Oregon Center for NURSING

BRIEF: The Connection Between Local Nurse Recruitment Efforts and Social Determinants of Health

Introduction

Recent studies in Oregon provide compelling evidence of a nursing workforce maldistribution across geographic areas, practice settings (Oregon Center for Nursing (OCN) [2019]), and even across nurses' careers (OCN, 2020). The original intent of the work on maldistribution was to encourage communities to explore customized, local solutions to successfully recruit enough nurses to meet local needs (OCN, 2019). These strategies would leverage local conditions to increase the likelihood of recruiting and retaining an adequate nursing workforce and would focus on efforts to increase the number of nurses practicing in these communities.

Over the past decade, as nursing shortage discussions have evolved into conversations about maldistribution, other literature has focused on nurses' impact on the health of their communities. Published studies began to explore the relationship between the nursing workforce and population health within communities nationwide (Bigbee, 2008; Bigbee, Evans, Lind, Perez, Jacobo, & Geraghty, 2014; Fields, Bigbee, & Bell, 2016). Higher nurse-to-population ratios seem to impact health components that many consider public or population health indices, such as immunizations, prenatal care, childhood poverty, the lack of health insurance, and decreased rates of "poor" health. These findings suggest nurses uniquely impact health components related to population health, which result in healthier communities. The Robert Wood Johnson Foundation's ongoing "Culture of Health" discussions have led to efforts to utilize nurses to address social determinants of health at local levels (2015).

As these two bodies of work continue concurrently, researchers in Oregon wanted to know if nurse maldistribution in Oregon impacts social determinants of health at a local level. To answer this question OCN designed a study with two objectives. The first was to replicate findings showing a significant association between nursing workforce size and measures of community health, and to show this relationship held for the state of Oregon. The second was to explore the role of practice setting in the relationship between health rankings and the nursing workforce.

Method

To assess the relationship between the size of the nursing workforce and community health, two datasets were utilized. Nursing workforce data for each county was extracted from the Public Use Nursing Workforce Data File for 2018 compiled by the Oregon Health Authority (OHA, 2018). Community health data were pulled from the University of Wisconsin Population Health Institute, County Health Rankings and Roadmap for Oregon counties in 2018 (University of Wisconsin Population Health Institute, 2018). These metrics were combined to form six indices of health; Length of Life, Quality of Life, Health Behaviors, Clinical Care, Social and Economic Factors, and Physical Environment. These indices were grouped into two broad categories of Health Outcomes (Length of Life and Quality of Life) and Health Factors (Health Behaviors, Clinical Care, Social and Economic Factors, and Physical Environment). Correlational analyses were conducted and focused on the association between the nursing workforce size in each county and the Health Outcomes and Health Factors, and between the workforce and the six health indices.

Results

The correlation analysis results showed significant negative correlations between the size of nursing workforce in each county and the broad county rankings for Health Outcomes and Health Factors. This finding confirmed that as **the size of the county-level nursing workforce increases, the health ranking for a county improves**. This result supported the findings of Bigbee (2008) by showing significant associations between the size of the nursing workforce and county health rankings at a state level.

The analysis for associations between the total number of practicing nurses and the six county health indices (i.e., Health Outcomes and Factors) showed statistically significant associations with four of the six health indices (Table 1). The number of nurses within a county was negatively associated with Length of Life, Quality of Life, and Clinical Care. These results suggested **a larger nursing workforce is associated with better health metrics and better access to health care**, further supporting the findings of nationwide studies (Bigbee, 2008).

The analysis also revealed a significant positive association between the number of practicing nurses and the Physical Environment index. This result was not a surprise as counties with larger populations tend to have poorer air quality (Strosnider, Kennedy, Monti, & Yip, 2017) and longer commute times (Baum-Snow, 2010), which are key metrics included in the Physical Environment index. However, these authors reported these measures are largely affected by population density and are not likely to be impacted by the size of the nursing workforce.

The analysis of the two remaining health ranking indices yielded different, and potentially more interesting results. The analysis of the Health Behavior and Socioeconomic Factors indices showed a non-significant association between the total number of nurses practicing within each county and county rank for these two indices. Correlational analyses of nurses practicing in hospitals, public health, public policy and education also found no significant association with these indices. However, the number of nurses practicing in ambulatory care and long-term care was significantly, negatively associated with county rankings for the Health Behavior and Socioeconomic Factor indices. That is, **nurses practicing in ambulatory and long-term care were more associated with good health outcomes for these measures than nurses practicing in other settings or with the overall nursing workforce within a county**. This was potentially the most interesting finding of the study and may have implications for strategically-aimed efforts to recruit nurses specifically in ambulatory and long-term care.

Table 1 | Correlation Matrix - Nursing Workforce by Practice Setting and County Health Ranking

Health Ranking Indices	Total Number of Nurses	Ambulatory Care	Hospitals	Long-Term Care	Public Health	Public Policy & Education
Length of Life	-0.352*	-0.390*	-0.342*	-0.369*	-0.337*	-0.332*
Quality of Life	-0.380*	-0.416*	-0.369*	-0.413*	-0.366*	-0.353*
Health Behaviors	-0.318	-0.366*	-0.305	-0.351*	-0.281	-0.288
Clinical Care	-0.519*	-0.547*	-0.511*	-0.558*	-0.489*	-0.477*
Socioeconomic Factors	-0.305	-0.350*	-0.291	-0.334*	-0.28	-0.29
Physical Environment	0.375*	0.406*	0.361*	0.416*	0.354*	0.365*

*$p < 0.05$

Discussion

In general, these results showed an association between nursing workforce and county-level health indicators, and were consistent with earlier nationwide findings (e.g., Bigbee, 2008). The differential association of nurses practicing in ambulatory and long-term care on Health Behavior and Socioeconomic Factors may be one of the more important findings of the study. Nurses in these two settings may affect the health in communities differently than nurses practicing in other settings and with the nursing workforce overall.

A potential reason for this finding could be the nature of the interactions with residents and patients. Nurses who practice in these two settings may have more involved and long-term interactions with residents and patients due to the nature of the work they perform in these settings. The ability to form relationships may affect the nurse's influence over a patient's overall health. Given these two settings enhance a nurse's ability to form better provider/patient relationships associated with health behaviors influenced by education and counseling, it appears nurses working in ambulatory and long-term care could potentially positively affect the health of a community. Since rural communities are affected more significantly by nursing workforce maldistribution, it is possible that targeting nurse recruitment for ambulatory and long-term care settings may have a greater impact on community health than simply recruiting more nurses to practice in other settings.

However, before communities begin to target their recruitment activities, several questions remain unanswered. The first, and potentially most important involves the mechanism by which nurses' influence population health. That is, why does the number of nurses practicing in a community increase its health ranking? Is it simply due to the association between nurses and access to care, which results in better overall health? This seems partly true, but likely does not account for the lack of significant association between nurses working in hospital settings and higher health rankings for healthy behaviors. While more research is needed, these results provide a glimpse of how a targeted recruitment strategy could positively impact a community's health while also potentially reducing the impact of a maldistributed nursing workforce.

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