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Living Well With Dementia: Factors Associated with Nursing Home Residents' Affect Balance

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People with dementia want to live well, and there was a strong recommendation from the 2017 National Dementia Care Research Summit to include outcomes that measure well-being in care, services and supports for this population (Kolanowski et al., 2018). Well-being for people living with dementia has been conceptualized as the extent to which psychological needs for comfort, attachment, inclusion, occupation and identity are met (Kaufmann & Engel, 2016). In the general population, well-being is assessed by self-report or by observing states of emotionality, but the former approach is problematic when neurodegenerative diseases progress and verbal communication becomes difficult. For this reason investigators often infer states of well-being in late stage dementia by observing displays of affect (Lawton, Van Haitsma, & Klapper, 1996).

Affect balance is a concept developed by Bradburn who hypothesized that well-being is a judgement made by people when comparing the relative frequency of experiencing positive affect versus negative affect over a given time period. The mere absence of negative affect

does not necessarily equate with well-being. A higher ratio of positive to negative affect enhances well-being and predicts engagement and resilience to adverse events (Fredrickson, 2001). Some investigators have proposed that a 3:1 ratio of experiencing positive to negative affect is indicative of high-level well-being (Fredrickson & Losada, 2005).

Early studies of affect in people with late stage dementia reported a poverty of affective expression (Galynker, Roane, Miner, Feinberg, & Watts, 1995), but more current work challenged those findings. Negative affect does become more common as dementia progresses, but people living with late stage dementia also display positive affect (Kolanowski, Litaker, Catalano, 2002; Magai, Cohen, Gombert, Malatesta, & Culver, 1996). In fact, the loss of positive affect has been considered a late event (Albert et al., 2001).

In our work with nursing home residents we found that positive and negative affect were only moderately correlated; the mean level of positive affect displayed, unlike negative affect, was associated with functional ability but was unrelated to mental status; and both positive and negative affect showed a significant amount of daily variation (Kolanowski, Hoffman, & Hofer, 2007). In another study of nursing home residents we found that the mean ratio of positive to negative affect was 1.31 (+0.7) and this ratio was positively and significantly associated with greater engagement in activities and other indicators of well-being including self-reported mood and observed behavior (Kolanowski, Van Haitsma, Meeks, & Litaker, 2014).

Several conclusions can be drawn from this body of literature. First, a number of individual and environmental factors impact well-being in late stage dementia. Second, the expression of positive affect may be more easily influenced by environmental factors and therefore more malleable than negative affect.

Based on the concept of affect balance, care approaches for improving well-being in people with late stage dementia would aim to shift the affect ratio in favor of more positive relative to negative affect. To date, much of dementia care research has focused on approaches that reduce negative affect. The wisdom of suppressing all negative affect has been questioned because negative affect may be the only way for people in late stage dementia to communicate an undesirable state or unmet need (Algase et al., 1996). Intervening to improve affect balance by promoting the frequency of positive feelings, through interesting activities or pleasant interactions, for example, may be practical person-centered approaches for achieving well-being in people living with late stage dementia, many of whom experience significant negative affect.

Background

Person-centered care means that a person's values and preferences guide all aspects of their care and support their health and life goals (Molony, Kolanowski, Van Haitsma, & Rooney, 2018). When nursing home residents' preferences are honored they are more likely to experience higher levels of observed pleasure (Gitlin et al., 2008) and less anxiety or sadness. Nursing home staff often cite lack of time as a reason for not implementing person-centered approaches. Much of staff care, however, is relational and takes place in direct

interaction with residents. The quality of that interaction has the potential to impact affect and is essentially time-neutral, making it an attractive target for improving resident well-being. In a recent pilot study, Gilmore-Bykovskyi et al (2015) found that resident agitation was more likely to occur when nursing home staff engaged in task-focused care as opposed to more person-centered care. Direct care staff are not always knowledgeable of what constitutes person-centered care (Matthews, Stanhope, Choy-Brown, & Doherty, 2018) and while knowledge does not automatically translate into a practice change, it is a pre-requisite to change. Whether the quality of caregiving interactions and knowledge of person-centered approaches are associated with affect balance in nursing home residents has not been examined.

Factors such as staffing hours, the quality of the physical environment and policies that promote person-centered care reflect the nursing home's commitment to quality care and are likely to impact resident well-being. Prior research indicated that total nursing staffing and registered nurse (RN) staffing levels were associated with quality of care (Kim, Kovner, Harrington, Greene, & Mezey, 2009). As registered nurse to licensed practical nurse (LPN) ratios increased, total deficiencies and serious deficiencies decreased (Kim, Harrington, & Greene, 2009). In addition to staffing mix and levels, the built environment can be either supportive or a barrier to independent functioning, physical activity and well-being (Calkins, 2018). Light, noise, and available seating areas all contribute to the fit between the facility and residents' cognitive and physical capabilities. A well designed physical environment promotes residents' ability to achieve optimal independence, physical activity, and well-being (De Boer et al., 2018). Formal policies help to ensure consistency in practice and approaches to care. Written policies that reflect a philosophy of person-centered care should translate into better practice and resident outcomes, although there is not always strong evidence to that effect (Ampe, Sevenants, Smets, Declercq, & Van Audenhove, 2016). The number of staff hours provided by the nursing home, the quality of the nursing home's physical environment and their policies supportive of resident well-being have not been examined in relation to the effect on resident affect balance.

The purpose of this study was to extend prior work by examining potentially modifiable factors associated with resident affect balance. It was hypothesized that more positive staff interaction during caregiving, greater staff knowledge of person-centered approaches for dementia care, higher staff hours of care, a more supportive physical environment, a greater number of person-centered policies, and higher resident function will be associated with higher affect balance.

Methods

Participants and Setting

This study was a secondary analysis of baseline data from the first two cohorts of an ongoing pragmatic clinical trial. In the trial, the effectiveness of an implementation strategy for improving staff uptake of behavioral approaches when responding to residents' behavioral symptoms is being tested. The study was approved by a university institutional review board and the protocol has been published (Resnick, Kolanowski, et al., 2018).

Briefly, 35 homes from 2 states on the East Coast were invited to participate in the study if they (1) agreed to actively partner with the research team on an initiative to change practice, (2) had at least 100 beds or 50 beds if the facility had a dedicated dementia care unit, (3) identified a staff member to be an internal champion and work with the research team in the implementation process, and (4) were able to access e-mail and websites via a phone, tablet, or computer. Residents were eligible to participate if they (1) were living in a participating nursing home, (2) were 55 years of age or older, (3) had cognitive impairment as determined by a score of 0 to 12 on the Brief Interview of Mental Status (BIMS) (Saliba et al., 2012), (4) were not enrolled in hospice, and (5) were not in the nursing facility for short-stay rehabilitation care. Residents who retained decisional capacity, as evidenced by their ability to complete the Evaluation to Sign Consent (ESC) (Resnick et al., 2007), or their legally authorized representative signed a consent to participate.

Procedure

All data were collected by research evaluators who were blind to treatment assignment and who had prior experience working with nursing home residents. The baseline measures for this study were completed by direct observation of resident/staff interactions (quality of staff interaction), input from the nursing assistant who was providing care to the resident on the day of testing and who knew the resident well (affect balance and function), evaluator assessment (resident mental status, environmental assessment and person-centered policies), and individual staff response (staff knowledge of person-centered approaches for dementia care). Demographic data and staff hours were obtained from medical chart review and the Nursing Home Compare website (Nursing Home Compare, 2019) respectively.

Measures

Residents demographics included age, gender, race, ethnic background and marital status. These data were obtained from the medical chart.

Quality of staff interaction was measured using the Quality of Interactions Schedule (QuIS) (Clark & Bowling, 1989), an observational tool for rating staff/resident interactions as: “positive social”; “positive care”; “neutral”; “negative protective”; and “negative restrictive”. Behaviors that describe each interaction are provided. Research evaluators observed a staff/resident interaction over a 5 minute period and indicate if any of the interactions were observed using the responses: “present”; “not present”; or “can’t tell.” For this study the presence of “positive social” and “positive care” indicated high quality staff interaction. The presence of “negative protective” and “negative restrictive” indicated poor quality staff interaction. The QuIS has demonstrated good reliability in clinical settings (McLean, Griffiths, Mesa-Eguiagaray, Pickering, & Bridges, 2017). We achieved an interrater reliability of $r = 1.0$ ($p < .001$) for the QuIS in this study.

Staff knowledge was measured using a 10 item investigator-developed questionnaire, the Staff Knowledge of Person-centered Care Approaches for Dementia Care. The questionnaire focuses on the most appropriate ways to prevent and manage challenging behaviors in nursing home residents without causing a decline in function and physical activity or restricting function or physical activity in any way. Six items address how to respond to a

resident with a specific behavior (e.g., the resident who is resisting brushing his or her teeth), 3 items focus on ways to prevent challenging behaviors in residents with dementia, and 1 item addresses assessment of underlying capability of the resident to guide the development of appropriate person-centered care plans. In our current trial we found evidence of the questionnaire's reliability (item reliability index (alpha coefficient) of .99), construct validity with INFIT and OUTFIT statistics in the .6 to 1.4 range, and a significant correlation between scores on the questionnaire and positive care interactions (Resnick, Kolanowski, Van Haitsma, Galik, Boltz, Ellis, Behrens, Eshraghi, Viviano, et al., in press). The mean score obtained in the facility was assigned to each of the participants in that facility.

Staff hours were obtained from the Nursing Home Compare website. The mean RN, LPN and certified nurse assistant (CNA) hours (reported as minutes) per resident per day for the facility was assigned to each of the participants in that facility.

The Environment Assessment is an investigator-developed instrument that includes 24 items related to the quality of the environment that impact care of residents (e.g. outdoor spaces are available and noise is controlled). Items are scored as present or not present and summed. Higher scores indicate a more supportive physical environment. There is evidence of the instrument's inter-rater reliability ($r=.99$) and construct validity based on Rasch analysis and INFIT and OUTFIT statistics in the range of .6 to 1.4. (Resnick, Kolanowski, Van Haitsma, Galik, Boltz, Ellis, Behrens, Eshraghi, & Zhu, 2019). The facility score for environmental assessment was assigned to each of the participants in that facility.

The Person-centered Policies is an investigator-developed instrument that includes 24 items reflecting policies that support person-centered behavioral approaches (e.g., policies on use of restraints and unlimited visiting hours). Items are scored as present or not present and summed. Higher scores indicate more person-centered policies. There is evidence of the instrument's inter-rater reliability ($r = .81$) and construct validity based on Rasch analysis and INFIT and OUTFIT statistics in the range of .6 to 1.4. (Resnick, Kolanowski, Van Haitsma, Galik, Boltz, Ellis, Behrens, Eshraghi, & Zhu, 2019). The facility score for Person-centered Policies was assigned to each of the participants in that facility.

Function was measured using the Barthel Index (BI), a 10 item measure of performance of activities of daily living with evidence of internal consistency, inter-rater reliability and validity (Mahoney & Barthel, 1965). Items are weighted to account for the amount of assistance required. Scores range from 0 (complete dependence) to 100 (complete independence).

Mental status was measured using the Brief Interview of Mental Status (BIMS) (Saliba et al., 2012). The BIMS includes recall and orientation questions with scores ranging from 0 to 15. Higher scores indicate greater cognitive ability.

Affect Balance

Affect Balance was measured using items for positive affect and negative affect that emerged after conducting a principal components analysis (PCA) of the Quality of Life in

Late-stage Dementia Scale (QUALID) (Weiner et al., 2000). To construct a measure of affect balance we first conducted a PCA with varimax rotation to determine the factor structure of the QUALID. The PCA resulted in two components that accounted for 37.5% of the variance. The first component was labeled “negative affect” and included 4 items with loadings of 0.6 and above: appears sad, cries, facial expression of discomfort, and statements of discomfort. The second component was labeled “positive affect” and included 3 items with loadings of 0.56 and higher: smiles, enjoys touching, and enjoys interacting. For each participant we then averaged the 3 positive items and the 4 negative items separately using the QUALID 5-point scoring system and used these results to calculate a ratio of positive to negative affect where a higher ratio indicates better affect balance.

The QUALID was developed specifically for individuals with late-stage dementia and those who cannot communicate coherently. Eleven observable affective expressions thought to be indicative of quality of life are included such as smiles, appears sad, and cries. Assessments were provided by direct care staff using a 5-point Likert scale reflecting the amount of time each day the resident displays the affect. We reversed scored the positive items, so that a higher score on any item (positive or negative) indicates more of that affect.

Initial psychometric testing of the QUALID provided evidence of internal consistency (alpha coefficient of .77), test-retest reliability (intra-class correlation of .81) and inter-rater reliability (intra-class correlation of .83). There was also evidence of validity based on significant correlations between scores on the QUALID and the Geriatric Depression scale ($r=.36$, $p=.04$) and the Neuropsychiatric Inventory ($r=.40$, $p=.01$). In this study we found continued support for the reliability and validity of the QUALID scale using Rasch analysis (Resnick, Galik, et al., 2018).

Data Analysis

All variables were summarized with frequencies and percentages or with means, medians, standard deviations, etc. prior to any analysis being performed to check the distributions of the variables. We also examined the association of positive and negative affect scores from PCA of the QUALID to determine their degree of association and relative independence, thereby justifying the use of affect balance rather than relying solely on either affect as a measure of well-being.

The primary outcome variable, affect balance, was skewed. Several attempts were made to transform it to a more normally distributed state, but none were successful. Because of this, a nonparametric analysis using quantile regression of the median was used instead of the usual parametric methods. A bivariate analysis of each potential predictor and covariate versus the outcome variable was implemented first to determine which of these variables had a significant effect on affect balance. The statistically significant variables from the bivariate analysis (staff knowledge, RN and CNA hours) in addition to a known clinically important variable (quality of staff interaction) and variables that reached the $p=.10$ level of significance (function and gender) were then combined together into a multivariable model to determine if significance was maintained when adjusted for the effect of the other variables. Even though some clinically important variables may be insignificant in bivariate analyses, once they are examined in the context of other important variables, they can reach

significance because of their interaction with these variables (Heinze & Dunkler, 2017). Facility was controlled in the multivariable analysis.

Before creating the multivariable model, the predictors and covariates were tested for multicollinearity using variance inflation factors (VIF) statistics, but none was found using a cut-off of 4. The final model fit was assessed using a histogram of the standardized residuals from the model and a Q-Q plot of the residuals from the model. Both showed a good fit. The parameter estimates from the model were used to determine the magnitude and direction of any significant effects of the predictor variables. All analyses were performed using SAS version 9.4 (SAS Institute, Cary, NC).

Results

The participant demographics and clinical characteristics are in Table 1. The 325 participants in our sample were approximately 83 years of age, the majority were female (69%), Caucasian (75%), and widowed (46%). These participants had moderate to severe cognitive (BIMS mean=4.3 ($\pm$ 3.6)) and functional (BI mean= 34.0 ($\pm$ 25.0)) impairments.

Means and standard deviations for the baseline measures are in Table 2. In our initial bivariate analyses we found a small negative correlation between positive and negative affect ($r_s = -0.32$).

Both the mean (2.98 ($\pm$ 1.5)) and median (2.93) affect ratio indicate that residents in our sample were experiencing a positive affect balance. There was a considerable range in affect ratios, and univariate analyses (frequencies) indicated that most of the participants (55.1%) were below the affect ratio of 3.0, which is considered indicative of high-level well-being by some investigators.

The vast majority of observed staff interactions with residents were rated as positive only ($n= 263$); 12 interactions were rated as solely negative and another 50 interactions were rated as including both positive and negative staff behaviors. The staff in the 35 facilities made correct responses to 8 of the 10 items on the Knowledge of Person-centered Approaches for Dementia Care. As expected, CNA hours per resident per day (reported in minutes) were highest, followed by RN and LPN hours. The results of the Environmental Assessment indicated that the physical environments in the facilities were designed to be somewhat supportive of residents' needs (mean score of 18/24). This was also true of the Person-centered Policies (mean score of 18/24).

The bivariate analysis for each potential predictor and covariate variable versus the outcome variable indicated that the following were positively and significantly associated with resident affect balance: staff knowledge (t value= 2.16, $p= 0.03$); RN hours (t value= 2.05, $p=0.04$); and CNA hours (t value= 3.03, $p= 0.003$). Function (BI) and gender were not significant (t value= 1.67, $p=0.09$ and t value= -1.65 , $p=0.10$, respectively), but there was a trend for those with better function and males to have a better affect balance. Age, mental status (BIMS), quality of staff interaction (QuIS), LPN hours, environmental assessment, person-centered policies and facility were not significantly associated with affect balance.

The results of the quantile multivariable regression analysis, including parameter estimates and 95% confidence intervals, are in Table 3. The model indicated that quality of staff interaction and function remained independently significant after controlling for the other variables.

Discussion

Staff in nursing homes are challenged to go beyond basic custodial care and to help people live well with dementia. The assessment of progress towards this goal requires using measures from a positive rather than a deficit framework. Affect balance is one such measure and captures well-being in people living with late stage dementia.

In this secondary analysis we hypothesized that more positive staff interaction during caregiving, greater staff knowledge of person-centered approaches for dementia care, higher staff hours of care, a more supportive physical environment, a greater number of person-centered policies and higher resident function will be associated with higher affect balance. We controlled for resident demographics and mental status and found that the quality of staff interaction and resident function, two factors that can be modified, were independently and significantly associated with resident well-being as measured by affect balance.

The demographic characteristics of the 325 participants in our sample indicate that these residents were typical of most nursing home residents in the U.S.: they were female, Caucasian and had significant cognitive and functional impairments. The staff hours (reported in minutes) available per resident per day were also similar to U.S. averages as reported on the Nursing Home Compare website (RN= 49; LPN=50 and CNA = 148). The only exception was CNA hours, which at 134.4 minutes, were lower. Staff had good knowledge of person-centered approaches to care as shown by their mean score of 80% on the knowledge questionnaire. We also observed predominantly positive interactions between the staff and residents, indicating that staff used appropriate approaches in practice, at least during observation times. While there was room for improvement, the environment and policies in the 35 facilities were supportive of residents' independence and function and endorsed the use of person-centered approaches.

Our bivariate analyses confirmed what others have found (Carstensen, Pasupathi, Mayr, & Nesselrode, 2000) and indicate that positive and negative affect were not highly associated. As a result, we used a ratio of positive to negative affect as a measure of well-being and examined factors that were associated with it in an effort to determine potential targets for improving well-being.

Our participants had a mean affect ratio of 2.98 (± 1.5), which indicates a positive balance but below the high-level well-being ratio of 3.0. This ratio is higher than what we found in our prior research (Kolanowski et al., 2014) of similar nursing home residents, but lower than the affect ratio found in other samples of nursing home residents and community-dwelling older adults (Diehl, Hay, & Berg, 2011; Meeks, Van Haitsma, Kostiwa, & Murrell, 2012). Our findings and that of others indicate that across nursing home residents there is variability in affect balance. Over half (55.1%) of our sample had affect ratios below 3.0

indicating that more can be done to improve their well-being. Methods to improve positive affect and simultaneously reduce negative affect include engaging residents in activities they enjoy and providing care according to their preferences. Determining the best approach for achieving the goal of high-level well-being is especially important for high-risk residents who exhibit significant negative affect and who are frequently isolated and not included in social activities.

In our bivariate analyses we found that staff knowledge of person-centered approaches for dementia care and the number of RN and CNA hours (reported as minutes) of care provided per resident per day were positively and significantly associated with affect balance. These findings make intuitive sense and suggest that positive resident outcomes can be achieved when staff are educated on person-centered care approaches (Resnick, Kolanowski, Van Haitsma, Galik, Boltz, Ellis, Behrens, Eshraghi, Viviano, et al., in press) and when there is sufficient time for staff to implement these approaches (Kim, Harrington, et al., 2009). Our findings also suggest that providing more RN vs. LPN hours of care may be advantageous, the former having more educational preparation to manage residents' complex needs.

In our multivariable model the quality of staff interaction (QuIS) and function (BI) remained independently significant after controlling for the other variables. Interactions that were positive vs. those having a combination of positive and negative interactions, and better function were associated with higher affect balance. We did not find that negative interactions resulted in lower affect balance and believe that this is a function of the small number of negative episodes we observed (n=12).

The manner in which staff interact and communicate with residents contribute to meaningful engagement and helps residents fulfil their social and care needs (Wiechula et al., 2016). Studies support the association of positive staff communication with improved resident participation and better mood (Tappen & Williams, 2009). The findings provide additional evidence for including communication training in all staff educational programs as a critical component for ensuring the well-being of residents. A recent systematic review of communication skills training for nursing staff found, however, that the content of these programs require greater specificity for real-world practice (Machiels, Metzelthin, Hamers, & Zwakhalen, 2017). Nursing staff need explicit guidance on how to improve their communication skills so that their interactions foster resident well-being. Role modeling this behavior and demonstrating the very positive impact it can have on residents may be a helpful way to augment education.

In prior research we found that positive affect was associated with resident functional ability but not mental status (Kolanowski et al., 2007). The findings in this study are similar. Higher functional ability may contribute to well-being by making it possible for residents to engage in activities they enjoy and to perform activities of daily living rather than having others "do" for them in what they may perceive as an intrusion. Our findings underscore the importance of maintaining residents' functional abilities for their overall well-being. Function-focused care, an approach that encourages resident participation in all aspects of direct care (Galik, Resnick, Hammersla, & Brightwater, 2013), may have benefits beyond functional competence and include well-being. We note that successful implementation of

function-focused care requires some of the same factors we found significant in our bivariate analyses: adequate RN and CNA staffing and staff knowledge.

This cross-sectional observational study has limitations. The study was a secondary analysis of baseline data from a large pragmatic clinical trial and we did not power that study to detect small sized effects linked to affect balance. There are other variables that likely effect affect balance that were not measured and controlled for, such as psychoactive medication use and staff job satisfaction/turn-over. Despite these limitations, the study has notable strengths: the sample size was large, the research evaluators were well-trained and had prior experience working with nursing home residents, the study measures were validated for use with nursing home residents and they demonstrated very good reliability. There are implications for practice and research that can be made based on our findings.

Because the quality of staff interaction is important for resident well-being, our results highlight the need for staff sufficient in number and preparation in person-centered care, consistent with the Alzheimer's Association workforce principle, to assure quality dementia care (Gilster, Boltz, & Dalessandro, 2018). In that regard the QuIS may have clinical utility when used with staff during quality assurance /improvement activities.

Our findings also have heuristic value for future research. Frameworks that focus on behavioral symptoms operate from a deficit perspective and may not be appropriate for modeling positive outcomes such as affect balance. Strong conceptual frameworks from a strength perspective are needed to guide future research on affect balance and are being developed (Van Haitsma et al., 2019). More research is needed to design and evaluate staff communication interventions and their effect on affect balance. There is also a need to examine affect balance as a quality indicator and its relationship with other salient resident (e.g., depression, use of psychoactive medications, pain, nutritional status, physical activity) and staff outcomes (e.g., turnover, job satisfaction).

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Table 1.

Demographic and Clinical Characteristics of Participants (N=325)

		Mean ($\pm$ SD)	N (%)	Range
Age		82.7 ($\pm$ 10.3)		55–102
Gender				
	Female		224 (68.9)	
	Male		101 (31.0)	
Race	Caucasian		245(75.4)	
	African American		79 (24.3)	
	More than 1 race		1 (0.3)	
Ethnic Background	Hispanic or Latino		7 (2.2)	
	Not Hispanic or Latino		318 (97.8)	
Marital Status	Married		54 (16.6)	
	Widowed		151 (46.4)	
	Divorced/separated		36 (11)	
	Never married		64 (19.6)	
	Refused/don't know		20 (6.1)	
BIMS *		4.3 ($\pm$ 3.6)		0–12.0
Barthel Index		34.0 ($\pm$ 24.9)		3.0–80.0

* BIMS= Brief Interview of Mental Status

Table 2.

Baseline Measures of Predictor and Outcome Variables

Variable	Mean ($\pm$ SD)	Range	N/% (observations)
Affect Balance	2.98 ($\pm$ 1.5)	0.20–5.0	
Quality of Interactions Schedule*			
Both			50/15.4%
Positive Only			263/80.9%
Negative Only			12/3.7%
Knowledge Test	8.0 ($\pm$ 0.9)	6.0–10.0	
Staff Hours per resident per day (in minutes)			
RN	48.1 ($\pm$ 17.2)	16.0–80.0	
LPN	49.3 ($\pm$ 12.9)	18.0–74.0	
CNA	134.4 ($\pm$ 20.4)	91.0–198.0	
Environment Assessment	18.5 ($\pm$ 4.1)	8.0–24.0	
Policies	17.7 ($\pm$ 5.2)	5.0–24.0	

Table 3.

Quantile Multivariable Regression Model of Affect Balance

Variable	Estimate (95% CI)	P-value
Knowledge	0.925 (−83145.5, 83147.4)	1.0
Staff Interaction		
Both	Ref	
Positive Only	0.493 (0.109, 0.877)	0.01
Negative Only	0.913 (−0.231, 2.057)	0.12
Staff Hours		
RN	−0.019 (−26329.8, 26329.76)	1.0
CNA	0.0 (−226020.4, 226020.4)	1.0
Function	0.005 (0.0, 0.010)	0.04
Gender		
Male	Ref	
Female	−0.208 (−0.478, 0.063)	0.13