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Direct Care Nursing Aide Turnover in Long-Term Care Facility

Qilian Luo

University of Southern Maine, Muskie School of Public Service

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Qilian Luo

University of Southern Maine

The Muskie School of Public Service

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January, 2018

Nature of the Project

This capstone project, Direct Care Nursing Aide Retention in a Long-Term Care Facility, will use both qualitative and quantitative analyses to identify the possible contributors to high nursing aide turnover rates in Maine. The quantitative analyses of this project are based on the staffing payroll data of one Maine assisted living facility. The final product of this capstone project will be shared with the study facility, in the hope that they may find uses for its content.

Introduction

The growing elder population has resulted in an increasing need for nursing aides across the long-term care continuum. Direct care nursing aides include Certified Nursing Assistants (CNA), unlicensed assistant personnel, frontline or direct care workers, personal support specialists (PSS), and Certified Residential Medication Aides (CRMA). The shortage is becoming an epidemic to long term care facilities. Nursing aides provide 80 to 90 percent of direct patient care (Ultimate Medical Academy, 2013). They provide assistance with a broad range of support including helping with medications, bathing, dressing, transporting and socializing. According to earlier research, in 2008 there were over 60,000 vacancies for CNAs in nursing homes (American Health Care Association, 2008). Turnover among direct-care workers in long-term care (LTC) facilities has a significant impact on residents, staff, and owners of LTC facilities. The costs of turnover are also substantial and result in a significant financial burden to the facilities.

Employee turnover has been a challenging issue of management in almost all business sectors. The LTC system has encountered several challenges when trying to decrease turnover

rates. According to multiple studies, low wages, uncompetitive job advancement, unsafe work environment, and low benefits among are the key factors for high turnover rates (Barbarotta, 2010; Khatutsky et al., 2011; & Dill et al., 2010). Within the LTC industry, the turnover rate among nursing aides was 51.5% in 2012 (AHCA, 2014). Nursing assistants had a 31% higher turnover rate than other nursing staff in 2012, and cost the industry between \$22,000 and \$63,000 per individual (AHCA, 2012). Inadequate staffing contributes to increased risk for staff injuries and illness.

Problem Statement

High nursing aide turnover is a serious problem within the LTC industry in Maine. This project is intended to assess the relationship between compensation, job satisfaction, engagement, motivation and work environment as well as other external factors that may contribute to nursing aide turnover in Maine.

Project Aim

The aim of this project is to better understand direct-care nursing aide turnover in an assisted living. This work seeks to help the facility with recruitment and retention efforts that could improve the care and well-being of both residents and facility staff.

Background

Nursing Aide Turnover

The financial burden related to high turnover rates of direct-care nursing aides in LTC facilities affect the facilities' ability to cover the costs of high skilled, quality workers (Barbarotta, 2010). High turnover rates are also important to residents. Residents' satisfaction in

assisted living facilities is positively correlated with staff job satisfaction (Walker & Harrington, 2013). Other factors, such as low wage, poor job advancement, and the possibility of unsafe work environment, are reported to be key causes for high turnover rates nationally (National Citizens' Coalition for Nursing Home Reform, 1985).

Hiring agency staff and requiring current staff to work overtime are the two common ways facilities deal with insufficient staffing. Hiring temporary contract staff is more expensive, about \$20 to \$25 an hour, which increases costs for the facility. Although temporary staff can ease some urgent shortage situation, the quality of care cannot be guaranteed. Alternatively, to frequently require current staff to work overtime can also lead to negative consequences. When direct care nursing aides are expected to work overtime, or cover someone else's shift in short notice, this contribute to burnout and consequently further turnover.

Staff shortages affect quality of care. Without adequate staffing, residents cannot receive consistent care. Stable caring relationships with staff are a critical ingredient for quality care (Wilner & Wyatt, 1998). When a facility is short staffed, the quality of care is compromised by staff being rushed. According to a earlier report from the U.S. General Accounting Office (2001), nursing aide staffing levels are directly correlated with the quality of resident care. Furthermore, residents and their families also consider staff turnover as one of their main concern because the fear of higher risk of resident injury (Pohlmann, 2003). Additionally, adverse events resulting from staff burnout also increase nursing aides' stress level and drive them away from the field (Pohlmann, 2003).

Maine Labor Force

According to the 2017 labor force report from Maine Department of Labor, the labor force in Maine is shrinking. Unemployment data released by the department shows a 4% decrease in the state's civilian labor force over the previous two years. Labor force is defined as the combined number of workers and job-seekers. Although these data show that Maine's seasonally adjusted unemployment rate dropped to 3.6% in February of 2017, Maine had roughly 3,300 fewer employed workers in February when compare with February 2016 (653,000) (Maine Bureau of Labor Statistics, 2017). According to the labor department, the unemployment rate decreased as a result of the reduction in the state's labor force. In 2016, 685,400 people were comprised the labor force, compared to only 673,800 people in the labor force in 2017. According to a 2013 research brief by the labor department, the state's demographic shift is one of the major factors contributing to the declining workforce (BLS, 2013).

Maine's High Concentration of Direct Care Nursing Aides

Maine is one of the highest concentration of jobs and location quotients in the direct care nursing aide occupation (see table 1). As the older adult population in Maine continues to grow, the demand for these frontline workers has intersected with a labor shortage. This has been an issue for over a decade. The predicted odds of needing long term care for people age 65 is about 67% (Maine Health Care Association, 2012). LTC consumers are often unable to receive all the care they need. The waiting list for admission can be extended from weeks to months. Some LTC facilities have stopped accepting customers due to staffing shortages. Constantly changing direct care nursing aides leads to inconsistent performance which diminishes the quality of care. Facilities are struggling to find staff and to maintain those they hire. Employees that do stay are often described as overworked and burned out.

Not surprisingly given Maine's aging population, Maine has among the highest among the highest concentrations of direct care nursing aides in the country. Labor data on employment concentration is measured by location quotient. Location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than 1 indicates direct care nursing aide in Maine has a higher share of employment than average. As can be seen in **Table 1. States with the Highest Concentration of Jobs and Location Quotients in Direct Care Nursing Assistant**, Maine ranks fourth nationally relative to the proportion of direct care nursing aide jobs.

Table 1: States with the highest concentration of jobs and location quotients in direct care nursing assistant

State	Employment	Employment per thousand jobs	Location quotient
Rhode Island	9,250	20.51	1.79
North Dakota	6,580	17.70	1.55
Arkansas	19,080	16.75	1.46
Maine	9,500	16.50	1.44
Nebraska	14,690	16.24	1.42

Data source: Bureau of Labor Statistics

The turnover rate in some elder care positions in Maine was more than 56 % in 2001 (American Health Care Association, 2001). According to an earlier report from Maine Hospital Association (2001), there was a 45% increase in vacated CNA position in Maine's hospital-affiliated nursing facilities from 1999 to 2000. Direct care nursing aide vacancy rates have been growing steadily. In response to the change of demographics of direct caregivers have shifted

from the traditional group of female workers aged 25-54 to a broader group including women aged 18 to 64. There are few male caregivers. Considering the shrinking labor market, there will be even more unfilled position due as direct care workers retiring and as younger people leave to move out of state.

Methods

This project uses a mix of qualitative and quantitative study methods. The capstone plan was submitted to the USM Office of Research Integrity and Outreach (ORIO) Human Research Protection Program for review. The USM ORIO categorized this project as non-research, meaning and it was exempt from a full Institutional Review Board review. Qualitative study aspects of this project include a systematic literature review and interviews with two experienced assisted living facility administrators. Quantitative study aspects of this project are calculation of facility turnover rates and correlation analyses of staff characteristics based on one assisted living facility's staffing data on staffing.

Literature Review

A systematic literature review was conducted using Google scholar with key words: CNA, high turnover rate, long-term care facility, compensation, job satisfaction, motivation, engagement, work environment. In addition, reports on Maine's direct care work force were used to inform this work

Staffing Data Collection and Analysis

Quantitative analyses were conducted based on 34 months of staffing data from an assisted living facility. These data are de-identified. Data were available on 105 staff, with detailed information available for 55 staff, where detailed information included age, length of

commute to work, and employment status measured as continued employment or terminated employment. Commuting distances were calculated for individual staff based on Google Maps estimates of mileage from town of residence to the facility. The rate of monthly change of employees were calculated as number employed of selected month divided by the total employed of the previous month. Turnover rates were calculated as number of staff terminating employment divided by total staff employed within the selected month.

Data analyses included calculation of monthly turnover rates, graphing monthly trends from 2015 to 2017, and correlations between selected staff characteristic and employment status. Trends in the correlation between county assisted living facility employment and county retail employment are presented for the ten study months.

Interviews

To help inform interpretation of findings from the literature analyses, interviews were conducted with representatives from two different long-term care facilities. The interviews were conducted with open-ended questions seeking insights on the possible causes of turnover and possible solutions of retention in Maine. Interviews were conducted in-person. Interview participants were selected to reflect the experience of private and non-profit providers' experience in Maine.

Factors Influencing Direct Care Nursing Aide Turnover –Findings from the Literature

Theoretical Framework

Most theories of job turnover generally assume a strong correlation between job satisfaction, intention, and retention. However, these models may be limited in explaining turnover of low-wage direct care nursing aides (Dill, Morgan, & Marshall, 2013). Herzberg's

motivation-hygiene theory describes the distinction between extrinsic (hygiene) and intrinsic (motivation) factors that affect job satisfaction. Extrinsic factors refer to factors contributing to dissatisfaction, including compensation, job security, company policies, supervision, and social relationships (Herzberg et al., 1959). On the other hand, intrinsic factors refer to factors contributing to satisfaction, including achievement, recognition, responsibility, and advancement (Herzberg et al., 1959). This theoretical framework argues that job satisfaction is driven primarily by the nature of the work, while job dissatisfaction is shaped by the surrounding work environment. It helps explain the paradox of high job satisfaction among workers accompanied by high turnover.

Compensation

Wages, which are an extrinsic job quality, are the most important extrinsic job reward to workers (Dill et al., 2013). According a 2008 report by the CDC, 70% of 304,400 CNAs studied report they left their jobs because of low salaries. These CNAs explained they needed better employment elsewhere because of their socioeconomic status (CDC, 2008). Furthermore, according to Dill and colleagues (2013), job satisfaction and employment intentions are not significant predictors of retention. Instead, being a primary breadwinner appears to be one of the stronger factors in the retention of nursing aides (Dill et al., 2013). Dill et al. (2013) also stated that low-wage nursing aides might have weaker capacity to act on their intentions to leave because they need the income to support their households. This research also looked at how contingency factors affect nursing aides' intention to leave. Contingency factors in the study included the availability of resources. For example, being single parents with a low income could affect employment decisions and intention to leave even when they are satisfied. The study revealed that job satisfaction and employment intentions are not significant predictors of

retention (Dill et al., 2013). In contrast, contingency factors, such as being the primary breadwinner of the household acted as reliable predictors of nursing aide retention.

Given the difficult nature of the work and the stress due to understaffing, compensation for direct care jobs is not competitive. The median wages are relatively low give the demands of the occupation and the pace with inflation (Pohlmann, 2006). According to the U.S. Bureau of Labor Statistics, direct care nursing aide median wages changed from \$9.35 to \$11.63 from 2001 to 2016, which is a -8% change with inflation adjusted using CPI calculator. Meanwhile, Maine's overall economic growth for the period increased over 8% (Maine Bureau of Labor Statistics, 2016). Because of their low income, many nursing aides are eligible for and receiving public assistance (Pohlmann, 2006). Moreover, direct care positions are often view as "dead end" jobs with little incentive (Pohlmann, 2003). There are few advancement opportunities or it takes a long time to advance from one position to another. Furthermore, there is often very little pay difference for years on the job.

Apart from low wages, other research shows that limited employer-sponsored benefits correlate to high nursing aide turnover rates (McGilton, Boscart, Brown, & Bowers, 2014). Nursing aides may seek other employment if they are not satisfied with employer-sponsored benefits. According to a national worker survey, one out of four nursing home workers lack health insurance coverage (Pohlmann, 2006). Even when nursing home and residential care facilities offer health insurance to direct care nursing aides, some aides could not participate due to the unaffordable premiums and copayments (Pohlmann, 2006). Nursing aides may even change their employment status from full-time/part-time (benefit provided) to per diem (no benefit) to receive higher pay rate and to avoid insurance premiums.

Wages and Limited by Reimbursement

Though employee compensations affect nursing aide turnover rates, research suggests that it is difficult for LTC administrators to increase the benefits for employees due to budget problems and dependence on public reimbursement (McGilton et al., 2014). LTC facilities' payment rates are based on costs incurred in a specified base year with inflation adjustment which means rates are determined before costs are incurred with certain expenditure ceilings per cost category. Direct care rates in Maine were established at a time when DHHS approved every new direct care position and rate of pay, which was not much higher than minimum wage (Pohlmann, 2003). Furthermore, Medicaid funding has not kept up with the pace of costs. In a private competitive market, businesses can increase compensation to attract more people into their business based on demand and supply in the market.

Providers in LTC cannot simply increase the price of the services to cover increased wages and benefits due to the dependence on public funding controlled by stated policymakers. MaineCare covers 72% of the long-term care services in nursing homes and 67% of care in assisted living and residential care facilities (Pohlmann, 2006). However, LTC providers have experienced reductions in reimbursement due to increased cost of living. Nursing homes reported that the shortfall in their costs against reimbursements nearly tripled from 2004-2005 (Pohlmann, 2006). Moreover, the cost of staff benefits (e.g. insurance price) has increased substantially. With inadequate funding, LTC facilities cannot afford to provide competitive compensation for direct care staff.

Job Satisfaction, Employee Engagement and Motivation

Job satisfaction is strongly correlated with employee engagement and motivation. Supervision was found to be a significant predictor for nursing aide's decision to leave (Choi & Johantgen, 2012). The study found that nursing aides tend to have higher level of job satisfaction when they perceive their managers to be supportive. According to McQueen (2012), lack of leadership acceptance and inappropriate facility policies are problematic in LTC facilities. Furthermore, Maine's 2003 direct care shortage report disclosed direct care workers frequently cite a lack of supervision and support on the job (Pohlmann, 2003). According to the report, working conditions are equally as important as compensation in direct care nursing aides' decision to remain in their position. According to the Wisconsin Dane county frontline caregiver report, from a CNA focus groups, discussants emphasized the importance of having charge nurses that did not separate themselves from direct care aides or refuse to help with tasks that were considered "CNA work" (Lange, Sirkus, & Dresser, 1999). Direct care nursing aides also reported a higher level of job satisfaction when they worked with managers who emphasized teamwork rather than hierarchies. Such relationships incur better communication, fewer accidents, more efficiency, more transparency, and better quality of care (Dresser et al., 1999).

Direct care nursing aides are acutely aware of the managers that paid attention to their questions and recommendations. Since direct care aides have close contact with residents, they often notice changes in residents' conditions first. Recognition from managers can be a positive employee motivation. According to the Wisconsin report, CNAs feel obviously devalued if upper level staff members brush off their observations. Moreover, they would also like to hear back whether their observation helped improve residents' care or not (Dresser et al., 1999). According to Hayes et al. (2012), there was a lower turnover rate if direct care nursing aides had the

opportunity to participate in care planning. This validates their importance and their relationships with the residents. Supportive management gives effective guidance to direct care nursing aides and provides a sense of belonging in their work community which improve staff motivation. Another study also cited that to include direct care aides to decision-making processes makes them less likely to leave (Pohlmann, 2003; Hayes et al, 2012).

Workplace Environment

Research indicates that working conditions affect employees' intentions to leave. They show that direct care aides exposed to high levels of stress were more likely to leave (Kutney-Lee, Wu, Sloane, & Aiken, 2013). This is a significant problem due to the nature of the job and the increasing demand in the field. Stressors from the workplace environment include horizontal workplace aggression (bullying) and work injury.

An empowered workplace environment can trigger a different focus on stress. Empowered work environments encourage and include employees as an important part of the company. Empowered employees are often highly motivated and typically perform at a higher level. Non-empowered employee may feel stuck or not important to the facility. According to Gruss et al. (2004), non-empowered work environments cause higher levels of job stress and increase CNAs' turnover rate. CNAs that experienced high levels of stress were more likely to quit. The study also showed CNAs employed in empowered environments were more likely to experience resident-focused stressors, which revolved around accidents, behavioral problems, and end of life situations with their residents. On the other hand, CNAs working in non-empowered environment experienced job-focused stressors, including problems related to workloads, interpersonal conflicts, and salaries (Gruss et al., 2004). Direct care aides working in

non-empowered environment were surrounded by extrinsic (dissatisfactory) factors. Consequently, they are more likely to leave.

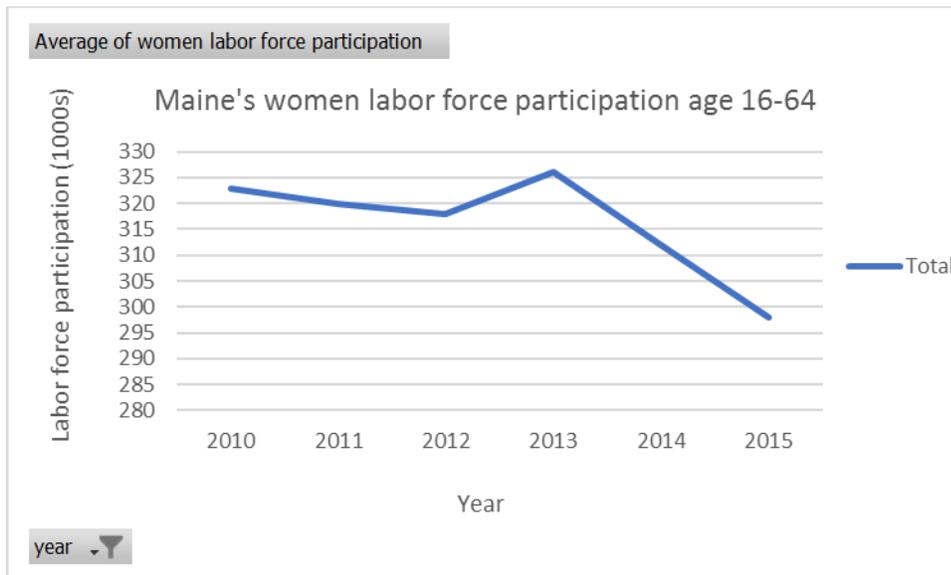
Horizontal workplace aggression— aggressive behavior by an employee or employees within or outside an organization that is intended to physically or psychologically harm a worker or workers in a work-related context – is an important issue that also lead to high direct care nursing aides turnover rate (Schat & Kelloway, 2005). Workplace aggression can seriously impair employees’ well-being, and contribute to anxiety and depression (LeBlanc & Kelloway, 2002). Research has long demonstrated that workplace aggression is related to higher levels of job stress, decreased job satisfaction, work-family imbalance, and increased turnover intention (Budd, Arvey, & Lawless, 1996).

Work injury, another workplace stressor, is usually correlated with inadequate training and supervision. The federal Medicare minimum requirement for CNA training is 75 hours, and there is no federal requirement for PSS. Maine requires 50 hours of training for PSS, 150 hours for CNAs, 40 hours for CRMAs (Maine Health Care Association, 2017). However, direct care workers often feel inadequately trained for difficult situations. According to Pohlmann (2006), direct care aides need more training in areas of communication, teamwork, behavior and cognitive disorders, self-protection, time management, and coping with end of life process, especially during their early visits with residents. That report also noted that earlier clinical exposures can help students to figure out whether they are fit for the job (Pohlmann, 2006).

Maine’s Labor Force

Labor force participation in Maine is decreasing. According to Maine Department of Labor (2017), there are roughly 3,300 fewer employed workers in 2017 when compared with

2016 around the same time of year. Reports note the decreasing unemployment rate in Maine is due to the downsizing of the state's labor force. Maine's total labor force participation has been decreasing. Women's labor force participation among those aged 16 to 64, which is the pool of the majority of direct nursing aides, has a general declining trend (see **Figure 1.**). State data note the decline in teenagers age 16 to 19 years old labor force participation during 2000 to 2015, which coincides with a rise in the school enrollment rate (Bureau of Labor Statistics, 2016). The same report also found the decreased labor participation among young women age 20 to 24 years which may not be correlated with school enrollment. At the same time, 61% of young adults who were neither enrolled in school nor participated in labor force in 2015 were women. Many of the women had less than a high school diploma and usually had young children. 40% of women in this age group that were not in school and who had no high school diploma were mothers, and 24% of women in this age group that were not in school but had a high school diploma (or more) were mothers (Bureau of Labor Statistics, 2016).

Figure 1. Maine's women labor force participation age 16 to 64 from 2010 to 2015

Data source: Bureau of Labor Statistics

As mentioned above, lack of childcare can be another key stressor. Combined with the low incomes, it is difficult to manage childcare, transportation and other livelihood spending. Ninety percent of direct-care nursing aides are women with significant caregiving obligations and 75% of direct care nursing aides have a high school education or less, with low household incomes (Khatutsky et al., 2011). A Pennsylvania survey noted that childcare assistance, either on site or through an allowance can be important in recruiting and retaining workers (Pennsylvania Intra-Governmental Council on Long Term Care, 2001). Childcare problems also reflected on workplace scheduling. According to a Cleveland study, over 1/3 of nursing assistants in skilled nursing facilities worried about their families while at work (Shur, 1998).

Furthermore, women age 25 to 54, the major direct care workforce since 2000, are declining and the work force is shifting to age 40-65. The service supply of this age cohort cannot meet demand of people needing the services (Pohlmann, 2006). People in this age group

are starting to grow out of or are physically unfit for the position, resulting in further shortage than providers have already been experiencing.

Competition with other entry-level jobs

The employment model for direct care nursing aides presumes that they are easily replaceable entry-level workers (PHI, 2016). However, they are the primary providers of resident care which should be viewed as an entirely different professional role from nurses. The presumption of direct care being not a career devalues the work and leads to low wages and less willingness to join the field (PHI, 2016).

In comparison with other entry-level jobs, such as food serving or retail, direct care nursing aides receive similar entry-level pay but they perform more demanding work (see **Table 2.**). One of the interviewee confirmed that direct care is hard work. Waiters and waitresses had a slightly lower hourly wage when compared with the other 3 categories. However, this category had the second highest employment number due to the profit from tips. Retail salespersons received a very close mean hourly wage with nursing assistants. The estimated employment in retail salespersons is double that of people employed as nursing assistants (Bureau of Labor Statistics, 2017). According to Pohlmann's earlier report (2003), one-quarter of former Maine direct care nursing aides left their jobs because they got a better job and 20% said working conditions were too poor to stay. This research also noted that personal well-being was also one of the motivations to work elsewhere (Paraprofessional Health Care Institute, 2002), and that nursing aides expressed the desire for less stressful and less demanding jobs, and nursing aides also ended up taking a different job due to work injury.

Table 2. Hourly rate for entry-level occupations in Maine, 2017

Occupation Title	Estimated Employment	Mean Hourly Wage
Retail Salespersons	20,190	\$12.84
<i>Nursing Assistants</i>	<i>9,050</i>	<i>\$12.60</i>
Food Preparation Workers	7,020	\$11.18
Waiters and Waitresses	11,740	\$11.06

Data source: Bureau of Labor Statistics, Occupational Employment Statistics program, 2017

Strategies and Suggestions from Literatures

Improve Compensation

Wages have been the recurring theme in the topic of direct care nursing turnover problems. Interviewees views on current situation with nursing aide pay rates aligned. One interviewee emphasized that low wage is the major reason that fewer people are attracted to work in the field, even when other dissatisfactory factors were addressed by in some LTC facility. Both interviewees expressed the frustration of insufficient funding directly affects the possibility of improving compensation for direct care nursing aides. For employers depending on public reimbursement, the literature recommends that reimbursement rate increases be tied directly to wages and benefits for nursing assistants (PHI, 2016).

Increase Job Satisfaction

Employee motivation and engagement is directly connected to job satisfaction factors. To increase satisfaction, it is suggested that facilities to provide or motivate supportive supervision,

sustainability, and a sense of belonging for direct care nursing aides. Supportive supervision requires active listening, effective communication, and encouragement. Investment in supportive management to facilitate and motivate nursing aides has been linked to improvements in job satisfaction and retention (PHI 2016). Furthermore, effective supervision can promote staff sense of working in an empowered environment and a decrease in negative atmosphere at work. Consequently, this decreases stressors that can lead to turnover. To provide sustainability, a stable work schedule is key. It allows direct care aides to better manage work-life balance and reduce stress. Direct care nursing aides are the people who have direct contact with their residents. A co-dependent and caring relationship can be strengthened by taking nursing aides' opinions into consideration during care planning. This can build a sense of belonging and responsibility that may affect their decision to stay.

Career Advancement

Professional training can provide nursing aides opportunities to grow and advance in their career. Adult learning methods can be introduced for learners who may have difficulty with traditional lecture formats. This can improve the quality of the training and ensure the delivery of quality care. This promotes nursing aides' understanding, job achievement, and can lead to higher levels of job satisfaction.

Creating new career path for nursing aides may also change the attitude that direct care is a "dead end" job. Experienced nursing aides can provide valuable support to newer aides. Mentor, trainer, consultant, and condition-specific roles can be different career path that contributes to stronger workforce retention.

Analysis of Staffing at a Maine Facility

Apart from the direct care nursing aide turnover factors identified above from the literature, other factors that affect direct care worker turnover in the studied facility are considered below. These factors include: the age of the aides and their travel distance to work may also have impact on their decision to stay. This part of the study is intended to find out whether staff characteristics, such as age and travel distance to work, affect turnover rate, whether there is any change in these factors associated with the turnover trend of the study facility from 2015 to 2017 and the potential impact of retail employment in the area.

Data Sources

This analysis relies on data from an assisted living facility and the Bureau of Labor Statistics. The Bureau of Labor data cover the period from January 2015 to June 2017. The assisted living data are from January 2015 to October 2017. The assisted living data includes 105 staff, approximately half (55 people) of the sample have staff characteristics information on file. Assisted living nursing aides' characteristics are reported in 2 categories: age and distance of commute to work. Other variables from the Bureau of Labor Statistics (BLS, 2017) include monthly employment rate in county retail.

Figure 3. shows the age diversity of direct care nursing aides in the assisted living facility and their current employment status. Staff age 17 to 21 has the highest count when compared with other 5-year age groups (N=14). The second highest age group is staff age 22 to 26 (N =8), and age groups 42 to 46 and 57 to 61 have the third highest employment (each with N=6). The rest of the age groups are smaller, and the category “(blank)” are people that did not have a birth year on file (N=6).

The youngest age group (17-21) has the most staff who have left, the turnover rate for this age group is 35.7%. This age group has a higher turnover rate than age group 22 to 26 (25%). Age group 57 to 61 had higher turnover rates at 50%, respectively (see **Table 3**). Between the age of 42 to 56, there is a lower turnover rate range from 16.7% to 33.3%. Other age groups are small and this lowers confidence in the rates calculated for these cohorts.

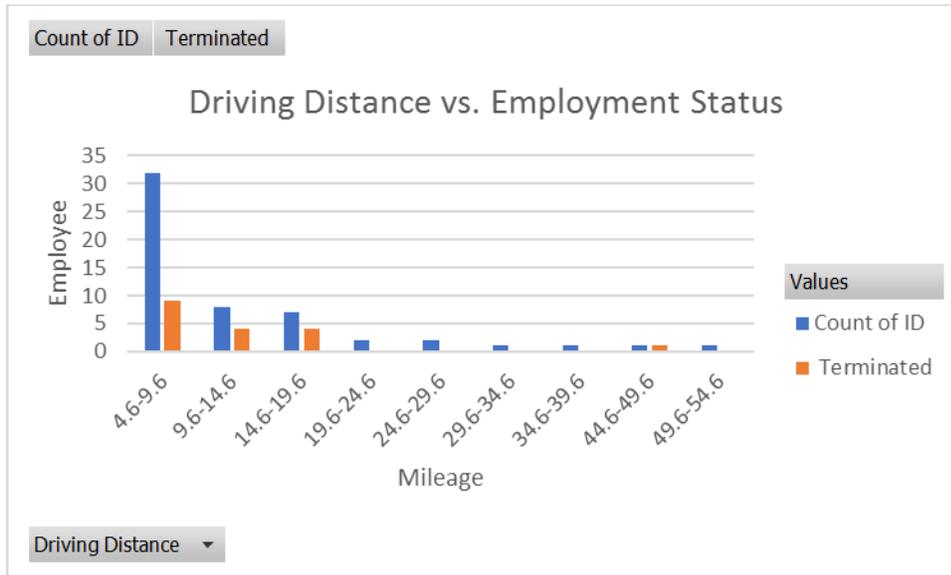
Figure 3. Direct care nursing aide age diversity and their employment status



Data source: Assisted living facility

Fifty-eight percent (33 of the 55 staff) live within 10 miles of the facility. Fewer than one-third (n=9) left employment during the study period. In contrast, half of those living 10 to 15 miles from the facility had left and more than half of those living 15 to 20 miles away left. Staff live 20 to 40 miles away are more likely to stay (n=6). Since only 2 staff live 40 miles away, it is too small to guarantee the stability of data. These rates are displayed in **Figure 4**.

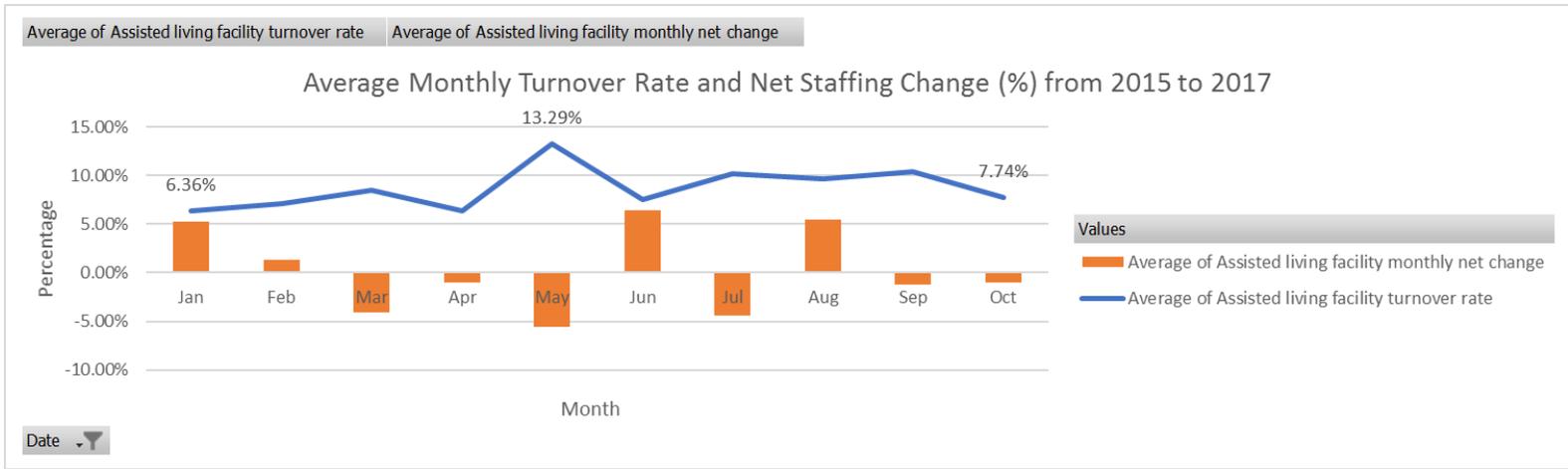
Figure 4. Direct care nursing aides’ driving to work distance and their employment status



Data source: Assisted living facility

Figure 5. shows the 3-year average 10-month turnover rates and change in proportion of employee over previous month. November and December were excluded as there were only 2 years’ worth of data. For the assisted living facility, the months of March, April, May, July, September and October all have negative net change of employee. This means the facility was losing more staff than they hired during these months. The turnover rate peaked during May (13.29%) which indicates May was the month the facility lost the most of their staff. January (6.36%) has the lowest turnover rate. The net change of employee also shows more new hiring during that month.

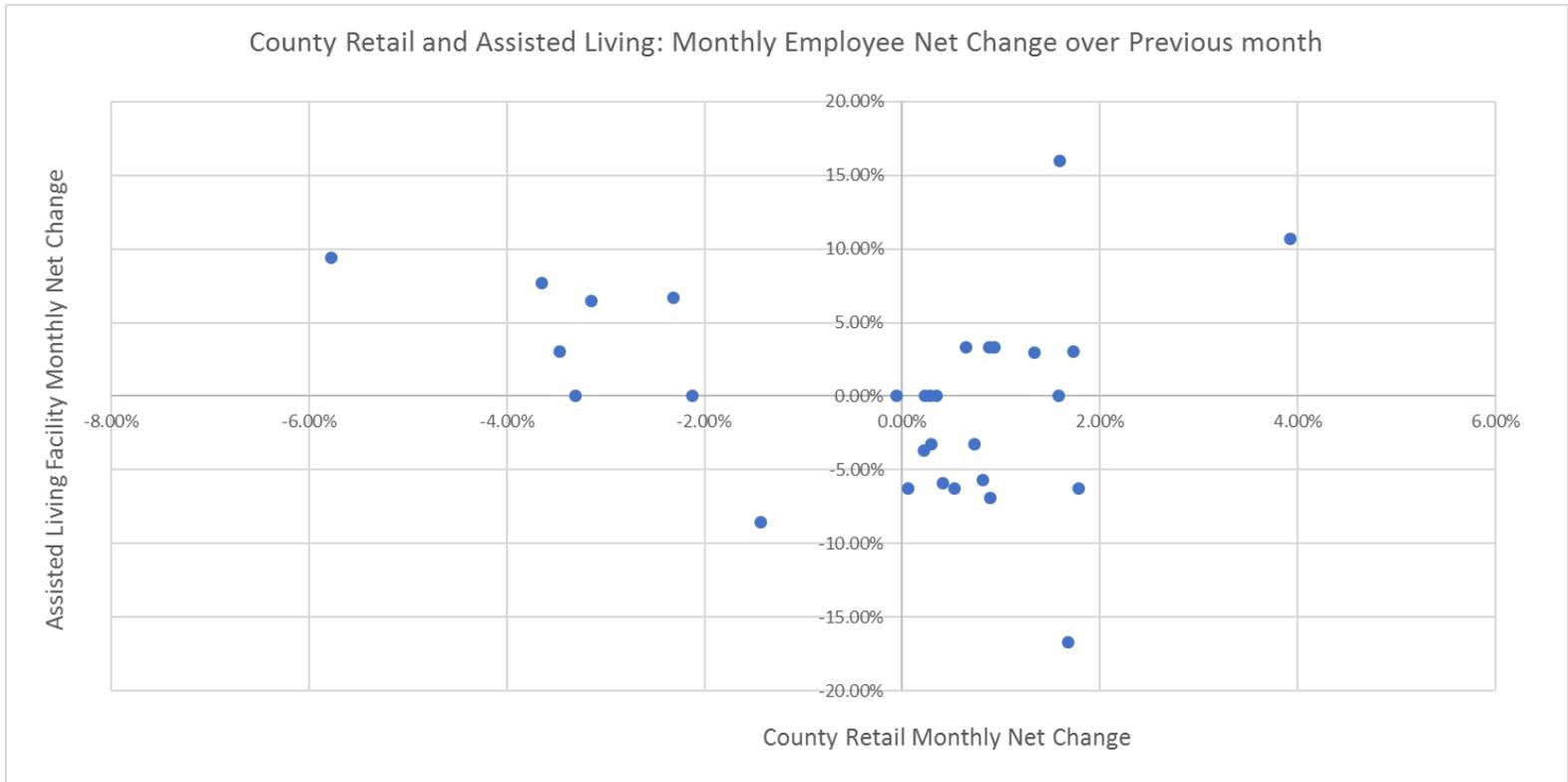
Figure 5. Assisted living facility average monthly turnover rate and net staffing change from 2015 to 2017



Data source: Assisted living facility

A Pearson’s r test was run to see if there is a correlation between county retail’s and the assisted living facility’s employment situation between 2015 to 2017. The test show that there is a negative correlation between the two ($r=-0.22569$). This indicates that when the county retail’s hiring increased, the assisted living facility lose employees. The scatter plot has 2 outliers shows the assisted living facility had about 16% of nursing aides that were new hired during one month and lost about 16% of their nursing aides the next month. This happened in May and June during 2016 (see **Figure 6**).

Figure 6. Correlation of County Retail Employment and Assisted Living Employment

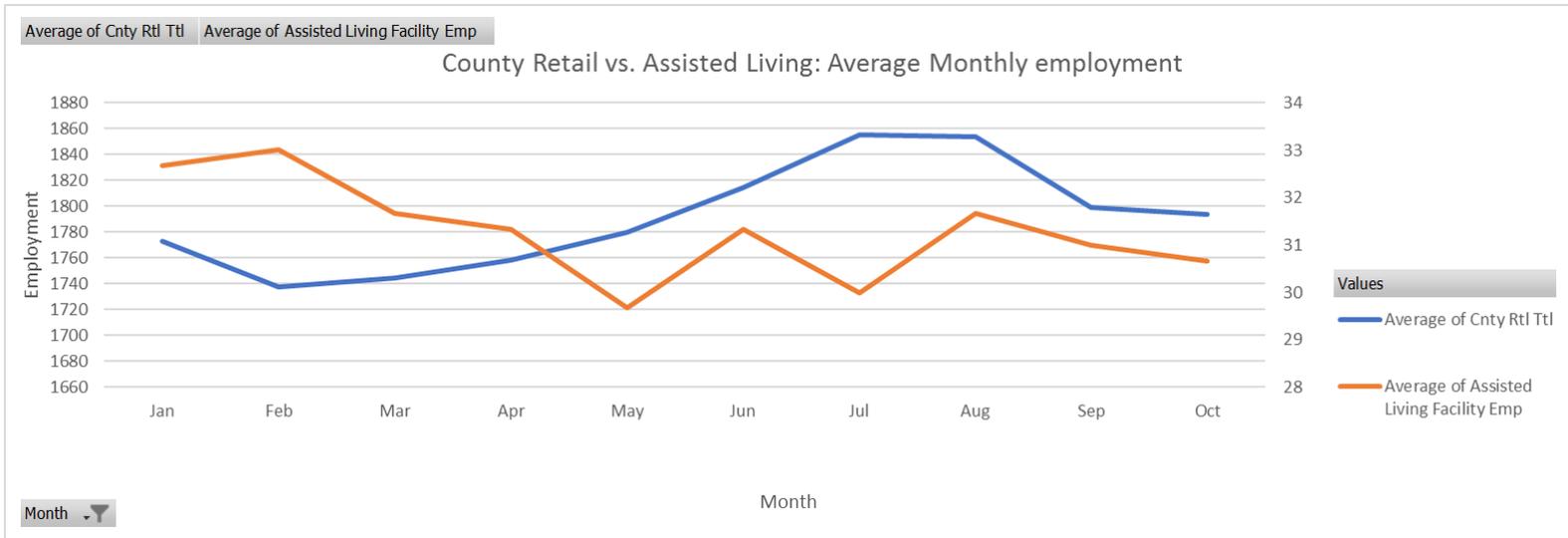


Data source: Assisted living facility and Bureau of Labor Statistics

There is a seasonal trend that suggests that the local retail employment situation affects the assisted living’s hiring situation. The number of nursing aides increased from January to February as the local retail employment decreases following the holidays and inventory. Then the staffing situation starts to decrease for the assisted living facility and increase for local retail. May is the month the assisted living facility had the fewest nursing aides and employment continue to grow till July for county retail at that level until September. There were some influx during June and August for the assisted living facility and the staffing situation starts to decline

after school starts and summer activity ceases in September which is the same with county retail (see **Figure 7.**).

Figure 7. Average Monthly Employment Count between County Retail and Assisted Living Facility



Data source: Assisted living facility and Bureau of Labor Statistics

Interpretation and Conclusions

Nursing aide characteristics at the study facility do appear to affect turnover rate. Younger nursing aides age 17 to 26 had a high turnover (35%) as expected. To my surprise, nursing aides at their late 20s seems stable at their job and people at their late 30 had the highest turnover. As Maine’s demographics shift, staff in their late 50s to early 60s are slowly leaving the field due to physical limitation or retirement as described in the literature. Somewhat surprisingly, nursing aides living further away had relatively low turnover rates when compared with people living closer.

As expected, there was a seasonal trend in turnover rates. The facility usually loses nursing aides during school month, and holiday seasons. There are some ups and downs during summer time. It was expected that the local retail employment situation would be correlated with nursing aide employment. The slow season for local business (January, February, October, and November), presents opportunity for an increase in the assisted living facility's employment. However, during holiday and tourism seasons, when local business attracted new hires, nursing aides left the facility to seek better employment. It was interesting that there were more new hired nursing aides during June and August while local business continue to hire more people. It is suspected that students from local high schools or people traveling in the area for the summer may acquire employment in the facility during those months. The decline after August may be correlated with nursing aides or their children going back to school and leaving the area.

Limitations and Suggestion for Future Research

The results of the quantitative analysis are limited by the data. Only half of the data have staff had information on staff characteristics. Furthermore, there was a risk of error during data entry due to the transfer from paper based to computer-based data using a single-entry process. A longer period of data collection could also improve the stability of estimate and confidence in the analysis. Gender variation in staff characteristic was dropped from the analysis due to insufficient data on male staff. For further study of the correlation between nursing aide characteristics and turnover, individual longevity in the position could improve the strength of bindings. Further research on the population is need to understand more about people age between 16 to 20 years old and their employment options..

Summary of Findings and Recommendations

In summary, the literature suggested an older workforce is most common in long term care facilities. In contrast, this facility had a younger workforce, suggesting the importance of rethinking expectations about applicant and employee age, and recruiting strategies. The data suggests that people seek nursing aide positions:

in January, after the holidays,
when school lets out in June, and
in August, when summer jobs are ending.

The distance to commute to work data suggest people living further do not appear to be more likely to leave, however, the small number of observations make this a tenuous conclusion. We speculated that the job opportunities may be fewer in areas further away than areas closer to the assisted living facility, and that this may impact the turnover rate as well.

Of note are the seasonal trends suggesting the correlation between local retail employment and the assisted living facility employment. These data suggest that it may be important to figure out what the benefit and work scheduling differences are between retail and assisted living. Given the clear relation to retail, there may value in developing a seasonal incentive program to keep staff at the assisted living facility through the summer, especially during July (see **Figure 7**). Finally, these data suggests that is the facility plans to announce a summer employment incentive program, that announcement will need to be made during April and May, when retail hiring start to take off, even if any incentive developed is designed to increase retention during July.

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