolitan slope. It means that home health aides who worked in agency located in micropolitan areas were 2.071 greater odds of intent to leave from their jobs (OR = 2.071; 95% CI = 1.239, 3.463).

In terms of individual level variables, job satisfaction and being committed to organizations had negative effects on workers' intent to quit. Among the work-related factors, patient assignment also had a negative effect on their intent to quit. 25 – 34 years old in age groups and white in race groups had negative effects on workers' intent to quit. In terms of agency level variables, being valued from organizations was negatively associated with intent to quit among direct care workers. However, micropolitan areas had a positive effect on workers' intent to quit from their jobs.

Random Intercept and Random Slope Model – Organizational Values: In the model 6, the results from the random intercepts and slope model including interaction terms between variables from different levels and random slope are also presented. According to Table C.3, the population-mean intercept and slope for job satisfaction are estimated as .686 and -.225, respectively, conditional on job satisfaction. The average slope on organizational commitment is estimated as -.157, controlling for the value of job satisfaction. The average slope on those who are 25 – 34 years old is estimated as -.105, controlling for the value of job satisfaction. The average slope on whites is estimated as -.185, controlling for the value of job satisfaction. The average slope on organizational values was estimated as -.147, controlling for the value of job satisfaction. The average slope on micropolitan area is estimated as .102, controlling for the value of job satisfaction. When controlling for the value of commitment, health insurance, and benefits, this model shows almost same results. Home health aides who have high level of job satisfaction and being committed to organizations are less likely to intend to leave from their jobs. Moreover, those who white are less likely to intend to quit their jobs. In terms of agency-level variables, home health aides working at agencies that have high

level of values toward direct care workers' tasks are less likely to intend to quit their jobs. Micropolitan areas were more likely to intend to leave from their jobs. However, the effects of patient care revenue sources from Medicare and Medicaid were inconsistent with previous results in the models for job satisfaction.

In addition, the interaction effects were found between organizational values in the agency and some work-related variables in this model. When other things are equal, significant positive interaction effects indicated that an increase in organizational values in the agency increased intent to quit among home health aides who have high level of satisfaction with their job (OR = 1.178; 95% CI = 1.009, 1.376). Also, an increase in organizational values in the agency increased intent to quit among home health aides who had training from the agency (OR = 1.208; 95% CI = 1.022, 1.428).

When other things are equal, on the other hand, significant negative interaction effects indicated that an increase in organizational values in the agency decreased intent to quit among home health aides who were highly committed to their agencies (OR = .889; 95% CI = .822, .960). Also, an increase in organizational values in the agency decreased intent to quit among home health aides who received health insurance from their agency (OR = .781; 95% CI = .617, .989).

The interaction effects conditional on committed to organizations, health insurance, and benefits have similar results with the results conditional on the values of job satisfaction. The crossed job satisfaction/organizational values, commitment to organizations/organizational values, training/organizational values, and health insurance/organizational values are statistically significant on intent to quit. Therefore, it

explains that organizational values moderate the relationships between job satisfaction and intent to quit, between commitment to organizations and intent to quit, between training and intent to quit, and between health insurance and intent to quit. However, the results of the crossed job satisfaction/organizational values and training/organizational values are inconsistent with the hypotheses

Table C.3 shows that the within-level or level 1 residual variance is estimated as .143 with a standard error of .009 for given job satisfaction. Moreover, the agency-to-agency variance of job satisfaction slope is estimated as .014 with a standard error of .008, while the variance of the intercept conditional on job satisfaction is estimated as .022 with a standard error of .012. It explains that there are unit differences in intent to quit among home health aides, controlling for the value of job satisfaction ($\mu_{0j} = .022$). Moreover, there are individual differences in the relationship between job satisfaction and intent to quit by home health aides ($\mu_{1j} = .014$).

Also, the within-level or level 1 residual variance is estimated as .145 with a standard error of .009 for given organizational commitment. The agency-to-agency variance of organizational commitment slope is estimated as .050 with a standard error of .038, while the variance of the intercept conditional on organizational commitment is estimated as .025 with a standard error of .019. It indicates that there are unit difference in intent to quit among home health aides, controlling for the value of commitment. It also explains that there are individual differences in the relationship between commitment and intent to quit by home health aides.

The within-level or level 1 residual variance is estimated as .141 with a standard error of .009 for given health insurance. The agency-to-agency variance of health insurance slope is estimated as .054 with a standard error of .029, while the variance of the intercept conditional on health insurance is estimated as .061 with a standard error of .026. It indicates that there are unit differences in intent to quit among home health aides, controlling for the value of health insurance ($\mu_{0j} = .061$). There are also individual differences in the relationship between health insurance and intent to quit by home health aides ($\mu_{4j} = .054$).

The within level or level 1 residual variance is estimated as .143 with a standard error of .009 for given benefits. The agency-to-agency variance of benefit slope is estimated as .0007 with a standard error of .0003, while the variance of the intercept conditional on benefit is estimated as .043 with a standard error of .023. It indicates that there are unit differences in intent to quit by home health aides, controlling for the value of benefit ($\mu_{0j} = .043$). There are also individual differences in the relationship between benefit and intent to quit by home health aides ($\mu_{5j} = .007$). The ICC ranged from 0.201 to 0.449, conditional on job satisfaction, commitment to organizations, health insurance, and benefits. Therefore, the variance of the intercepts conditional on the variables and between agency variance of the slopes are statistically different from zero. In this model, a sufficient degree of between and within group variation was found in intent to quit by home health aides.

7.3.2.2 The Influence of Job Perception on Intent to Quit

Random Intercept Model – Supervisor quality: With regard to job perception factors and supervisor quality on intent to quit, Table C.4 presents the results of the final model for intent to quit among care workers. In the analysis of a random intercept model with a random intercept and fixed slopes, the GLLAMM the variance estimate of the random intercepts is .028 with a standard error of .023. Based on the results of the ICC (.008), a sufficient degree of between group variances was not found in overall intent to quit in this model with job perceptions and supervisor quality. It means that there was not sufficient variability in agency-level of home health aides' intent to quit in different organizations. Therefore, this result suggests that home health aides within agencies share similarities in having intention to leave their jobs than those within other organizations.

Table C.4 shows that the estimates of the fixed effects are -1.266 for the slope of job satisfaction. It means that as the number of job satisfaction by home health aides was increased by one unit, home health aides had about 72% less likely to quit from their jobs (OR = .282; 95% CI = .188, .423). The estimates of the fixed effects are -.840 for the slope of organizational commitment. It means that as organizational commitment was increased by one unit, home health aides had 57% lower likely to leave from their jobs (OR = .432; 95% CI = .234, .798). The estimate of the fixed effects are -.489 for the confident slope. It means that home health aides who have high perception of confident were 39% less likely to have intent to quit from their jobs (OR = .613; 95% CI = .403, .933).

The estimates of the fixed effects are -.520 for the challenge slope. It means that home health aides who had high perception of involvement in challenging work were 40% less likely to have intent to leave from their jobs (OR = .595; 95% CI = .388, .911). The estimates of the fixed effects are -.716 for the slope of those who were at 25 – 34 years old. It means that home health aides who were 25 to 34 years old were 51% less likely to leave from their jobs (OR = .489; 95% CI = .255, .936). The estimates of the fixed effects are -1.251 for the slope of whites. It means that home health aides who were whites were 71% less likely to leave from their jobs (OR = .286; 95% CI = .145, .565). The estimates of the fixed effects are -.638 for the slope of those who worked 2 – 5 years. It means that home health aides who have worked 2 to 5 years in an agency were 1.894 times more likely to have intent to quit from their jobs (OR = 1.894; 95% CI = 1.051, 3.413). The estimates of the fixed effects are -.028 for the supervisor quality. For each one unit increase in supervisor quality, home health aides were 3% less likely to have intent to quit from their jobs (OR = .972; 95% CI = .889, 1.062).

In terms of individual level variables, the results for job satisfaction and commitment to organizations shows similar results with the previous model. Specifically, job satisfaction and being committed to organizations also had negative effects on workers' intent to quit. Among job perception factors, being confident and being involved in challenging work were negatively associated with intent to quit among workers. 25 – 34 years old in age groups and white in race groups had negative effects on workers' intent to quit. In terms of agency level variables, supervisor quality was negatively associated with intent to quit among direct care workers. However, micropolitan areas had a positive effect on workers' intent to quit from their jobs. Job

tenure (2 – 5 years) was positively associated with intent to quit among home health aides.

Random Intercept and Random Slope Model – Supervisor Quality: In model 7, the results from the random intercept and slope model including interaction terms between variables from different levels and random slopes are presented. According to Table C.4, the average slope on job satisfaction is -.215 and the average intercept is .749, controlling for the value of job satisfaction. The average slope for commitment is estimated as -.156. The average slope for confident is estimated as -.079. The average slope for those who are 25 – 34 years old is estimated as -.106. The average slope for those who are whites is estimated as -.213. The average slope for those who worked 2 – 5 years is estimated as .106. The average slope for supervisor quality is estimated as -.045, controlling for job satisfaction. When controlling for organizational commitment, the results are almost same. However, the average slope on education is estimated as .068.

In addition, the interaction effects were found between supervisor quality and some job-perception variables in this model. When other things are equal, significant negative interaction effects indicated that an increase in supervisor quality in the agency decreased intent to quit among home health aides who had high level of job satisfaction (OR = .984; 95% CI = .945, 1.025). Also, an increase in supervisor quality in the agency decreased intent to quit among home health aides who have higher perception of being respected from the agency (OR = .980; 95% CI = .944, 1.018). The crossed job satisfaction/supervisor quality and respect/supervisor quality, conditional on job satisfaction and commitment to organizations are statistically significant on intent to quit.

Therefore, it also explains that supervisor quality moderates the relationships between job satisfaction and intent to quit and between being respected and intent to quit.

Table C.4 also explains that the within-level or level 1 residual variance is estimated as .142 with a standard error of .011 for given job satisfaction. The agency-to-agency variance of job satisfaction slope is estimated as .017 with a standard error of .012, while the variance of the intercept conditional on job satisfaction is estimated as .023 with a standard error of .013. It means that there are unit differences in intent to quit among home health aides, controlling for the value of job satisfaction ($\mu_{0j} = .023$). Furthermore, it shows that there are individual differences in the relationship between job satisfaction and intent to quit among home health aides ($\mu_{1j} = .017$).

In addition, the within-level or level 1 variance is estimated as .137 with a standard error of .009 for given organizational commitment. The agency-to-agency variance of organizational commitment slope is estimated as .097 with a standard error of .040, while the variance of the intercept conditional on organizational commitment is estimated as .050 with a standard error of .022. It means that there are unit differences in intent to quit among home health aides, controlling for the value of commitment ($\mu_{0j} = .050$). It also explains that there are individual differences in the relationship between commitment and intent to quit among home health aides ($\mu_{2j} = .097$). The ICC ranged from 0.220 to 0.518, conditional on job satisfaction and commitment to organizations. Therefore, the variance of the intercepts conditional on the variables and between agency variance of the slopes are statistically different from zero. In this model, a sufficient degree of between and within group variation was found in intent to quit by home health aides.

Random Intercept Model – Organizational value: With regard to job perception factors and organizational values, Table C.5 presents the results of the final model for intent to quit among home health aides. In this analysis of random intercept with a random intercept and fixed slopes, Table C.5 shows that the GLLAMM variance estimate of the random intercept is .025 with a standard error of .023. The variance component in intent to quit by home health aides associated with the grand mean intercept was significant. Based on the results of the ICC (.007), however, a sufficient degree of between group variances was not found in overall intent to quit. It means that there was not sufficient variability in agency-level of home health aides' intent to quit in different organizations. Therefore, this result suggests that home health aides within agencies share similarities in having intention to leave their jobs than those within other organizations.

As shown in Table C.5, for the fixed effects of the individual-level job perception factors, job satisfaction, commitment to organizations, being involved in challenging work, age, and white were significantly associated with intent to quit. Specifically, the estimate of the fixed effects is -1.168 for the slope of job satisfaction. It means that as being satisfied with their jobs was increased by one unit, home health aides had about 69% not intent to quit from their jobs by home health aides (OR = .311; 95% CI = .208, .465). The estimates of the fixed effects are -.836 for confident slope. It means that home health aides who had high perception of commitment 57% not to intent to quit among home health aides (OR = .433; 95% CI = .238, .788). The estimate of the fixed effect is -.475 for challenge. It means that home health aides who had high perception of challenge were 38% not intent to quit from their jobs (OR = .622; 95% CI = .393, .983). The estimates of the fixed effects are -.714 for the slope of those who are 25 – 34 years

old. It means that home health aides who were 25 to 34 years old 51% not intent to quit from their jobs (OR = .490; 95% CI = .252, .911). The estimate of the fixed effects is -1.251 for the slope of whites. It means that home health aides who were whites were 71% not intent to quit from their jobs (OR = .286; 95% CI = .144, .571).

For the fixed effects of agency-level job perception factors, some agency-level variables were found to be significant in relation to intent to quit among home health aides. Specifically, the estimates of the fixed effects are -.555 for the slope of organizational values. For each one unit increase in organizational values, home health aides were 43% less likely to have intent to quit from their jobs (OR = .574; 95% CI = .316, 1.042). The estimates of the fixed effects are .584 for the slope of micropolitan area. It means that home health aides who worked in agency located in micropolitan areas were 1.793 greater odds of intent to leave from their jobs (OR = 1.793; 95% CI = 1.038, 3.097).

Of the individual level variables examined in relation to intent to quit, job satisfaction and being committed to organizations were negatively associated with intent to quit among home health aides. Among job perception factors, being involved in challenging work had a negative effect on workers' intent to quit. 25 – 34 years old group in age groups and white in race had negative effects on workers' intent to quit. Of the agency-level factors, being valued from organizations had negative effect on intent to quit among workers. However, micropolitan areas had positive effect on workers' intent to quit.

Random Intercept and Random Slope Model – Organizational Values: In model 8, the results from the random intercepts and slope model including interaction terms between variables from different levels and random slopes are presented. According to Table C.5, the average slope on job satisfaction is -.205 and the average intercept is .734, controlling for the value of job satisfaction. The average slope on commitment is estimated as -.137. The average slope on confident is estimated as -.084. The average slope on those who are 25 – 34 years old is estimated as -.099. The average slope on those who are whites is estimated as -.218. The average slope on education is estimated as .058. The average slope on those who worked 2 – 5 years is estimated as .096. Of the individual-level variables examined in relation to intent to quit, job satisfaction and commitment to organizations had negative effects on intent to quit among workers. Among job perception factors, being confident had a negative effect on intent to quit among workers. Moreover, education had a positive effect on workers' intent to quit. For example, more educated people tend to have more intention to leave their jobs.

The average slope for organizational values is estimated as -.051. The average slope for micropolitan area is estimated as .080. Other results are almost same when controlling for organizational commitment, respect, and challenge. Of the agency-level factors examined in relation to intent to quit, being valued from organizations had a negative effect on workers' intent to quit. However, micropolitan areas were positively associated with workers' intent to quit.

In addition, the interaction effects were found between organizational values and some job-perception variables in this model. When other things are equal, a significant negative interaction effect indicated that an increase in organizational values in the

agency decreased intent to quit among home health aides who have high level of commitment to organizations (OR = .880; 95% CI = .805, .961). When other things are equal, a significant negative interaction effect indicated that an increase in organizational values in the agency decreased intent to quit among home health aides who have high level of being confident (OR = .964; 95% CI = .808, 1.149). The crossed commitment to organization/organizational values and being confident/organizational values are statistically significant on workers' intent to quit. Therefore, it explains that being valued from organizations moderate the relationships between commitment to organizations and intent to quit and between being confident and intent to quit.

Table C.5 explains that the within-level or level 1 residual variance is estimated as .140 with a standard error of .010 for given job satisfaction. The agency-to-agency variance of job satisfaction slope is estimated as .015 with a standard error of .010, while the variance of the intercept conditional on job satisfaction is estimated as .023 with a standard error of .012. It indicates that there are unit differences in intent to quit among home health aides, controlling for the value of job satisfaction ($\mu_{0j} = .023$). Moreover, it shows that there are individual differences in the relationship between job satisfaction and intent to quit by home health aides ($\mu_{1j} = .015$).

In addition, the within-agency level or level 1 residual variance is estimated as .138 with a standard error of .009 for given organizational commitment. The agency-to-agency variance of organizational commitment slope is estimated as .074 with a standard error of .035, while the variance of the intercept conditional on organizational commitment is estimated as .034 with a standard error of .019. It indicates that there are unit difference in intent to quit among home health aides, controlling for the value of

commitment ($\mu_{0j} = .034$). It also explains that there are individual differences in the relationship between commitment and intent to quit by home health aides ($\mu_{2j} = .074$).

The within-agency level or level 1 residual variance is estimated as .145 with a standard error of .009 for given respect. The agency-to-agency variance of respect slope is estimated as .023 with a standard error of .019, while the variance of the intercept conditional on respect is estimated as .031 with a standard error of .020. It indicates that there are unit difference in intent to quit among home health aides, controlling for the value of respects ($\mu_{0j} = .031$). There are also individual differences in the relationship between respect and intent to quit by home health aides ($\mu_{3j} = .023$).

The within-agency level or level 1 residual variance is estimated as .142 with a standard error of .010 for given challenge. The agency-to-agency variance of being involved in challenging work slope is estimated as .030 with a standard error of .021, while the variance of the intercept conditional on challenge is estimated as .022 with a standard error of .016. It indicates that there are unit differences in intent to quit by home health aides, controlling for the value of challenge ($\mu_{0j} = .022$). There are also individual differences in the relationship between challenge and intent to quit by home health aides ($\mu_{4j} = .030$).

The ICC ranged from 0.213 to 0.439, conditional on job satisfaction, commitment to organizations, being respected, and being involved in challenging work. Therefore, the variance of the intercepts conditional on the variables and between agency variance of the slopes are statistically different from zero. In this model, a sufficient degree of between and within group variation was found in intent to quit by home health aides.

7.4 HIERARCHICAL LINEAR MODEL ANALYSIS RESULTS: NEIGHBORHOOD-LEVEL ANALYSIS

For neighborhood level, random-coefficient and regression with means-as-outcomes models are used to estimate the effects of individual level variables and neighborhood level factors on job satisfaction and intent to quit among home health aides, respectively. Finally, intercepts-as-outcomes models are employed to estimate the effects of both level 1 and level 2 predictors on job satisfaction or intent to quit simultaneously.

7.4.1 HLM Results: Job Satisfaction

One-Way ANOVA with Random Effects – Job Satisfaction: Table D.1

demonstrates that the results of a one-way ANOVA analysis, which was conducted to determine whether workers' level of job satisfaction varies between counties in the U.S. The results from an unconditional model can be used to determine the amount of variation in job satisfaction within and between counties. In the one-way ANOVA model, the level 1 model represents variation in home health aides' level of overall job satisfaction within each county: where the intercept (β_{0j}) represents the overall average job satisfaction of county j , and the random effect γ_{ij} is assumed to be normally distributed with a mean of zero and a variance of σ^2 . Similarly, the level 2 model accounts for variation in overall job satisfaction between counties where the intercept represents the grand mean of home health aides' overall job satisfaction across all counties. The random effect μ_{0j} is a random error.

From the Table D.1, the weighted least squares estimates for the grand mean job satisfaction was .174. It indicates that home health aides in the counties expressed a

higher level of overall job satisfaction on average. The one-way ANOVA with random effect model provides information about the presence of level 2 variance and whether there are significant differences between level 2 units. The intraclass correlation (ICC) represents the proportion of variance in overall job satisfaction between counties. Table D.1 indicates that about 14.2% of variance in overall job satisfaction was between counties, with the remainder attributed to home health aides-level variation and random error. However, the degree of within and between group variations in job satisfaction across counties are statistically significant. Therefore, the results from the null hypothesis for job satisfaction show that the null hypothesis is rejected. It suggests that some significant covariance exist between individuals in the same counties.

Means-as-Outcomes Model: This model (Table D.2) was conducted to estimate the means from each of many groups as an outcome to be predicted by group characteristics. It means that the means of overall job satisfaction were explained by organizational characteristics. Therefore, unemployment rate at neighborhood level variables was added to a level 2 predictor.

At the community level, unemployment rate had a significant effect on individual home health aides' job satisfaction. Home health aides who worked in counties with a greater unemployment rate reported a lower level of satisfaction with their jobs than the workers in other counties (OR = .880; 95% CI = .793, .975). It explains that job satisfaction vary by community level factors characterized by unemployment rate.

The random intercept variance at community level is estimated as .505 with a standard error of .046. It explains that there are unit differences in job satisfaction among

home health aides who worked in counties. The results imply that workers working in a county with the high level of unemployment are less likely to have job satisfaction.

Intercepts-as-Outcomes Model: This model (Table D.2) was conducted to test the effects of all predictors on job satisfaction simultaneously. After controlling for the individual level variables, the findings are statistically significant in the full model with the unemployment rate variable. Therefore, unemployment rate (OR = .977; 95% CI = .859, 1.110) in neighborhood-level variables had negatively significant effect on overall job satisfaction. It indicates that workers who worked in counties with a greater unemployment rate reported a lower level of satisfaction with their job than the workers in other counties. The random intercept variance at community level is estimated as .496 with a standard error of .136. It explains that neighborhood level and individual level variables significantly contribute to the explained variance within counties. The findings have still remained statistically significant in the full model after controlling for the individual level variables. This study suggests that county-level characteristics such as unemployment rate have a close relationship with job satisfaction of direct care workers such as home health aides across counties, controlling for individual characteristics.

7.4.2 HLM Results: Intent to Quit

One-Way ANOVA with Random Effects – Intent to Quit: Table D.3 demonstrates that the results of a one-way ANOVA analysis, which was conducted to determine whether workers' level of intent to quit varies between counties in the U.S. The results from an unconditional model can be used to determine the amount of variation in intent to quit within and between counties. In the one-way ANOVA model, the level 1 model

represents variation in home health aides' level of overall intent to quit within each county: where the intercept (β_{0j}) represents the overall average intent to quit of county j , and the random effect γ_{ij} is assumed to be normally distributed with a mean of zero and a variance of σ^2 . Similarly, the level 2 model accounts for variation in overall intent to quit between counties where the intercept represents the grand mean of home health aides' overall intent to quit across all counties. The random effect μ_{0j} is a random error.

From the Table D.3, the weighted least squares estimates for the grand mean intent to quit was -.846. It indicates that home health aides in the counties expressed a lower level of overall intent to quit on average. The one-way ANOVA with random effect model provides information about the presence of level 2 variance and whether there are significant differences between level 2 units. The intraclass correlation (ICC) represents the proportion of variance in overall intent to quit between counties. Table D.3 indicates that about 14.3% of variance in overall intent to quit was between counties, with the remainder attributed to home health aides-level variation and random error. In this analysis, the degree of within and between group variations in intent to quit across counties are statistically significant. The results from the null hypothesis for intent to quit show that the null hypothesis is rejected. It suggests that some significant covariance exist between individuals in the same counties.

Means-as-Outcomes Model: This model (Table D.4) was conducted to estimate the means from each of many groups as an outcome to be predicted by group characteristics. Table D.4 shows that the means of overall intent to quit were explained by community characteristics. Therefore, unemployment rate at neighborhood level variables was also added to a level 2 predictor.

At the community level, unemployment rate had a significant effect on individual home health aides' intent to quit. Home health aides who worked in counties with a greater unemployment rate reported more likely to have intent to quit from their jobs than workers in other counties (OR = 1.131; 95% CI = .962, 1.328). It explains that intent to quit vary by community level factors characterized by poverty level. The random intercept variance at community level is estimated as .523 with a standard error of .148. It explains that there are unit differences in intent to quit among home health aides who worked in counties. The results imply that direct care workers working in a county with the high level of unemployment are more likely to intend to leave from their jobs.

Intercepts-as-Outcomes Model: This model (Table D.4) was conducted to test the effects of all predictors on intent to quit simultaneously. After controlling for the individual level variables, the findings are statistically significant in the full model with the unemployment rate variable. Therefore, unemployment rate (OR = 1.018; 95% CI = .894, 1.158) in neighborhood-level variables had positively significant effect on overall intent to quit. It indicates that workers who worked in counties with a greater unemployment rate reported more likely to have intent to quit from their jobs than the workers in other counties. The random intercept variance at community level is estimated as .412 with a standard error of .151. It explains that county-level and individual level variables significantly contribute to the explained variance within counties. The findings have still remained statistically significant in the full model after controlling for the individual level variables. This study also suggests that unemployment rate among county-level characteristics has a close relationship with intent to quit by home health aides across counties, controlling for individual characteristics.

7.5 SUMMARY

Using hierarchical linear modeling (HLM), this study investigated how individual- and organizational-level or county-level variables are related to direct care workers' outcomes, job satisfaction and intent to quit. The author conducted this study using GLLAMM for two-level logistic regression analyses to examine the relationships of work-related and job perception factors on workers' job satisfaction and intent to quit.

With regard to work-related factors, the results demonstrated that the number of fringe benefits provided by organizations were significantly associated with job satisfaction. Also, younger workers tend to be less satisfied with their jobs than other age groups. Of the individual-level variables, household income and job tenure were negatively associated with job satisfaction among workers. Of the agency-level factors, job satisfaction was affected by patient care revenue sources from Medicare and Medicaid. In addition, ownership types and location was significantly associated with job satisfaction. Also, supervisor quality moderates the relationships between training and job satisfaction and benefit and job satisfaction. Moreover, being valued from organizations play important roles in the relationships between training and job satisfaction, between patient assignment and job satisfaction, between hourly wage and job satisfaction, and between benefits and job satisfaction. More specifically, training had a strong relationship with job satisfaction when workers worked for agencies that perceived to value their workers. In addition, a stable assignment of patients, rather than assigning different patients to the worker on different days, had a strong positive impact on job satisfaction, especially when workers felt that their work is valued by the home health agencies.

Intent to quit is affected by job satisfaction and commitment to organizations among direct care workers. Among the individual-level variables, health insurance and patient assignment were significantly associated with intent to quit among the workers. Furthermore, being valued from organizations play important roles in the relationships between job satisfaction and intent to quit, between organizational commitment and intent to quit, between training and intent to quit, and between health insurance and organizational values. Differently with job satisfaction, patient care revenue sources from Medicare and Medicaid were not significantly associated with workers' intent to quit.

With regard to job perception factors, workers' job satisfaction was affected by being respected, being involved in challenging work, being trusted, and being confident. Age, household income, and job tenure were significantly associated with workers' job satisfaction. The results of interaction term show that the differential in the level of respect and trust were related to organizational-level characteristics such as supervisor quality, in affecting the job satisfaction among direct care workers. Results from interaction terms also present that job satisfaction and being respected showed a weak relationship with intent to quit for home health care workers working for agencies with high supervisor quality. However, another interaction terms presents that the differential in the level of commitment to organizations and being confident were related to organizational values, in affecting workers' intent to quit.

In the analyses for county-level characteristics, the results show that home health care workers in counties with a higher level of unemployment reported lower job satisfaction and higher intent to quit their jobs. Of the job perception factors, respect, involvement in challenging work, trust, and confident were associated with job

satisfaction. However, intent to quit was affected only by trust. Of the work-related factors, job satisfaction was affected by the number of benefits. On the other hand, workers' intent to quit was affected by hourly rate of wage and patient assignment. In defining county-level variables, the author could not include many variables that are expected to have close relationship with the level of job satisfaction and intent to quit among home health aides. Future study should include more county-level characteristics that are related to individual workers' outcomes. More detailed discussions will be described in the next chapter.

CHAPTER VIII

DISCUSSION AND CONCLUSION

This study contributes to the literature by empirically testing the model suggested for explaining job satisfaction and intent to quit of home health aides in the context of personal, organizational, and countywide levels, using a nationally representative sample. Previous studies have partially tested the model by using individual-level data and by not including nested level variables. Specifically, in most prior research, the investigators have shown that the primary determinants of nurses and other health care workers in hospitals and nursing homes are individual characteristics such as individual workers' age, education, gender, race, marital status, years of service, health status; as well as organizational characteristics, work environment, and workplace conditions. However, relatively few studies have focused on the organizations and neighborhood contexts that influence the level of job satisfaction and intent to quit among home health care workers who work in home health care agencies. This lack of research is quite surprising because the characteristics of home health care workers' duties and the surrounding factors have long been cited as significant predictors of job satisfaction and attitudes toward their jobs as direct care workers (Ayalon, 2010; Denton, et al., 2002).

Moreover, many recent studies have discussed the importance of direct care workers' roles in health care fields including long-term care. Also they have examined the effects of work environment perceptions and organizational support on improving home health care workers' outcomes such as job commitment (Dutcher & Adams, 1994)

and job satisfaction (Ejaz, et al., 2008). Finally, some studies have investigated that the individual predictors such as education, household income, wage level, and hours worked influence the ability of workers to retain the home health care jobs, intent to leave, and actual turnover among home care workers (Banijamali, Jacoby, & Hagopian, 2014; Faul, et al., 2010; Matthias & Benjamin, 2005). These studies confirm that the agencies and communities where home health aides work may have complex attributes. Furthermore, the characteristics of agencies and communities may have a profound influence on the behaviors and attitudes of nursing staff, such as job satisfaction and depression (Muntaner, et al., 2004; Muntaner, et al., 2006).

This study demonstrates that it is important to consider both personal-level and organizational-level/county-level contextual characteristics to better understand individual home health aides' job satisfaction and intent to quit. Therefore, the primary purpose of this study was to examine the effects of organizational factors and community-level characteristics on job satisfaction and intent to quit among home health aides using a sample of home health care industry workers. This section explains several important discussions about the findings from the HLM analyses. More details about the specific findings are discussed in terms of individual-, organizational- and neighborhood-level predictors of job satisfaction and intent to quit among home health aides. In addition, the implications of the study findings in relation to practice, policy, and research are discussed. Considering the limitations of the study, recommendations for future research are suggested in this section.

8.1 OVERVIEW OF THE FINDINGS

The author examined the work-related and job perception factors that affect job satisfaction and intent to quit among home health aides at both the individual and agency levels while also accounting for the home health aides employed by home health agencies. In addition, the study investigated the predictors affecting job satisfaction and intent to quit by home health aides at both the individual and the community levels while accounting for the workers being nested in counties in the U.S. More details about or explanations of specific findings are discussed in terms of individual-, facility-, and community-level predictors of job satisfaction and intent to quit.

Work-Related Factors Influencing Job Satisfaction and Intent to Quit among Home Health Aides

In this study, the author investigated work-related factors that affect job satisfaction and intent to quit among home health aides working in the home health care industry. The individual-level work-related factors included training, hourly wages, availability of health insurance, number of benefits provided, and patient assignment. With regard to the work-related factors, the results confirmed that the number of fringe benefits provided by the agencies are significant predictors for higher levels of job satisfaction among home health aides. Other studies have produced similar results with regard to the effect of benefits and wages for home health care workers who decided to stay in their jobs (Banijamali, et al., 2014). Interestingly, those who are less than 24 years old, those who have a household income of \$20,000 – 30,000, and workers who have worked 2 – 5 years tend to have lower levels of job satisfaction. These findings were consistent with the results of other studies (Butler, Brennan-Ing, Wardamasky, & Ashley,

2014). They concluded that older home health care workers tend to have longer job tenure with high job satisfaction than those who are younger.

The perception of supervisor supportiveness, indicating the quality of supervisory behaviors, was significantly associated with job satisfaction among home health aides. Home health aides who perceive themselves as having high supervisor quality were more likely to be satisfied with their jobs. However, this factor was not associated with intent to quit their jobs among home health aides. Although this particular finding was not consistent with the hypothesis for the outcome of intent to quit, other studies have shown similar results with supervisor supportiveness having less influence than other factors in direct care workers' intention to leave their jobs among direct care workers (Brannon, et al., 2007; Buelow, et al., 1999; Gao, Tilse, Wilson, Tuckett, & Newcombe, 2015). Home health care workers perception of being valued from the agencies affect job satisfaction of workers and their intention to quit from their jobs significantly. With similar results from other studies (Gao, et al., 2015), this observation shows that supervisor supportiveness and being valued by the agencies both work as factors that improve job satisfaction and lower the likelihood of workers leaving their jobs.

At the organizational level, ownership status was significantly associated with job satisfaction. However, it was not significantly associated with intent to leave among home health aides. This indicates that home health aides working at for-profit agencies reported a lower level of satisfaction with their jobs. This result was consistent with other studies that job dissatisfaction and turnover intent were observed among home health care workers who were affiliated with for-profit agencies (Jang et al., 2015). Therefore, this strongly suggests that home health aides' job satisfaction can be affected by the

employment by agencies that are for-profit. Also, home health aides working at hospice agencies reported a higher level of satisfaction with their jobs than those working at home health agencies.

In terms of agency-level variables, location had a significant effect on job satisfaction. Home health aides working for agencies in micropolitan areas were less likely to be satisfied with their jobs than those in macropolitan areas. This result is consistent with the previous study demonstrating that nursing assistants working in suburban areas were less satisfied with their jobs than those working in urban areas (Grieshaber, Parker, & Deering, 1995). Furthermore, those who worked in agencies located in micropolitan areas were more likely to leave their jobs. This result is not in line with the literature demonstrating the longer job tenure of direct care workers living in rural areas or medium-sized cities (Butler, et al., 2014). There was also significant effect of patient care revenue source for the agency on job satisfaction. Home health aides working in agencies where more than 75% of their patient care revenue came from Medicare were more likely to be satisfied with their jobs. Moreover, home health aides working in agencies where 25 – 50% of their patient care revenue came from Medicaid were more satisfied with their jobs. Moreover, patient assignment had a significant effect on intent to quit. Home health aides who were assigned to the same patients over a period of time were less likely to leave their jobs.

With regard to job tenure, home health aides who had worked 2 – 5 years showed that they were more likely to intend leaving their jobs. Furthermore, the perception of being valued by organizational value is associated with no intent to quit their jobs. This

also explains that home health aides working in agencies exhibiting a higher level of values for home health care jobs were less likely to intend to quit their jobs.

Using data collected from home health aides and the agencies for which they worked, the author found that supervisor quality and a perception of being valued by their organizations were related to job satisfaction/intent to quit. Specifically, the significant cross-level interaction effects revealed that training had a stronger relationship with job satisfaction when individual home health aides worked for agencies perceived as having high level of supervisor quality and as valuing their workers. The number of benefits available had a stronger relationship with job satisfaction when individual home health aides worked for agencies perceived as having high supervisor quality and as valuing their workers. Also, the hourly wage had a stronger relationship with job satisfaction when individual home health aides worked for agencies perceived as valuing their workers. Finally, stable patient assignments had a stronger relationship with job satisfaction when individual home health aides worked for agencies perceived as valuing their workers.

With regard to intent to quit by home health aides, the significant cross-level interaction effects revealed that job satisfaction had a stronger relationship with intent to quit when individual home health aides worked for agencies perceived as valuing their workers. Training had a stronger relationship with intent to quit when individual home health aides worked for agencies perceived as valuing their worker. However, commitment to organizations had a weaker relationship with intent to quit when individual home health aides worked for agencies that had a higher level perception of values from organizations. Moreover, the availability of health insurance had a weaker

relationship with intent to quit when individual home health aides worked for agencies that had a higher level perception of values from organizations and supervisor quality.

The results explain that the level of job satisfaction and intent to quit varied significantly across agencies when the values of work-related factors was 0. The results also support the ideas that positive supervisor quality and the perception that organizations value their workers may improve job satisfaction in home health aides and make them less likely to decide upon leaving their jobs. Therefore, we can conclude that measuring and modeling supervisor quality and organizational values is a valuable tool for researchers studying the contextual effects of agencies. With regard to the cross-level interaction effects, the impact of training and the benefits available in predicting job satisfaction were moderated by supervisor supportiveness and a feeling of being valued within one's work unit. Also, the impacts of hourly wage and the stability of patient assignments in predicting job satisfaction were moderated by a feeling of being valued within one's work unit.

Moreover, the impacts of job satisfaction and training in predicting intent to quit were positively moderated by a feeling of being valued within one's agency unit. However, the impact of commitment to organizations in predicting intent to quit were negatively moderated by a feeling of being valued within one's agency unit. The impact of health insurance in predicting intent to quit was negatively moderated by supervisor supportiveness of the agency units.

Job-Perception Variables Influencing Job Satisfaction and Intent to Quit Among Home Health Aides

With regard to job perception, the author included feelings of being respected, being trusted, being involved in challenging work, and being confident when examining the predictors of job satisfaction and intent to quit among home health aides. The results confirmed that being respected, being trusted, being involved in challenging work, and being confident were contributing factors to higher level of job satisfaction among home health aides. Moreover, being involved in challenging and being confident also contributed to a reduction in home health aides' intent to leave their jobs.

The significant cross-level interaction effects revealed that being respected and being trusted had a stronger relationship with job satisfaction when individual home health aides worked for agencies that were perceived to have high supervisor quality. However, job satisfaction and being respected had a weaker relationship with intent to quit when individual home health aides worked for agencies that were perceived to have high supervisor quality.

Furthermore, job satisfaction had a stronger relationship with intent to quit when individual home health aides worked for agencies that they believed placed a high value on their workforce. Also, commitment to organizations had a weaker relationship with intent to quit when individual home health aides worked for agencies that they believed placed a high value on their workforce. Being confident had a weaker relationship with intent to quit when individuals worked for agencies that they believed placed a high value on their workforce.

The results support the hypothesis that the level of job satisfaction and intent to quit vary significantly across agencies when the values of job perception variables were 0. With regard to the cross-level interaction effects, the impacts of respect and trust in predicting job satisfaction were positively moderated by supervisor supportiveness within the agency units. However, being respected had a weaker relationship with intent to quit when the workers worked for agencies that were perceived to have high supervisor quality. The impact of confidence in predicting intent to quit was negatively moderated by the value an organization places on its workers. The results confirmed that the impact of job perception in predicting intent to quit was moderated by a feeling of supervisor quality and being valued by agencies within one's work unit.

Community-Level Effects on Job Satisfaction and Intent to Quit

Based on the person-environment fit perspective of job satisfaction and intent to quit, it is explained that dissatisfaction with jobs may occur in socially disadvantaged neighborhoods and that, consequently, the probability of home health aides leaving those neighborhoods is greater. Moreover, one of the fastest growing industries for low-wage workers in the US is the health services industry. Within the health care industry, home health care and long-term care experience the most rapid growth in demand for low-wage workers such as home health aides, personal aides, and nurse assistants. Therefore, home health care facilities are more likely to hire low-wage workers such as home health aides and personal aides, than to hire other professionals.

Working conditions and living environments are important determinants of workers' physical and psychological well-being. Low-wage workers whose work and

living conditions are often disadvantaged and poor are at greater risk of poor mental health outcomes (Muntaner, et al., 2004; Muntaner, et al., 2006). Since workers in neighborhoods with higher levels of concentrated disadvantage frequently experience dissatisfaction with neighborhoods and poor mental health outcomes, this phenomenon may influence their job satisfaction and intent to leave their jobs in those communities.

One of the aims of this study was to simultaneously examine the effects of county- and individual-level variables on job satisfaction and intent to quit outcomes among home health aides in the home health care industry. The author failed to identify significant relationships among all variables including poverty level, median household income, and unemployment rate influencing job satisfaction or intent to quit. After excluding poverty level and median household income because of high correlation and multicollinearity, this study employed an unemployment rate for the analysis.

The results from the Multilevel Modeling analyses revealed that high unemployment rates in the county were negatively associated with overall job satisfaction among home health aides. Consistent with the hypothesis, home health aides who worked in counties with a high level of unemployment were less satisfied with their jobs than the workers who worked in counties with a low unemployment rate. In addition, unemployment rates were positively associated with intent to quit among home health aides. From an ecological perspective, it is assumed that more socially disorganized behaviors may occur in disadvantaged neighborhoods and, consequently, home health aides working in those counties have a greater probability of deciding to leave their jobs. This factor may influence individual workers' job satisfaction. Therefore, the current

study explains that those who worked in the counties with high level of unemployment rates more likely to intend to leave their jobs with lower job satisfaction.

In summary, the results emphasize several important points and provide partial support for the research hypotheses described in the current study. With respect to organization- and community-level predictors, supervisor supportiveness and a feeling of being valued that support the study hypotheses were significant. Among the community-level variables, the unemployment rate of the community had a significant effect on job satisfaction and intent to quit by home health aides. Home health aides who worked in neighborhoods with a higher level of unemployment reported a lower level of job satisfaction and more frequent intent to quit their jobs.

With respect to individual level predictors, the results of the HLM revealed that a greater number of benefits was positively associated with overall job satisfaction. An employer's provision of health insurance was negatively associated with home health aides' intent to quit their jobs. Moreover, the assignment of home health aides to the same patients on most weeks was negatively associated with intent to quit their jobs. In addition, being involved in challenging work, being trusted, and being confident were positively associated with job satisfaction among home health aides. The involvement in challenging work and a feeling of confidence were negatively associated with intent to quit from their jobs. Home health aides who were younger tended to be less satisfied with their jobs than those who were older. Furthermore, home health aides who were more highly educated were more likely to leave their jobs.

With regard to the work-related factors and job-perception variables, it should be noted that the individual-, organizational-, and community-level variables for job satisfaction and intent to quit included in the current study did significantly contribute to the variance explained within and between home health agencies or counties.

8.2 IMPLICATIONS FOR PRACTICE, POLICY AND RESEARCH

The findings of this study using nationally representative data provide further evidence that can be translated into management practice changes and policies for direct care workforce and home health care agencies. The findings concerning the work-related factors and job-perception can serve as important guidelines for intervention strategies to improve job satisfaction. Furthermore, because job satisfaction and commitment to organizations are significant predictors of intent to quit among home health aides, managers, owners, and policy makers must build strategies to improve job satisfaction. They also should make any changes to management practice in home health care settings that will improve retention of their direct care workforce.

Some variables considered in the proposed framework were significant predictors of home health aides' job satisfaction and intent to quit. With regard to work-related factors, possible explanations are that training, benefits, hourly wage, and patient assignment may influence home health aides' job satisfaction and intent to quit. In the home health care industry, direct care staff such as home health aides should be trained in communicating effectively with their team members. It is important to train workers to be competent direct care providers who can provide appropriate care to patients. Training may also be an essential factor in preventing workplace injury to aides who provide direct

care to patients, and it may help in solving the problems related to difficult patients. Home health aides are less satisfied when they encounter frequent, difficult problems and lack the proper training to deal with them. According to the workforce provision of the 2010 ACA, it is important that direct care workers should be trained to expand the scope of practice for taking care of patients who have complex health needs and to help care workers to make right decisions for patients (Kim, Wehbi, DelliFraine, & Brannon, 2014; Yoon, Probst, & DiStefano, 2016).

In addition to providing training for workers, academia – including public health and nursing schools – and employers should also be dedicated to providing training for supervisory personnel. Nursing supervisors and administrative managers must be trained to perform supervisor roles effectively in their workplaces. It is very important that employers provide support for directors and nursing supervisors to develop their supervisory skills in order to better care for their employees. Health care practitioners and administrators who want to develop skills and training protocols that can be tailored to promote job satisfaction and to prevent actual turnover among home health aides must understand the nature and extent of home health aides' job satisfaction and intent to quit their jobs (R. I. Stone & Bryan, 2012).

Another explanation from this research is that appropriate payment and benefits play crucial roles in improving job satisfaction. When we reflect that direct care workers develop their ability and skills to improve their benefits and pay, managers and organizations cannot ignore the importance of health insurance, pay and benefits if they wish to decrease turnover among home health aides. From a financial standpoint, direct care workers such as home health aides, personal aides, and certified nurse assistants tend

to look for better paying jobs. Therefore, they may decide to leave their jobs for a position with a higher pay and better benefits regardless of job satisfaction (J. Choi, 2010).

Workload can be a barrier to increasing job satisfaction and retaining the direct care workforce of an organizations. Even though the results from HLM do not support the hypothesis that home health aides who were assigned to multiple patients and who experienced changes in patient assignment were less satisfied with their jobs than workers whose patient assignments were more stable, the current study supports the hypothesis that home health aides with multiple patients are more likely to intend leaving their jobs than workers whose assignments are more stable. Being assigned to multiple patients and experiencing frequent changes in patient assignments create an added burden for home health aides, since they have difficulty to manage the work overload. Parmelee and colleagues (2009) identified workload as one of the barriers that prevent nursing assistants from effectively performing their tasks in nursing homes. Also, it is suggested that work overload can impact the mental well-being of direct care staff in nursing homes (Pelissier et al., 2015). Therefore, management staff and nursing supervisors must make efforts to increase job satisfaction among their direct care staff reducing work overload while continuing to provide care to patients.

With regard to job perception, direct care workers' feelings of being respected, being trusted, being involved in challenging work, and being confident in their abilities are also crucial factors in increasing job satisfaction and decreasing turnover intent. Yoon and colleagues (2016) identified these factors as playing significant mediating roles both in the relationship between organizational support and job satisfaction and between

supervisor quality and job satisfaction. It indicates that being respected and being trusted by the agency are important components in producing job satisfaction (Yoon, et al., 2016). When direct care workers believe their organization has a positive view of their work, this creates a supportive culture in the workplace and leads to recognition of their achievements. Support and recognition also play important roles in weakening the negative relationships between job-related stress and job satisfaction.

However, it is not easy to provide fundamental solutions that will improve job satisfaction and decrease intent to quit among home health aides. The findings from this study support the idea that supervisor quality and a feeling of being valued indicate supportive leadership and supportive culture in organizations. Based on the results from previous studies, direct care workers' behavioral outcomes are complex phenomena affected by supervisors' and directors' supervisor roles and management approach in their agencies. Organizational and environmental factors may also influence organizational behaviors (Brannon, et al., 2007). Responding to the growing needs for home health care and the persistent challenges experienced by its workforce, these are important factors that management may want to build on to increase retention of the direct care workforce. The findings of the current study indicate that direct care workers who feel valued by their organizations and who have a perception of high supervisor quality were less likely to intend quitting their jobs. Reward and recognition, training, participation in care planning, and stable patient assignments are important components to be used as strategies for enhancing the values of direct caregiving tasks (Brannon, et al., 2007). Also they are essential factors for direct care workers to broaden the scope and capacity of caregiving opportunities. Therefore, a high quality workplace can be made by

supervisors and organizations that develop supportive strategies for the front line workers (Brannon, et al., 2007). Supervisor quality is characterized by clear instruction regarding work assignments, support for career progress, listening to observations from aides about patient care, and recognition for doing a good job. The practical implications for supervisor quality are that supportive supervisors are important to open to discussion about optimal level of care, to provide conversations with staff, to provide feedbacks to performance, and to provide mentoring (Buelow, et al., 1999).

With the emphasis on the importance of training (R. I. Stone & Bryan, 2012; Yoon, et al., 2016), the workforce provision of the Affordable Care Act (ACA) also emphasized the role of health insurance in helping employees manage healthier lifestyles in their work places. For example, health insurance can play an important role for workers who have chronic conditions and health problems and who return to work upon recovery. Health care reform can improve the return-to-work rates of workers who have injuries and diseases. Although some differences in coverage still exist, uninsured home health aides should be able to get health insurance under the new health care reform law. These factors are all important components of organizational changes to management practices for health care facilities. Using them, managers and owners will be able to develop intervention strategies to respond to workers' needs to improve job satisfaction, and to prevent actual turnover among home health aides (Yoon, et al., 2016). Based on the results and implications of the current study, the author suggests that organizational attributes such as supervision, leadership, and management styles in home health care settings need systematic analysis including the collection of more proper variables. In addition, it is necessary to develop and evaluate training programs to improve leadership

skills and the quality of supervision. To improve home health care, it is very important to improve quality and effectiveness of supervision carried out by home health agencies. Furthermore, it is also important to change organization behaviors to give higher emphasis on the work being performed by home health care workers.

Some programs in home health care services (e.g. home health aide visits) depend on Medicare and Medicaid payments. Therefore, decreases in Medicare and Medicaid reimbursements have negatively influenced the ability of home health care services to provide home health aide visits. Consequently, economic feasibility places constraints upon the management of home health agencies. The limited economic feasibility of home health agencies to fulfill their missions may make it difficult to increase the wages of frontline workers such as home health aides. Under this situation, turnover is highly associated with the strategies used to minimize the costs of health care in long-term care settings. Therefore, further research will be needed to investigate the relationship between turnover and actual costs. Furthermore, policy makers and administrators in the home health care industry should continue making efforts to increase direct care workers' wages so that they are consistent with the difficulty of the work and the long-distance travel of visits to patients' homes. Federal and state governments can use the increase of governmental and commercial reimbursement rates for home health aides visits as a critical determinant for the salaries of direct care workers such as home health aides.

The results of studying the community-level characteristics imply that employees' decision to stay in their jobs can be affected if the neighborhood in which they work experiences high levels of violent crime, unemployment, poverty. The results from HLM support the hypotheses that home health aides working in counties with high levels of

unemployment are less satisfied with their jobs and are more likely to intend leaving their jobs than those who work in counties with lower level of unemployment. In the local labor market, moreover, home health agencies compete with other health care organizations such as long-term care facilities to retain and recruit home health aides as entry-level workers with low wages. Also, they share the same labor pool with other industries such as fast food restaurants and retail stores like Wal-Mart. Even though it is difficult to generalize the findings to all home health aides, further research is needed to investigate the complex relationship between the varying situations of home health aides, their job satisfaction, and their intent to quit.

8.3 LIMITATIONS OF STUDY

The author should acknowledge that this study has some limitations. First, this study used a cross-sectional sample of home health workers. This limits the ability to make causal inferences from the data under investigation. In addition, this study sampled aides working at agencies that provide only home health care, agencies that provide only hospice care, and agencies that provide both home health and hospice care (mixed). As described above, among 3,377 aides, 1,203 of these aides worked at agencies that provide only hospice care. Of the sample, 2,174 worked at agencies that provide only home health care and agencies that provide both home health care and hospice care. Moreover, most workers were White, female, and fluent in English. Therefore, the current study cannot represent non-Whites and those with limited English proficiency. Consequently, this sample may not be representative of all home health workers and thus this study limits the generalizability of the findings.

Secondly, this study is also limited to measuring systematically certain items because the NHHAS questionnaire was not developed to assess individual responses to items based on a conceptual model verified by psychometric testing. Therefore, this study has limitations in testing the reliability and validity of measures. In this study, the author combined job satisfaction and intent to quit variables into a binary variable from a 4-point Likert scale and a 3-point Likert scale for statistical analysis because very few home health aides reported they were extremely dissatisfied and more likely to leave. This may have led to the loss of some information and may limit the ability of multilevel modeling to find relationships and to draw conclusions.

Another limitations is the lack of relevant variables to cover the factors for testing the entire conceptual model. Job perception and workplace environment are important factors influencing job satisfaction, intent to leave, and actual turnover among home health aides working in the home health industry. However, the elements of the 2007 National Home Health Aides Survey are not adequately detailed to measure the workplace environment and job perception for home health aides in the home health care industry. This survey has very few instruments developed to appropriately test the working conditions and other behavioral outcomes of home health aides. If we use the appropriate scales that have been developed previously to measure working environment and job perception and then extend them to home health care settings, the survey can be more easily used to enhance understanding of home health aides' perception and the relation to behavioral outcomes, job satisfaction, intent to leave, and actual turnover.

In relation to staffing factors, the author found that a great deal of data was missing from the variables that were created to test staffing-related factors. As the issues

that are inherent in the most commonly used data such as OSCAR data, the missingness created difficulty in testing the effects of staffing factors on the behavioral outcomes of home health aides.

Even though the author used county level variables of unemployment rate in the community level analysis, county code in the data set refers to the location of the agencies not the location of the health care workers. Therefore, the county information may not be right geographic code to use to understand the behavior of health care workers.

Finally, the study was conducted with population-based samples. The sample in the 2007 National Home Health Aides Survey (NHHAS) consisted of home health aides working in agencies that provide home health care and/or hospice care. Therefore, this study excluded home health aides who were employed directly by patients.

Consequently, the perception of work related factors and job perception factors described in this study may not correspond directly to the perceptions of home health aides employed directly by patients. Thus, the results of this study cannot be generalized to all home health aides employed by patients.

8.4 CONCLUSIONS AND RECOMMENDATIONS

To our knowledge, this is the first study in the field of home health care that found support not only for the direct effect of work-related factors and job perception variables on workers' outcomes but also for the cross-level effects of organizational values and supervisor quality in the relationship between individual-level predictors and outcomes. The findings are a clear indication that supervisor quality and organizational

values are the most significant predictors of home health aides' job satisfaction and intent to quit. These factors significantly moderate the relationship, among home health aides, between work-related factors and job satisfaction or intent to quit and between job-perception factors and job satisfaction or intent to quit among home health aides.

In the current study, workers job satisfaction and intent to quit were used for organizational outcome measures. More studies are needed that use other outcomes, such as patient satisfaction, worker productivity, and actual turnover rates to better understand health care facilities' organizational performance.

The current study was focused on home health care agencies employees. Further study is needed to determine whether the findings are generalizable to other health care fields. Studies in other health care settings (e.g., nursing homes, residential care facilities) would make the results more generalizable. In addition, research on the same topic in other human service agencies could improve generalizability of the findings. Further research needs to invite more representative samples of home health workers.

Because of the limitations of this study, the author recommends that future research include testing the proposed relationships between organizational culture, leadership style, and organizational outcomes in more coherent clusters of workers. Therefore, this study also recommends examining how organizational culture and neighborhood characteristics affect physicians and nurses. In addition, future study should consider the effectiveness of workforce development strategies in order to improve overall job satisfaction among direct care workers including home health aides. These efforts will be closely connected to providing best-evidenced practices to patients.

As demand for home health care is increasing, home health care aides should be recognized as essential workers in the interdisciplinary health care team to provide home health care services.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL LETTER



OFFICE OF RESEARCH COMPLIANCE

March 19, 2014

Mr. Seokwon Yoon
Arnold School of Public Health
Health Services Policy and Management
915 Greene St
Columbia, SC 29208

Re: Pro00033211

Study Title: *Job Satisfaction and Intent to Quit as Outcomes Among Home Health Aides in Home Health Care Industry of the United States: A Multilevel Study*

Dear Mr. Yoon:

The Office of Research Compliance, an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB), reviewed the referenced study on behalf of the USC IRB, and determined that the proposed activity is exempt from the Protection of Human Subjects Regulations (45 CFR 46.102). No further oversight by the IRB is required; however, the investigator should inform this office prior to making any substantive changes to the study, as this may alter the exempt status of the study.

If you have questions, please contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa M. Johnson".

Lisa M. Johnson
IRB Manager

APPENDIX B: TABLES FOR THE RESULTS FROM JOB SATISFACTION

Table B.1. The results from One-Way ANOVA with Random Effect Model: Job Satisfaction

Variable	Fixed Effect	Random Effect		
	OR (SE)	Level 2 Variance (Facility)	Log likelihood	ICC
Job satisfaction	1.177 (.098)***	.241 (.148)	-24800.952	.068

* $p < .05$, ** $p < .01$, *** $p < .001$

ICC = Intraclass Correlation Coefficient

Table B.2. Model 1: The results of two level logistic regression model for home health aides' job satisfaction

Variables	Job Satisfaction					
	Model 1: Work-related environment and supervisor quality					
	Random Intercepts	Training	Health insurance	Hourly wage	Benefit	Patient assignment
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Level 1						
Intercept	1.812 (.520)*	1.971 (.337)***	1.989 (.341)***	1.926 (.335)***	1.988 (.343)***	2.026 (.335)***
Training	1.027 (.248)	.995 (.053)	.990 (.052)	.995 (.053)	.992 (.053)	.993 (.052)
Hourly rate	.979 (.023)	.995 (.005)	.995 (.005)	.996 (.005)	.995 (.005)	.996 (.005)
Health insurance	.724 (.236)	.930 (.064)	.927 (.063)	.932 (.064)	.929 (.064)	.931 (.064)
Benefit	1.151 (.049)**	1.032 (.010)**	1.032 (.010)**	1.033 (.010)***	1.032 (.010)**	1.032 (.009)***
Patient assignment	1.308 (.340)	1.064 (.058)	1.064 (.059)	1.064 (.058)	1.064 (.059)	1.060 (.058)
Age						
Less than 24	.340 (.140)**	.793 (.067)**	.794 (.068)**	.798 (.069)**	.794 (.068)**	.802 (.065)**
25 – 34	.676 (.216)	.915 (.063)	.913 (.063)	.920 (.064)	.914 (.063)	.907 (.060)
35 – 44	.676 (.187)	.920 (.053)	.920 (.053)	.925 (.053)	.916 (.053)	.916 (.050)
45 – 54	.600 (.178)	.887 (.056)	.888 (.057)	.892 (.057)	.888 (.057)	.886 (.056)
Race						
White	.941 (.296)	.992 (.064)	.992 (.064)	.997 (.067)	.994 (.064)	.982 (.063)
Black	.732 (.269)	.939 (.070)	.940 (.070)	.944 (.070)	.939 (.070)	.926 (.066)
Education	.811 (.139)	.964 (.037)	.967 (.037)	.964 (.037)	.966 (.037)	.962 (.036)
Household income						
Less than 20,000	.672 (.169)	.920 (.043)	.920 (.043)	.921 (.043)	.921 (.043)	.913 (.042)*
20,000 – 30,000	.642 (.127)*	.908 (.038)*	.909 (.038)*	.910 (.038)*	.909 (.038)*	.912 (.037)*
Job tenure						
Less than 2 years	1.769 (.627)	1.117 (.079)	1.115 (.079)	1.119 (.079)	1.116 (.079)	1.107 (.079)
2 – 5 years	.629 (.148)*	.895 (.046)*	.893 (.046)*	.894 (.045)*	.893 (.046)*	.895 (.045)*
6 – 10 years	.888 (.260)	.957 (.053)	.954 (.051)	.958 (.052)	.956 (.052)	.960 (.052)
Level 2						
Supervisor quality	1.212 (.117)*	1.034 (.046)*	1.035 (.046)*	1.034 (.046)*	1.035 (.046)*	1.038 (.045)*
Ownership	.593 (.125)*	.892 (.040)*	.891 (.041)*	.895 (.040)*	.892 (.041)*	.898 (.039)*
Agency						
Home health agency	1.245 (.224)	1.046 (.041)	1.045 (.041)	1.040 (.041)	1.046 (.041)	1.057 (.043)
Hospice agency	1.759 (.381)**	1.132 (.052)**	1.128 (.052)**	1.123 (.052)*	1.128 (.052)**	1.138 (.053)**
Size						
Small size	1.249 (.379)	1.044 (.068)	1.041 (.069)	1.046 (.069)	1.043 (.069)	1.033 (.066)
Medium size	.985 (.270)	1.000 (.060)	.996 (.060)	1.001 (.060)	.997 (.060)	.997 (.060)
Location						
Metropolitan	.721 (.163)	.931 (.045)	.930 (.046)	.932 (.044)	.931 (.046)	.920 (.044)
Micropolitan	.604 (.137)	.891 (.043)*	.891 (.044)*	.893 (.042)*	.891 (.043)*	.891 (.042)*
Staffing level	.999 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)
Home health aides	.989 (.006)	.997 (.001)*	.998 (.001)	.998 (.001)	.997 (.001)	.997 (.001)*
Registered nurse	.992 (.006)	.998 (.001)	.998 (.001)	.998 (.001)	.998 (.001)	.998 (.001)

Medicare revenue						
More than 75 percent	3.557 (1.571)**	1.276 (.112)**	1.283 (.113)**	1.272 (.112)**	1.277 (.113)**	1.293 (.115)**
50 – 75 percent	2.040 (.898)	1.124 (.105)	1.126 (.105)	1.123 (.104)	1.124 (.106)	1.141 (.105)
25 – 50 percent	.692 (.271)	.915 (.077)	.919 (.077)	.908 (.077)	.914 (.078)	.928 (.078)
Medicaid revenue						
More than 50 percent	2.480 (1.145)*	1.185 (.111)	1.186 (.112)	1.182 (.110)	1.177 (.112)	1.165 (.110)
25 – 50 percent	2.103 (.691)*	1.176 (.079)*	1.179 (.082)*	1.172 (.077)*	1.172 (.080)*	1.175 (.075)*
10 – 25 percent	1.036 (.214)	1.006 (.045)	1.005 (.045)	1.002 (.044)	1.005 (.045)	1.007 (.043)
<u>Cross level interaction</u>						
Training*Supervisor		1.019 (.027)*	1.019 (.027)*	1.019 (.027)*	1.019 (.027)*	1.020 (.028)*
Insurance*Supervisor		.981 (.026)	.980 (.026)	.980 (.026)	.980 (.026)	.980 (.027)
Assignment*Supervisor		1.001 (.022)	1.000 (.022)	1.001 (.022)	1.000 (.022)	1.000 (.021)
Hourwage*Supervisor		1.004 (.003)	1.004 (.003)	1.004 (.003)	1.004 (.003)	1.004 (.003)
Benefit*Supervisor		1.010 (.004)*	1.010 (.004)*	1.011 (.004)*	1.010 (.004)*	1.010 (.005)*
Log likelihood	-17769.702	-18328.454	-18321.742	-18314.738	-18318.945	-18177.07
Random effects						
Var (1)	.0243 (.0136)	.0009 (.004)	.0004 (.004)	.0255 (.025)	.0005 (.002)	.0196 (.011)
Var (2)		.0018 (.006)	.0112 (.022)	.00006 (.0001)	.00009 (.0001)	.0814 (.033)
Residual		.203 (.008)	.202 (.009)	.202 (.008)	.202 (.008)	.187 (.009)

* p < .05, ** p < .01, *** p < .001

Table B.3. Model 2: The results of two level logistic regression model for home health aides' job satisfaction

Variables	Job Satisfaction					
	Model 2: Work-related Environment and Organizational Values					
	Random Intercepts	Training	Health insurance	Hourly wage	Benefit	Patient assignment
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Level 1						
Intercept	2.166 (2.018)	1.850 (.323)***	1.874 (.334)***	1.793 (.319)**	1.866 (.331)***	1.912 (.316)***
Training	.932 (.266)	.990 (.052)	.986 (.051)	.991 (.052)	.988 (.052)	.988 (.050)
Hourly rate	.971 (.025)	.996 (.005)	.995 (.005)	.996 (.005)	.996 (.005)	.996 (.005)
Health insurance	.696 (.226)	.934 (.061)	.931 (.060)	.935 (.062)	.933 (.061)	.939 (.061)
Benefit	1.145 (.052)**	1.025 (.009)**	1.024 (.010)**	1.026 (.009)**	1.025 (.010)**	1.025 (.009)**
Patient assignment	1.399 (.386)	1.078 (.059)	1.079 (.060)	1.079 (.059)	1.080 (.060)	1.071 (.058)
Age						
Less than 24	.357 (.150)*	.846 (.066)*	.844 (.066)*	.849 (.067)*	.845 (.066)*	.846 (.061)*
25 – 34	.739 (.241)	.938 (.059)	.933 (.060)	.944 (.060)	.937 (.059)	.925 (.055)
35 – 44	.861 (.263)	.968 (.057)	.967 (.057)	.973 (.057)	.967 (.057)	.956 (.053)
45 – 54	.708 (.216)	.939 (.053)	.937 (.053)	.942 (.053)	.939 (.053)	.931 (.052)
Race						
White	.926 (.311)	.990 (.065)	.988 (.065)	.997 (.068)	.992 (.065)	.980 (.062)
Black	.672 (.259)	.923 (.069)	.923 (.069)	.930 (.072)	.922 (.070)	.910 (.065)
Education	.785 (.136)	.957 (.034)	.960 (.034)	.956 (.033)	.958 (.033)	.953 (.033)
Household income						
Less than 20,000	.654 (.161)	.940 (.044)	.941 (.044)	.942 (.044)	.942 (.044)	.937 (.044)
20,000 – 30,000	.611 (.132)*	.906 (.037)*	.907 (.037)*	.907 (.037)*	.907 (.037)*	.908 (.036)*
Job tenure						
Less than 2 years	1.696 (.595)	1.082 (.066)	1.081 (.066)	1.087 (.067)	1.081 (.066)	1.075 (.064)
2 – 5 years	.686 (.161)	.929 (.045)	.928 (.046)	.929 (.045)	.928 (.046)	.930 (.043)
6 – 10 years	.882 (.248)	.969 (.053)	.966 (.051)	.971 (.051)	.969 (.052)	.972 (.051)
Level 2						
Organizational values	5.938 (1.632)***	1.060 (.180)*	1.051 (.182)*	1.056 (.178)*	1.064 (.182)*	1.081 (.182)*
Ownership (For-profit)	.527 (.122)**	.884 (.039)**	.882 (.040)**	.889 (.039)**	.882 (.039)**	.893 (.037)**
Agency						
Home health agency	1.294 (.252)	1.055 (.040)	1.054 (.040)	1.048 (.041)	1.057 (.040)	1.070 (.042)
Hospice agency	1.838 (.445)*	1.131 (.050)**	1.127 (.050)**	1.124 (.050)**	1.130 (.050)**	1.142 (.050)**
Size						
Small	1.189 (.405)	1.028 (.070)	1.024 (.071)	1.030 (.070)	1.027 (.071)	1.014 (.066)
Medium	.982 (.304)	.995 (.060)	.992 (.061)	.997 (.060)	.994 (.061)	.994 (.061)
Location						
Metropolitan	.699 (.174)	.931 (.043)	.931 (.045)	.930 (.042)	.932 (.045)	.917 (.042)
Micropolitan	.611 (.150)*	.906 (.042)*	.904 (.043)*	.906 (.041)*	.903 (.043)*	.903 (.041)*
Staff level	.999 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)
Home health aides	.987 (.006)*	.998 (.001)	.998 (.001)	.998 (.001)	.998 (.001)	.998 (.001)
Registered nurse	.991 (.007)	.999 (.001)	.999 (.001)	.999 (.001)	.998 (.001)	.998 (.001)

Medicare revenue						
More than 75 percent	3.919 (1.971)**	1.312 (.117)**	1.322 (.119)**	1.306 (.116)**	1.314 (.119)**	1.325 (.118)**
50 – 75 percent	2.185 (1.070)	1.155 (.107)	1.154 (.108)	1.152 (.105)	1.152 (.108)	1.169 (.105)
25 – 50 percent	.659 (.295)	.919 (.078)	.919 (.078)	.907 (.077)	.917 (.078)	.932 (.078)
Medicaid revenue						
More than 50 percent	2.652 (1.358)	1.205 (.111)*	1.211 (.113)*	1.204 (.110)*	1.198 (.113)*	1.174 (.109)
25 – 50 percent	2.184 (.803)*	1.176 (.078)*	1.189 (.083)*	1.175 (.077)*	1.180 (.080)*	1.180 (.073)**
10 – 25 percent	1.016 (.236)	1.009 (.044)	1.011 (.045)	1.005 (.043)	1.010 (.045)	1.009 (.041)
<u>Cross level interaction</u>						
Training*Org Value		1.083 (.105)*	1.089 (.107)*	1.082 (.104)*	1.085 (.106)*	1.042 (.108)*
Insurance*Org Value		.927 (.122)	.923 (.120)	.921 (.117)	.931 (.122)	.925 (.121)
Assignment*Org Value		1.504 (.208)**	1.504 (.208)**	1.504 (.208)**	1.504 (.208)**	1.508 (.212)**
Hou wage*Org Value		1.031 (.010)**	1.032 (.010)**	1.032 (.011)**	1.031 (.010)**	1.034 (.010)**
Benefit*Org Value		1.068 (.025)**	1.068 (.025)**	1.068 (.025)**	1.068 (.025)**	1.071 (.025)**
Log likelihood	-16773.6652	-17509.506	-17488.776	-17489.589	-17489.408	-17308.385
Random effects						
Var (1)	.137 (.016)	.0071 (.012)	.00064 (.004)	.030 (.028)	.0006 (.0019)	.020 (.012)
Var (2)		.0007 (.001)	.016 (.025)	.0008 (.0001)	.00014 (.0001)	.089 (.036)
Residual		.191 (.009)	.189 (.009)	.190 (.009)	.190 (.008)	.174 (.008)

* p < .05, ** p < .01, *** p < .001

Table B.4. Model 3: The results of two level logistic regression model for home health aides' job satisfaction

Variables	Job satisfaction				
	Model 3: Job Perception and Supervisor Quality				
	Random Intercepts	Respect	Challenge	Trust	Confident
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Level 1					
Intercept	.213 (.177)*	1.152 (.195)*	1.147 (.195)*	1.153 (.195)*	1.167 (.202)*
Respect	1.485 (.368)	1.140 (.059)*	1.141 (.059)*	1.141 (.059)*	1.135 (.059)*
Challenge	2.421 (.548)***	1.188 (.056)***	1.188 (.056)***	1.189 (.056)***	1.185 (.056)***
Trust	2.147 (.601)**	1.212 (.055)***	1.214 (.056)***	1.213 (.055)***	1.211 (.056)***
Confident	1.929 (.444)**	1.138 (.054)**	1.137 (.054)**	1.136 (.054)**	1.142 (.053)**
Age					
Less than 24	.367 (.171)*	.847 (.072)*	.847 (.072)*	.847 (.072)*	.846 (.072)*
25 – 34	.741 (.250)	.971 (.059)	.972 (.059)	.969 (.059)	.969 (.059)
35 – 44	.890 (.273)	.992 (.054)	.994 (.053)	.990 (.054)	.989 (.053)
45 – 54	.643 (.200)	.929 (.054)	.928 (.054)	.927 (.054)	.925 (.055)
Race					
White	.790 (.249)	.954 (.058)	.953 (.059)	.954 (.058)	.953 (.058)
Black	.610 (.220)	.894 (.059)	.891 (.059)	.895 (.059)	.892 (.059)
Education	.852 (.153)	.972 (.033)	.971 (.033)	.971 (.033)	.972 (.033)
Household income					
Less than 20,000	.744 (.186)	.938 (.042)	.937 (.042)	.936 (.042)	.940 (.042)
20,000 – 30,000	.697 (.126)*	.923 (.034)*	.925 (.035)*	.922 (.034)*	.926 (.034)*
Job tenure					
Less than 2 years	1.938 (.661)	1.111 (.069)	1.106 (.068)	1.112 (.069)	1.107 (.069)
2 – 5 years	.621 (.142)*	.908 (.044)*	.904 (.043)*	.907 (.043)*	.903 (.043)*
6 – 10 years	.862 (.286)	.937 (.055)	.937 (.055)	.936 (.054)	.933 (.055)
Level 2					
Supervisor quality	1.099 (.106)*	1.025 (.034)*	1.025 (.034)*	1.026 (.034)*	1.026 (.034)*
Ownership	.619 (.117)*	.917 (.036)*	.917 (.036)*	.916 (.036)*	.917 (.035)*
Agency					
Home health agency	1.294 (.240)	1.053 (.041)	1.055 (.042)	1.052 (.041)	1.050 (.040)
Hospice agency	1.602 (.330)*	1.103 (.046)*	1.101 (.046)*	1.102 (.046)*	1.103 (.046)*
Size					
Small	1.051 (.335)	1.000 (.062)	1.002 (.063)	1.002 (.062)	.996 (.063)
Medium	.811 (.242)	.955 (.055)	.954 (.056)	.957 (.055)	.950 (.056)
Location					
Metropolitan	.746 (.174)	.926 (.041)	.927 (.041)	.926 (.041)	.926 (.041)
Micropolitan	.652 (.137)*	.908 (.038)*	.908 (.038)*	.907 (.038)*	.909 (.038)*
Staff	.999 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)
HHA	1.000 (.005)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)
RN	1.003 (.006)	1.001 (.001)	1.001 (.001)	1.001 (.001)	1.001 (.001)
Medicare revenue					

More than 75 percent	2.666 (1.176)*	1.200 (.113)	1.208 (.115)*	1.201 (.112)*	1.202 (.113)*
50 – 75 percent	1.463 (.662)	1.079 (.106)	1.091 (.106)	1.080 (.105)	1.079 (.106)
25 – 50 percent	.552 (.215)	.877 (.073)	.885 (.075)	.875 (.072)	.871 (.073)
Medicaid revenue					
More than 50 percent	1.801 (.797)	1.095 (.104)	1.095 (.106)	1.097 (.103)	1.098 (.104)
25 – 50 percent	2.000 (.630)*	1.129 (.074)	1.125 (.074)	1.130 (.074)	1.136 (.075)
10 – 25 percent	.977 (.199)	.988 (.042)	.986 (.042)	.989 (.041)	.990 (.042)
Cross level interaction					
Respect*Supervisor		1.083 (.025)***	1.084 (.025)***	1.083 (.025)**	1.083 (.025)**
Challenge*Supervisor		.995 (.018)	.994 (.018)	.994 (.018)	.993 (.018)
Trust*Supervisor		1.066 (.024)**	1.067 (.023)**	1.066 (.023)**	1.064 (.023)**
Confident*Supervisor		.981 (.020)	.982 (.020)	.981 (.020)	.984 (.020)
Log likelihood	-17158.287	-17559.888	-17550.245	-17564.13	-17535.755
Random effects					
Var (1)	.058 (.002)	.021 (.007)	.001 (.002)	.0001 (.003)	.018 (.013)
Var (2)		.010 (.002)	.011 (.014)	.001 (.002)	.018 (.014)
Residual		.191 (.009)	.189 (.009)	.193 (.007)	.189 (.007)

* p < .05, ** p < .01, *** p < .001

Table B.5. Model 4: The results of two level logistic regression model for home health aides' job satisfaction

Variables	Job satisfaction				
	Model 4: Job Perception and Organizational Values				
	Random Intercepts	Respect	Challenge	Trust	Confident
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Level 1					
Intercept	.284 (.258)	1.249 (.225)	1.246 (.226)	1.252 (.229)	1.261 (.232)
Respect	1.463 (.373)	1.080 (.056)	1.080 (.056)	1.081 (.056)	1.078 (.055)
Challenge	2.229 (.499)***	1.173 (.051)***	1.173 (.051)***	1.173 (.051)***	1.168 (.051)***
Trust	2.028 (.612)*	1.139 (.070)*	1.138 (.070)*	1.138 (.072)*	1.138 (.070)*
Confident	1.674 (.410)*	1.122 (.057)*	1.123 (.056)*	1.122 (.056)*	1.129 (.055)*
Age					
Less than 24	.360 (.170)*	.833 (.071)*	.833 (.072)*	.833 (.071)*	.836 (.071)*
25 – 34	.736 (.257)	.941 (.062)	.942 (.062)	.941 (.062)	.942 (.062)
35 – 44	.996 (.328)	.999 (.063)	1.001 (.063)	.999 (.063)	.995 (.063)
45 – 54	.708 (.216)	.941 (.055)	.942 (.055)	.941 (.055)	.939 (.055)
Race					
White	.782 (.251)	.958 (.061)	.958 (.062)	.959 (.061)	.957 (.061)
Black	.578 (.213)	.901 (.065)	.900 (.065)	.901 (.064)	.899 (.065)
Education	.834 (.144)	.963 (.033)	.963 (.033)	.963 (.033)	.965 (.033)
Household income					
Less than 20,000	.744 (.193)	.952 (.049)	.951 (.049)	.951 (.049)	.957 (.049)
20,000 – 30,000	.662 (.128)*	.926 (.035)*	.928 (.035)*	.926 (.035)*	.932 (.035)
Job tenure					
Less than 2 years	2.031 (.705)*	1.134 (.071)*	1.130 (.070)*	1.134 (.070)*	1.126 (.070)*
2 – 5 years	.690 (.159)	.929 (.045)	.926 (.045)	.928 (.045)	.921 (.046)
6 – 10 years	.906 (.283)	.979 (.060)	.980 (.059)	.978 (.059)	.972 (.058)
Level 2					
Organizational value	3.585 (.937)***	1.187 (.150)	1.188 (.149)	1.187 (.150)	1.180 (.148)
Ownership	.580 (.118)**	.906 (.035)*	.906 (.035)*	.906 (.035)*	.908 (.035)*
Agency					
Home health agency	1.333 (.257)	1.054 (.040)	1.056 (.041)	1.054 (.040)	1.053 (.039)
Hospice agency	1.595 (.349)*	1.095 (.045)*	1.094 (.045)*	1.095 (.045)*	1.099 (.045)*
Size					
Small	1.041 (.356)	1.017 (.067)	1.018 (.068)	1.017 (.067)	1.010 (.068)
Medium	.822 (.263)	.966 (.059)	.965 (.059)	.968 (.059)	.959 (.060)
Location					
Metropolitan	.736 (.170)	.946 (.042)	.947 (.042)	.946 (.042)	.943 (.043)
Micropolitan	.655 (.143)	.922 (.039)	.923 (.039)	.922 (.039)	.923 (.039)
Staff	.999 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.068)
HHA	.999 (.006)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)
RN	1.001 (.006)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)
Medicare revenue					

More than 75 percent	2.778 (1.308)*	1.219 (.117)*	1.224 (.119)*	1.218 (.118)*	1.221 (.118)*
50 – 75 percent	1.512 (.720)	1.082 (.107)	1.090 (.108)	1.080 (.108)	1.081 (.108)
25 – 50 percent	.521 (.219)	.893 (.075)	.901 (.077)	.890 (.076)	.887 (.075)
Medicaid revenue					
More than 50 percent	1.772 (.840)	1.111 (.108)	1.110 (.109)	1.111 (.108)	1.112 (.109)
25 – 50 percent	2.012 (.668)*	1.146 (.072)*	1.143 (.072)*	1.146 (.072)*	1.157 (.075)*
10 – 25 percent	.972 (.210)	1.003 (.041)	1.001 (.041)	1.003 (.041)	1.004 (.041)
Cross level interaction					
Respect*Organizational value		1.031 (.102)	1.032 (.102)	1.031 (.102)	1.038 (.101)
Challenge*Organizational value		1.022 (.078)	1.020 (.077)	1.022 (.078)	1.012 (.078)
Trust*Organizational value		1.009 (.122)	1.006 (.121)	1.009 (.123)	1.008 (.123)
Confident*Organizational value		1.045 (.108)	1.050 (.108)	1.045 (.108)	1.053 (.109)
Log likelihood	-16528.271	-17433.306	-17425.455	-17433.218	-17379.26
Random Effects					
Var (1)	.0024 (.137)	.00002 (.0003)	.0001 (.001)	.005 (.016)	.025 (.014)
Var (2)		.002 (.006)	.007 (.011)	.002 (.007)	.030 (.021)
Residual		.191 (.009)	.189 (.009)	.191 (.009)	.186 (.008)

* p < .05, ** p < .01, *** p < .001

APPENDIX C: TABLES FOR THE RESULTS FROM THE INTENT TO QUIT

Table C.1. The results from One-Way ANOVA with Random Effect Model: Intent to quit

Variable	Fixed Effect	Random Effect		
	OR (SE)	Level 2 Variance (Facility)	Log likelihood	ICC
Intent to quit	.399 (.038)***	.341 (.280)	-21861.224	.094

* $p < .05$, ** $p < .01$, *** $p < .001$

ICC = Intraclass Correlation Coefficient

Table C.2. Model 5: The results of two level logistic regression model for home health aides' intent to quit

Variables	Intent to quit							
	Work-related Environment and Supervisor Quality							
	Random Intercepts	Job satisfaction	Commitment	Train	Health insurance	Benefit	Hourly wage	Patient assignment
OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	
Level 1								
Intercept	2.913 (3.687)	2.065 (.452)**	2.079 (.425)***	2.029 (.440)**	2.093 (.417)***	2.021 (.422)**	2.044 (.440)**	2.014 (.444)**
Job satisfaction	.245 (.049)***	.784 (.028)***	.784 (.026)***	.781 (.026)***	.777 (.026)***	.781 (.026)***	.782 (.026)***	.782 (.026)***
Commitment	.454 (.134)**	.860 (.050)**	.868 (.053)*	.862 (.050)*	.857 (.049)**	.857 (.049)**	.861 (.050)**	.863 (.050)*
Training	.957 (.207)	.986 (.033)	.986 (.034)	.987 (.034)	.984 (.033)	.980 (.033)	.984 (.033)	.987 (.034)
Hourly rate	.971 (.024)	.995 (.004)	.996 (.004)	.996 (.004)	.997 (.004)	.996 (.004)	.996 (.005)	.996 (.004)
Health insurance	.638 (.283)*	.899 (.068)*	.910 (.069)*	.903 (.067)*	.917 (.071)*	.895 (.067)*	.906 (.070)*	.905 (.068)*
Benefit	.955 (.051)	.994 (.009)	.993 (.008)	.994 (.009)	.994 (.008)	.995 (.008)	.994 (.009)	.994 (.009)
Patient assignment	.617 (.125)*	.933 (.030)*	.924 (.032)*	.931 (.029)*	.935 (.031)*	.935 (.030)*	.931 (.030)*	.930 (.030)*
Age								
Less than 24	1.534 (.933)	1.038 (.103)	1.058 (.106)	1.062 (.107)	1.055 (.098)	1.054 (.105)	1.059 (.107)	1.062 (.107)
25 – 34	.477 (.160)*	.892 (.049)*	.895 (.050)*	.890 (.049)*	.899 (.048)*	.890 (.049)*	.890 (.049)*	.890 (.050)*
35 – 44	.663 (.179)	.930 (.041)	.937 (.041)	.931 (.041)	.927 (.039)	.930 (.040)	.931 (.041)	.931 (.041)
45 – 54	.702 (.200)	.933 (.045)	.938 (.045)	.933 (.044)	.931 (.042)	.933 (.044)	.933 (.044)	.933 (.044)
Race								
White	.377 (.133)**	.840 (.055)**	.841 (.054)**	.842 (.054)**	.846 (.052)**	.846 (.053)**	.842 (.054)**	.841 (.055)**
Black	.579 (.226)	.903 (.066)	.899 (.065)	.904 (.065)	.923 (.065)	.910 (.065)	.908 (.066)	.903 (.065)
Education	1.345 (.272)	1.047 (.034)	1.048 (.033)	1.048 (.033)	1.038 (.032)	1.042 (.032)	1.047 (.033)	1.048 (.033)
Household income								
Less than 20,000	1.250 (.323)	1.031 (.045)	1.032 (.046)	1.029 (.046)	1.024 (.043)	1.028 (.045)	1.028 (.046)	1.029 (.046)
20,000 – 30,000	.896 (.255)	.989 (.043)	.986 (.042)	.982 (.042)	.982 (.041)	.985 (.042)	.985 (.042)	.982 (.043)
Job tenure								
Less than 2 years	.606 (.267)	.936 (.051)	.937 (.051)	.932 (.052)	.934 (.051)	.936 (.052)	.929 (.051)	.932 (.051)
2 – 5 years	1.658 (.267)	1.094 (.052)	1.102 (.050)	1.095 (.052)	1.099 (.052)*	1.100 (.051)*	1.094 (.052)*	1.095 (.052)*
6 – 10 years	1.179 (.333)	1.024 (.043)	1.025 (.044)	1.017 (.045)	1.030 (.042)	1.024 (.043)	1.019 (.045)	1.017 (.045)
Level 2								
Supervisor quality	.941 (.042)	.984 (.037)	.977 (.034)	.986 (.036)	.992 (.037)	.994 (.037)	.985 (.036)	.985 (.036)
Ownership	1.263 (.273)	1.035 (.035)	1.049 (.035)	1.041 (.036)	1.037 (.035)	1.043 (.034)	1.040 (.035)	1.040 (.036)
Agency								
Home health agency	.745 (.153)	.959 (.031)	.955 (.032)	.952 (.032)	.955 (.032)	.954 (.031)	.952 (.032)	.951 (.032)
Hospice agency	.857 (.222)	.981 (.038)	.976 (.038)	.977 (.038)	.971 (.037)	.981 (.037)	.981 (.039)	.976 (.038)
Size								
Small	.733 (.217)	.960 (.043)	.959 (.044)	.952 (.044)	.954 (.043)	.954 (.043)	.950 (.044)	.955 (.043)
Medium	.565 (.160)*	.934 (.040)	.932 (.041)	.925 (.042)	.928 (.040)	.923 (.041)	.923 (.041)	.927 (.041)
Location								
Metropolitan	1.746 (.502)	1.071 (.044)	1.077 (.044)	1.076 (.045)	1.081 (.043)	1.076 (.043)	1.069 (.047)	1.078 (.044)
Micropolitan	2.082 (.534)**	1.107 (.044)**	1.115 (.042)**	1.116 (.043)**	1.121 (.041)**	1.116 (.041)**	1.109 (.043)**	1.115 (.043)**

Staff	1.000 (.001)	1.000 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)
HHA	1.006 (.009)	1.001 (.001)	1.001 (.001)	1.001 (.001)	1.001 (.001)	1.001 (.001)	1.001 (.001)	1.001 (.001)
RN	1.000 (.008)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.001 (.001)	1.000 (.001)	1.000 (.001)
Medicare revenue								
More than 75 percent	2.960 (2.827)	1.148 (.182)	1.115 (.151)	1.177 (.187)	1.112 (.153)	1.149 (.170)	1.172 (.182)	1.178 (.190)
50 – 75 percent	3.487 (3.090)	1.187 (.173)	1.156 (.146)	1.213 (.178)	1.155 (.148)	1.185 (.160)	1.212 (.174)	1.215 (.182)
25 – 50 percent	2.531 (1.767)	1.132 (.135)	1.105 (.114)	1.152 (.137)	1.105 (.117)	1.123 (.127)	1.145 (.132)	1.149 (.137)
Medicaid revenue								
More than 50 percent	3.417 (3.178)	1.186 (.188)	1.157 (.158)	1.219 (.193)	1.128 (.155)	1.191 (.177)	1.214 (.189)	1.220 (.196)
25 – 50 percent	1.851 (.810)	1.088 (.082)	1.065 (.078)	1.090 (.083)	1.059 (.076)	1.099 (.081)	1.088 (.082)	1.090 (.084)
10 – 25 percent	.838 (.187)	.965 (.033)	.968 (.033)	.967 (.034)	.955 (.031)	.960 (.032)	.966 (.033)	.969 (.034)
Cross level interaction								
Supervisor*Satisfaction		.984 (.026)	.984 (.026)	.984 (.027)	.981 (.026)	.987 (.026)	.986 (.027)	.983 (.027)
Supervisor*Commitment		1.037 (.021)	1.034 (.020)	1.037 (.020)	1.035 (.020)	1.033 (.020)	1.037 (.020)	1.038 (.020)
Supervisor*Training		.974 (.028)	.985 (.027)	.976 (.028)	.973 (.027)	.977 (.028)	.977 (.028)	.975 (.028)
Supervisor*Hourlyrate		1.001 (.002)	1.001 (.002)	1.001 (.002)	1.001 (.002)	1.000 (.002)	1.001 (.002)	1.001 (.002)
Supervisor*Insurance		.965 (.023)	.971 (.024)	.968 (.024)	.971 (.024)	.965 (.024)	.969 (.024)	.968 (.024)
Supervisor*Assignment		1.020 (.016)	1.016 (.017)	1.018 (.017)	1.016 (.016)	1.016 (.016)	1.017 (.017)	1.018 (.017)
Supervisor*Benefit		1.002 (.004)	1.001 (.004)	1.001 (.004)	1.001 (.004)	1.002 (.004)	1.001 (.004)	1.001 (.004)
Log likelihood	-13946.604	-14300.999	-14238.944	-14360.276	-14248.827	-14303.096	-14346.165	-14362.102
Random effects								
Var (1)	.002 (.006)	.021 (.013)	.045 (.023)	.0002 (.001)	.048 (.024)	.031 (.022)	.023 (.030)	.002 (.012)
Var (2)		.015 (.011)	.084 (.044)	.004 (.013)	.049 (.028)	.001 (.0003)	.0001 (.0001)	.001 (.007)
Residual		.149 (.010)	.146 (.009)	.157 (.010)	.149 (.009)	.151 (.009)	.154 (.010)	.158 (.008)

* p < .05, ** p < .01, *** p < .001

Table C.3. Model 6: The results of two level logistic regression model for home health aides' intent to quit

Variables	Intent to quit							
	Model 6: Work-related environment and organizational values							
	Random Intercepts	Job Satisfaction	Commitment	Train	Health insurance	Benefits	Hourly wage	Patient assignment
OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	
Level 1								
Intercept	2.573 (.329)*	1.985 (.442)**	1.984 (.418)**	1.949 (.428)**	2.025 (.406)***	1.950 (.404)**	1.981 (.429)**	1.945 (.432)**
Job satisfaction	.285 (.057)***	.799 (.026)***	.796 (.025)***	.794 (.025)***	.790 (.024)***	.795 (.025)***	.795 (.025)***	.796 (.025)***
Commitment	.446 (.125)**	.855 (.045)**	.864 (.048)**	.855 (.045)**	.850 (.044)**	.849 (.043)**	.854 (.045)**	.859 (.045)**
Training	.997 (.221)	.987 (.034)	.989 (.035)	.987 (.034)	.985 (.033)	.978 (.033)	.984 (.033)	.987 (.034)
Hourly rate	.975 (.025)	.997 (.005)	.997 (.005)	.997 (.005)	.998 (.004)	.997 (.008)	.997 (.005)	.997 (.005)
Health insurance	.632 (.292)	.900 (.071)	.909 (.072)	.899 (.069)	.916 (.072)	.889 (.068)	.907 (.073)	.906 (.071)
Benefit	.962 (.054)	.995 (.009)	.994 (.009)	.996 (.009)	.995 (.008)	.998 (.004)	.995 (.009)	.995 (.009)
Patient assignment	.597 (.118)**	.930 (.028)*	.923 (.030)*	.932 (.028)*	.937 (.029)*	.936 (.029)*	.930 (.029)*	.928 (.028)*
Age								
Less than 24	1.474 (.899)	1.066 (.110)	1.086 (.113)	1.090 (.113)	1.078 (.103)	1.075 (.120)	1.084 (.115)	1.090 (.114)
25 – 34	.464 (.161)*	.901 (.048)*	.901 (.048)*	.900 (.048)*	.909 (.046)	.899 (.047)*	.899 (.048)*	.900 (.048)*
35 – 44	.619 (.173)	.935 (.042)	.937 (.042)	.934 (.042)	.926 (.040)	.932 (.041)	.934 (.042)	.934 (.042)
45 – 54	.642 (.193)	.922 (.045)	.925 (.045)	.921 (.044)	.920 (.042)	.922 (.043)	.923 (.045)	.922 (.044)
Race								
White	.373 (.136)**	.831 (.059)**	.832 (.057)**	.835 (.059)*	.840 (.056)**	.839 (.057)*	.834 (.057)**	.832 (.058)**
Black	.598 (.250)	.902 (.073)	.902 (.071)	.907 (.072)	.931 (.072)	.910 (.071)	.911 (.072)	.904 (.072)
Education	1.378 (.261)	1.047 (.032)	1.049 (.032)	1.046 (.031)	1.034 (.030)	1.038 (.030)	1.047 (.031)	1.049 (.032)
Household income								
Less than 20,000	1.251 (.331)	1.033 (.045)	1.034 (.046)	1.034 (.045)	1.028 (.042)	1.031 (.045)	1.030 (.048)	1.033 (.045)
20,000 – 30,000	.933 (.264)	1.005 (.044)	.997 (.044)	1.000 (.044)	.999 (.043)	1.003 (.043)	1.003 (.044)	.998 (.044)
Job tenure								
Less than 2 years	.633 (.278)	.919 (.052)	.920 (.052)	.914 (.053)	.916 (.054)	.920 (.054)	.910 (.053)	.914 (.053)
2 – 5 years	1.585 (.498)	1.081 (.055)	1.091 (.055)	1.082 (.056)	1.089 (.055)	1.088 (.054)	1.080 (.055)	1.083 (.056)
6 – 10 years	1.170 (.357)	1.037 (.047)	1.034 (.049)	1.027 (.048)	1.047 (.047)	1.035 (.046)	1.029 (.048)	1.027 (.048)
Level 2								
Organizational values	.482 (.126)**	.864 (.146)*	.844 (.147)*	.861 (.145)*	.835 (.145)*	.866 (.141)*	.847 (.142)*	.860 (.146)*
Ownership	1.343 (.303)	1.034 (.035)	1.046 (.035)	1.042 (.035)	1.033 (.035)	1.044 (.033)	1.037 (.035)	1.039 (.036)
Agency								
Home health agency	.733 (.154)	.963 (.029)	.958 (.030)	.954 (.030)	.960 (.030)	.959 (.030)	.957 (.031)	.955 (.030)
Hospice agency	.828 (.218)	.971 (.041)	.965 (.041)	.965 (.040)	.958 (.039)	.970 (.038)	.971 (.040)	.963 (.040)
Size								
Small	.751 (.223)	.970 (.044)	.967 (.047)	.956 (.046)	.962 (.045)	.963 (.045)	.955 (.046)	.962 (.046)
Medium	.563 (.161)	.938 (.041)	.936 (.043)	.924 (.043)	.932 (.042)	.926 (.041)	.926 (.042)	.930 (.042)
Location								
Metropolitan	1.734 (.528)	1.071 (.049)	1.077 (.048)	1.071 (.049)	1.081 (.047)	1.075 (.047)	1.064 (.049)	1.077 (.049)
Micropolitan	2.071 (.543)**	1.108 (.043)**	1.116 (.041)**	1.117 (.043)**	1.120 (.039)**	1.114 (.039)**	1.104 (.042)**	1.115 (.042)**

Staff	1.000 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.001)
HHA	1.007 (.009)	1.001 (.001)	1.001 (.001)	1.001 (.002)	1.001 (.001)	1.001 (.001)	1.001 (.002)	1.001 (.002)
RN	1.000 (.008)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.001 (.001)	1.000 (.001)	1.000 (.001)
Medicare revenue								
More than 75 percent	2.858 (2.716)	1.154 (.183)	1.143 (.162)	1.190 (.189)	1.107 (.149)	1.145 (.166)	1.180 (.180)	1.191 (.192)
50 – 75 percent	3.468 (3.045)	1.194 (.174)	1.184 (.154)	1.228 (.179)	1.152 (.144)	1.184 (.157)	1.222 (.171)	1.228 (.182)
25 – 50 percent	2.594 (1.797)	1.131 (.133)	1.121 (.119)	1.163 (.137)	1.094 (.113)	1.119 (.124)	1.145 (.129)	1.154 (.136)
Medicaid revenue								
More than 50 percent	3.352 (3.118)	1.201 (.192)	1.191 (.170)	1.235 (.197)	1.124 (.153)	1.189 (.174)	1.226 (.188)	1.238 (.200)
25 – 50 percent	1.793 (.790)	1.105 (.078)	1.008 (.075)	1.105 (.079)	1.070 (.069)	1.115 (.075)	1.102 (.076)	1.109 (.081)
10 – 25 percent	.847 (.190)	.973 (.033)	.977 (.033)	.971 (.034)	.960 (.031)	.967 (.031)	.971 (.033)	.977 (.034)
Cross level interaction								
Values*Job satisfaction		1.178 (.093)*	1.177 (.093)*	1.186 (.093)*	1.182 (.093)*	1.193 (.093)*	1.173 (.091)*	1.179 (.092)*
Values*Commitment		.889 (.035)**	.898 (.035)**	.891 (.035)**	.894 (.034)**	.899 (.034)**	.889 (.035)**	.892 (.035)**
Values*Training		1.208 (.103)*	1.194 (.101)*	1.195 (.101)*	1.202 (.103)*	1.205 (.103)*	1.199 (.102)*	1.192 (.102)*
Values*Hourlyrate		1.007 (.011)	1.007 (.011)	1.007 (.011)	1.010 (.012)	1.006 (.011)	1.009 (.012)	1.007 (.011)
Values*Insurance		.781 (.094)*	.807 (.104)*	.786 (.094)*	.811 (.094)*	.775 (.094)*	.802 (.099)*	.791 (.095)*
Values*Assignment		1.152 (.087)	1.147 (.090)	1.153 (.088)	1.148 (.090)	1.148 (.087)	1.146 (.088)	1.150 (.088)
Values*Benefit		.999 (.019)	.999 (.018)	.998 (.019)	.992 (.018)	.999 (.019)	.995 (.019)	.998 (.019)
Log likelihood	-13762.427	-13769.224	-13793.866	-13816.817	-13677.192	-13726.848	-13800.524	-13841.597
Random Effects								
Var (1)	.010 (.0028)	.022 (.012)	.025 (.019)	.001 (.001)	.061 (.026)	.043 (.023)	.041 (.041)	.004 (.011)
Var (2)		.014 (.008)	.050 (.038)	.014 (.015)	.054 (.029)	.007 (.0003)	.0002 (.0002)	.001 (.003)
Residual		.143 (.009)	.145 (.009)	.147 (.009)	.141 (.009)	.143 (.009)	.147 (.009)	.151 (.008)

* p < .05, ** p < .01, *** p < .001

Table C.4. Model 7: The results of two level logistic regression model for home health aides' intent to quit

Variables	Intent to quit						
	Job perception and supervisor quality						
	Random Intercepts	Job satisfaction	Commitment	Respect	Challenge	Trust	Confident
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Level 1							
Intercept	4.358 (.488)*	2.115 (.390)***	2.086 (.369)***	2.110 (.385)***	2.097 (.382)***	2.098 (.386)***	2.097 (.383)***
Job satisfaction	.282 (.058)***	.806 (.029)***	.807 (.028)***	.806 (.028)***	.807 (.029)***	.804 (.027)***	.807 (.028)***
Commitment	.432 (.135)**	.855 (.052)**	.864 (.054)*	.856 (.052)*	.859 (.052)*	.858 (.052)*	.858 (.052)*
Respect	.787 (.215)	.944 (.047)	.949 (.045)	.946 (.048)	.946 (.047)	.944 (.047)	.944 (.047)
Challenge	.595 (.130)*	.931 (.039)	.936 (.038)	.931 (.039)	.930 (.039)	.930 (.038)	.930 (.039)
Trust	.738 (.248)	.946 (.062)	.963 (.064)	.954 (.061)	.954 (.060)	.954 (.063)	.955 (.061)
Confident	.613 (.131)*	.924 (.035)*	.918 (.034)*	.924 (.035)*	.923 (.035)*	.921 (.034)*	.923 (.036)*
Age							
Less than 24	1.511 (.811)	1.075 (.103)	1.096 (.108)	1.099 (.106)	1.107 (.104)	1.094 (.106)	1.102 (.106)
25 – 34	.489 (.162)*	.900 (.047)*	.899 (.047)*	.897 (.047)*	.899 (.046)*	.900 (.047)*	.899 (.047)*
35 – 44	.652 (.188)	.945 (.042)	.948 (.043)	.946 (.042)	.946 (.041)	.948 (.040)	.947 (.043)
45 – 54	.700 (.175)	.945 (.036)	.950 (.035)	.945 (.036)	.946 (.037)	.945 (.036)	.945 (.037)
Race							
White	.286 (.099)***	.808 (.047)***	.809 (.048)***	.809 (.047)***	.809 (.047)***	.808 (.047)***	.807 (.047)***
Black	.527 (.195)	.884 (.058)	.882 (.057)	.884 (.057)	.885 (.056)	.882 (.058)	.882 (.056)
Education	1.458 (.329)	1.063 (.037)	1.070 (.035)*	1.064 (.037)	1.062 (.035)	1.064 (.036)	1.065 (.037)
Household income							
Less than 20,000	1.316 (.302)	1.036 (.041)	1.037 (.042)	1.040 (.042)	1.037 (.041)	1.038 (.042)	1.038 (.041)
20,000 – 30,000	.882 (.265)	.993 (.044)	.990 (.042)	.987 (.043)	.988 (.044)	.985 (.043)	.988 (.044)
Job tenure							
Less than 2 years	.669 (.282)	.933 (.053)	.943 (.052)	.934 (.053)	.936 (.053)	.935 (.052)	.934 (.053)
2 – 5 years	1.894 (.569)*	1.112 (.052)*	1.130 (.048)**	1.114 (.051)*	1.113 (.051)*	1.114 (.051)*	1.113 (.051)*
6 – 10 years	1.258 (.363)	1.024 (.043)	1.028 (.045)	1.018 (.044)	1.015 (.044)	1.014 (.045)	1.016 (.045)
Level 2							
Supervisor quality	.972 (.044)*	.956 (.020)*	.960 (.019)*	.961 (.020)*	.961 (.020)*	.958 (.019)*	.960 (.020)*
Ownership	1.264 (.299)	1.034 (.035)	1.041 (.035)	1.038 (.036)	1.036 (.036)	1.039 (.038)	1.037 (.036)
Agency							
Home health agency	.780 (.176)	.973 (.030)	.968 (.032)	.965 (.032)	.966 (.032)	.964 (.033)	.967 (.032)
Hospice agency	.812 (.215)	.971 (.035)	.965 (.036)	.968 (.036)	.968 (.036)	.967 (.036)	.970 (.036)
Size							
Small	.878 (.246)	.987 (.039)	.991 (.043)	.975 (.041)	.980 (.041)	.980 (.041)	.980 (.040)
Medium	.622 (.173)	.945 (.037)	.947 (.041)	.933 (.038)	.935 (.039)	.937 (.039)	.935 (.038)
Location							
Metropolitan	1.289 (.384)	1.026 (.043)	1.031 (.043)	1.029 (.042)	1.030 (.044)	1.033 (.043)	1.030 (.043)
Micropolitan	1.811 (.505)	1.087 (.047)	1.098 (.045)*	1.099 (.046)*	1.097 (.046)*	1.097 (.046)*	1.096 (.046)*
Staff	1.001 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)
HHA	1.000 (.008)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)

RN	.993 (.008)	.999 (.001)	.999 (.001)	.999 (.001)	.999 (.001)	.999 (.001)	.999 (.001)
Medicare revenue							
More than 75 percent	3.318 (2.793)	1.181 (.144)	1.158 (.124)	1.202 (.148)	1.200 (.147)	1.205 (.149)	1.199 (.146)
50 – 75 percent	4.549 (3.679)	1.233 (.146)	1.216 (.128)	1.253 (.149)	1.255 (.149)	1.256 (.150)	1.253 (.148)
25 – 50 percent	2.933 (1.947)	1.152 (.122)	1.125 (.108)	1.164 (.120)	1.164 (.122)	1.161 (.119)	1.163 (.119)
Medicaid revenue							
More than 50 percent	2.599 (2.077)	1.135 (.135)	1.127 (.119)	1.162 (.139)	1.156 (.140)	1.170 (.143)	1.161 (.139)
25 – 50 percent	1.785 (.845)	1.094 (.077)	1.072 (.074)	1.096 (.080)	1.092 (.080)	1.101 (.081)	1.094 (.079)
10 – 25 percent	.749 (.177)	.953 (.032)	.952 (.032)	.956 (.033)	.953 (.034)	.956 (.034)	.954 (.033)
Cross level interaction							
Supervisor*Satisfaction		.984 (.020)*	.982 (.020)*	.984 (.021)*	.983 (.021)*	.983 (.021)*	.982 (.021)*
Supervisor*Commitment		1.024 (.018)	1.023 (.017)	1.024 (.018)	1.024 (.018)	1.024 (.018)	1.025 (.018)
Supervisor*Respect		.980 (.019)*	.977 (.018)*	.977 (.018)*	.976 (.018)*	.975 (.018)*	.975 (.018)*
Supervisor*Challenge		1.021 (.019)	1.024 (.019)	1.025 (.018)	1.026 (.019)	1.024 (.019)	1.025 (.019)
Supervisor*Trust		1.024 (.024)	1.022 (.024)	1.019 (.026)	1.019 (.026)	1.024 (.023)	1.023 (.024)
Supervisor*Confident		1.026 (.019)	1.024 (.018)	1.023 (.019)	1.024 (.019)	1.025 (.019)	1.025 (.019)
Log likelihood	-13718.196	-13921.183	-13814.645	-13991.552	-13992.453	-13997.417	-13997.701
Random Effects							
Var (1)	.028 (.023)	.023 (.013)	.050 (.022)	.015 (.021)	.011 (.017)	.013 (.034)	.007 (.011)
Var (2)		.017 (.012)	.097 (.040)	.009 (.018)	.016 (.023)	.016 (.049)	.008 (.019)
Residual		.142 (.011)	.137 (.009)	.150 (.009)	.148 (.011)	.149 (.012)	.150 (.011)

* p < .05, ** p < .01, *** p < .001

Table C.5. Model 8: The results of two level logistic regression model for home health aides' intent to quit

Variables	Intent to Quit						
	Job perception and organizational values						
	Random Intercepts	Job satisfaction	Commitment	Respect	Challenge	Trust	Confident
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Level 1							
Intercept	3.604 (.405)*	2.084 (.390)***	2.075 (.378)***	2.087 (.389)***	2.073 (.385)***	2.071 (.385)***	2.076 (.384)***
Job satisfaction	.311 (.064)***	.815 (.028)***	.812 (.027)***	.813 (.028)***	.815 (.028)***	.812 (.027)***	.814 (.028)***
Commitment	.433 (.132)**	.872 (.049)*	.881 (.053)*	.870 (.050)*	.875 (.049)*	.874 (.050)*	.875 (.050)*
Respect	.795 (.223)	.947 (.050)	.957 (.049)	.959 (.054)	.958 (.051)	.951 (.051)	.952 (.052)
Challenge	.622 (.145)*	.924 (.040)	.924 (.038)	.924 (.040)	.922 (.040)	.921 (.039)	.921 (.040)
Trust	.753 (.255)	.950 (.059)	.964 (.060)	.963 (.058)	.962 (.057)	.960 (.060)	.960 (.058)
Confident	.652 (.153)	.919 (.037)*	.912 (.035)*	.919 (.036)*	.920 (.036)*	.915 (.036)*	.918 (.037)*
Age							
Less than 24	1.528 (.830)	1.077 (.105)	1.100 (.110)	1.105 (.109)	1.118 (.107)	1.100 (.109)	1.106 (.109)
25 – 34	.490 (.166)*	.906 (.045)*	.905 (.046)*	.904 (.045)*	.908 (.045)*	.908 (.046)*	.908 (.046)
35 – 44	.628 (.183)	.947 (.040)	.948 (.040)	.949 (.040)	.947 (.038)	.950 (.039)	.951 (.041)
45 – 54	.659 (.175)	.930 (.035)	.934 (.035)	.931 (.035)	.932 (.036)	.930 (.036)	.931 (.036)
Race							
White	.286 (.101)***	.804 (.052)**	.807 (.052)**	.806 (.051)**	.805 (.051)**	.804 (.052)**	.803 (.051)**
Black	.543 (.210)	.894 (.065)	.897 (.065)	.894 (.063)	.895 (.063)	.893 (.066)	.890 (.064)
Education	1.494 (.318)	1.059 (.033)*	1.065 (.033)*	1.062 (.033)*	1.058 (.032)*	1.061 (.033)	1.063 (.033)
Household income							
Less than 20,000	1.319 (.308)	1.032 (.040)	1.035 (.040)	1.039 (.041)	1.033 (.039)	1.035 (.041)	1.035 (.041)
20,000 – 30,000	.902 (.268)	.994 (.044)	.989 (.043)	.988 (.042)	.991 (.042)	.986 (.043)	.990 (.044)
Job tenure							
Less than 2 years	.673 (.288)	.926 (.055)	.934 (.053)	.925 (.055)	.929 (.054)	.925 (.054)	.923 (.055)
2 – 5 years	1.835 (.583)	1.100 (.056)*	1.117 (.053)*	1.100 (.055)*	1.096 (.054)*	1.102 (.056)	1.099 (.056)
6 – 10 years	1.234 (.372)	1.033 (.048)	1.034 (.050)	1.024 (.048)	1.020 (.048)	1.020 (.050)	1.022 (.049)
Level 2							
Organizational Values	.574 (.175)*	.950 (.187)*	.972 (.192)*	.920 (.183)*	.926 (.180)*	.946 (.185)*	.945 (.187)*
Ownership	1.319 (.317)	1.031 (.036)	1.038 (.035)	1.037 (.036)	1.033 (.036)	1.037 (.038)	1.036 (.036)
Agency							
Home health agency	.768 (.176)	.974 (.030)	.965 (.031)	.966 (.031)	.967 (.031)	.964 (.031)	.968 (.031)
Hospice agency	.802 (.211)	.967 (.035)	.960 (.036)	.966 (.035)	.967 (.036)	.962 (.036)	.967 (.036)
Size							
Small	.878 (.247)	.996 (.042)	.997 (.048)	.974 (.043)	.967 (.031)	.987 (.044)	.986 (.043)
Medium	.616 (.171)	.951 (.038)	.953 (.043)	.934 (.039)	.967 (.036)	.941 (.040)	.937 (.039)
Location							
Metropolitan	1.282 (.388)	1.025 (.045)	1.029 (.045)	1.022 (.043)	1.022 (.045)	1.031 (.045)	1.024 (.045)
Micropolitan	1.793 (.500)*	1.083 (.046)*	1.092 (.045)*	1.094 (.045)*	1.088 (.045)*	1.092 (.045)*	1.089 (.045)*
Staff	1.001 (.001)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)	1.000 (.000)

HHA	1.001 (.008)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.001)	1.000 (.000)
RN	.993 (.008)	.999 (.001)	.999 (.001)	.999 (.001)	.999 (.001)	.999 (.001)	.999 (.001)
Medicare revenue							
More than 75 percent	3.274 (2.716)	1.173 (.142)	1.152 (.128)	1.193 (.145)	1.189 (.143)	1.196 (.146)	1.184 (.142)
50 – 75 percent	4.563 (3.652)	1.228 (.144)	1.140 (.110)	1.252 (.147)	1.255 (.146)*	1.254 (.148)	1.249 (.145)
25 – 50 percent	3.005 (1.962)	1.157 (.121)	1.140 (.110)	1.172 (.118)	1.178 (.121)	1.172 (.118)	1.172 (.118)
Medicaid revenue							
More than 50 percent	2.639 (2.090)	1.148 (.138)	1.143 (.126)	1.167 (.138)	1.155 (.139)	1.179 (.144)	1.166 (.138)
25 – 50 percent	1.756 (.836)	1.109 (.073)	1.085 (.072)	1.103 (.076)	1.098 (.075)	1.110 (.077)	1.103 (.075)
10 – 25 percent	.756 (.179)	.962 (.032)	.963 (.032)	.963 (.033)	.958 (.033)	.964 (.033)	.959 (.032)
Cross level interaction							
Values*Satisfaction		1.164 (.098)	1.171 (.097)	1.157 (.097)	1.161 (.095)	1.164 (.095)	1.170 (.097)
Values*Commitment		.880 (.040)**	.884 (.041)**	.880 (.041)**	.881 (.040)**	.879 (.040)**	.877 (.041)**
Values*Respect		1.102 (.145)	1.085 (.139)	1.131 (.151)	1.111 (.141)	1.110 (.144)	1.108 (.144)
Values*Challenge		.967 (.092)	.951 (.090)	.973 (.093)	.983 (.094)	.968 (.093)	.970 (.094)
Values*Trust		1.067 (.102)	1.075 (.104)	1.093 (.105)	1.082 (.102)	1.083 (.101)	1.080 (.102)
Values*Confident		.964 (.086)*	.949 (.085)*	.942 (.085)*	.943 (.086)*	.943 (.087)*	.946 (.086)*
Log likelihood	-13594.94	-13679.082	-13645.503	-13710.978	-13714.691	-13754.528	-13741.853
Random Effects							
Var (1)	.025 (.023)	.023 (.012)	.034 (.019)	.031 (.020)	.022 (.016)	.009 (.039)	.013 (.012)
Var (2)		.015 (.010)	.074 (.035)	.023 (.019)	.030 (.021)	.005 (.049)	.009 (.021)
Residual		.140 (.010)	.138 (.009)	.145 (.009)	.142 (.010)	.147 (.012)	.147 (.010)

* p < .05, ** p < .01, *** p < .001

APPENDIX D: TABLES FOR THE RESULTS FROM COMMUNITY LEVEL ANALYSIS

Table D.1. The results from One-Way ANOVA with random effect model for job satisfaction: Neighborhood Level Analysis

Variable	Fixed Effect		Random Effect	
	OR (SE)	Level 2 Variance (Facility)	Log likelihood	ICC
Job satisfaction	1.190 (.106)*	.543 (.139)	-2223.6842	0.142

* $p < .05$, ** $p < .01$, *** $p < .001$

Table D.2. The results from hierarchical linear models: job satisfaction

Variables	Job Satisfaction	
	OR (SE)	OR (SE)
Level 1		
Intercept	1.110 (.089)*	.069 (.044)***
Work-related environments		
Training		1.074 (.199)
Hourly rate		.987 (.022)
Health insurance		1.220 (.423)
Patient assignment		1.124 (.186)
Benefit		1.102 (.051)*
Job perceptions		
Respect		2.415 (.561)***
Involvement		2.966 (.677)***
Trust		1.738 (.430)*
Confident		2.347 (.529)***
Personal characteristics		
Age		
Less than 24		.197 (.079)***
25 – 34		.597 (.152)*
35 – 44		.567 (.152)*
45 – 54		.644 (.183)
Race		
White		1.152 (.254)
Black		.809 (.260)
Education		.879 (.169)
Household income		
Less than 20,000		.817 (.195)
20,000 – 30,000		.988 (.210)
Job tenure		
Less than 2 years		1.921 (.645)*
2 – 5 years		1.093 (.296)
6 – 10 years		1.127 (.312)
Level 2		
Unemployment rate	.880 (.046)*	.977 (.064)*
Random Effects		
Level 2		
Var (1)	.505 (.135)	.496 (.136)
Log likelihood	-2221.193	-1783.6312

* p < .05, ** p < .01, *** p < .001

Table D.3. The results from One-Way ANOVA with random effect model for intent to quit: Neighborhood Level Analysis

Variable	Fixed Effect	Random Effect		
	OR (SE)	Level 2 Variance (County)	Log likelihood	ICC
Intent to quit	.429 (.039)***	.548 (.176)	-2050.3209	0.143

* $p < .05$, ** $p < .01$, *** $p < .001$

Table D.4. The results from hierarchical linear models: intent to quit

Variables	Intent to Quit	
	OR (SE)	OR (SE)
Level 1		
Intercept	.457 (.044)***	23.015 (13.461)***
Job satisfaction		.236 (.063)**
Commitment		.463 (.146)**
Work-related environments		
Training		.819 (.178)
Hourly rate		.950 (.018)**
Health insurance		.784 (.277)
Patient assignment		.649 (.112)*
Benefit		.927 (.045)
Job perceptions		
Respect		.705 (.170)
Involvement		.668 (.160)
Trust		.559 (.149)*
Confident		.832 (.167)
Personal characteristics		
Age		
Less than 24		1.675 (.936)
25 – 34		.589 (.215)
35 – 44		.699 (.209)
45 – 54		1.059 (.296)
Race		
White		.673 (.199)
Black		1.259 (.358)
Education		1.612 (.351)*
Household income		
Less than 20,000		1.131 (.298)
20,000 – 30,000		.670 (.139)*
Job tenure		
Less than 2 years		.965 (.381)
2 – 5 years		1.826 (.487)*
6 – 10 years		1.610 (.460)
Level 2		
Unemployment rate	1.131 (.093)*	1.018 (.067)*
Random Effects		
Level 2		
Var (1)	.523 (.148)	.412 (.151)
Log likelihood	-2048.2019	-1469.7195

* p < .05, ** p < .01, *** p < .001