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Geographic mobility of Korean new graduate nurses from their first to subsequent jobs and metropolitan-nonmetropolitan differences in their job satisfaction

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ABSTRACT

Background: Nurses are known to migrate from rural to urban areas, which may cause geographic imbalances in the workforce.
Purpose: The aim of this study was to compare new graduate nurse retention based on the type of geographic area (capital, metropolitan, and nonmetropolitan) of their first job and their job satisfaction by geographic location.
Methods: The sample included 533 nursing graduates working full-time as registered nurses in hospitals or clinics. Survival analysis was conducted to compare nurse retention in three geographic locations.
Results: Survival curves for nurses in capital and nonmetropolitan areas were significantly different. The 1-, 2-, and 3-year survival probabilities of nurses in the capital were .923, .881, and .872, respectively, whereas those in nonmetropolitan areas were .887, .776, and .672, respectively. Nurses in nonmetropolitan areas were more dissatisfied with pay (odd ratio [OR] = 1.820, $p = .009$), fringe benefits (OR =1.893, $p = .015$), employment security (OR =2.640, $p = .033$), and personal growth (OR =1.626, $p = .045$) than those in the capital.
Conclusions: Nurses employed in nonmetropolitan areas were more mobile and less satisfied with their jobs than those in the capital.

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Nurses migrate within countries (internal migration) and from one country to another (international migration). Internal migration typically involves nurses moving from rural to urban and poor to rich areas (World Health Organization, 2010). The reasons nurses migrate within countries are better opportunities for personal and professional development and better work environments in rich, urban areas (Cho, Lee, Mark, & Lee, 2012a). International migration imitates patterns of internal migration, with nurses moving from low- or middle-income to high-income countries and from developing to industrialized countries (Buchan, Parkin,

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& Sochalski, 2003; Kingma, 2007). Reasons for international migration are often explained in terms of "push factors" existing in source countries and "pull factors" in receiving countries (e.g., low pay in source countries vs. higher pay in receiving countries). Other push and pull factors include poorer vs. better working conditions, professional development, quality of life, and personal safety (Buchan, 2006; Kingma, 2001). Therefore, internal and international migrations have the commonality that nurses are motivated to move to better places to improve their personal and professional lives.

Nurses' internal and international migrations may cause geographic imbalances that deplete the nurse supply and threaten the health of citizens in rural areas and developing countries (Buchan, 2006; Robinson, Murrells, & Griffiths, 2008). An example of this in South Korea is that small rural hospitals are reported to have difficulties in recruiting and retaining nurses (Cho, 2011). In a previous study of new graduate nurse turnover, nurses whose first job was in nonmetropolitan hospitals were more likely to leave than those employed in metropolitan hospitals (Cho, Lee, Mark, & Yun, 2012b). International migration can worsen these existing geographic imbalances within a country, particularly in developing countries because nurses in these countries are already disproportionately located in urban areas (Buchan, 2006). In South Korea, this phenomenon occurred in the 1960s and 1970s when registered nurses (RNs) and assistive nursing personnel migrated to West Germany under an agreement between the two governments. Despite all of the potential economic benefits to South Korea from the nurse migration, this migration actually worsened RN shortages in rural areas of South Korea. In addition, this migration of Korean RNs was a significant factor in the medical law; it allowed the substitution of certified nursing assistants for RNs during RN shortages (Kim, Hong, & Choi, 2009).

The geographic mobility of nurses within countries has been studied in several countries. Kovner, Corcoran, and Brewer (2011) examined the mobility of newly licensed RNs in 15 states in the United States by measuring the distances between where RNs attended high school, where they attended nursing school, and their current workplace. They reported that nurses have limited geographic mobility and that nursing labor markets are very local in nature. Robinson et al. (2008) examined inter-regional migration patterns of nurses in their early careers in England. They reported regional variations in the retention of nurses in the regions where they were trained and suggested that each region should understand how regional characteristics facilitate or constrain retention. The mobility of Canadian nurses among jurisdictions was also reported to resemble movements of the general population, with an east to west flow of migrants (Baumann, Blythe, Kolotylo, & Underwood, 2004). The majority (88.1%) of Canadian-educated RNs were employed in their jurisdiction of graduation (Canadian Institute for Health Information, 2011).

Cho et al. (2012b) examined Korean new graduate nurses' internal migration patterns based on where they grew up, where they graduated, and where they were first employed. These sequential transitions of "geographic origin, nursing school, and first employment" were categorized into 5 patterns. For example, one pattern was that the individual grew up, graduated, and took a first job in the same region; 54% of nurses fell into this pattern. This study also found that nurses tended to move from nonmetropolitan to metropolitan areas: 42% of graduates from nonmetropolitan schools had their first job in the capital city or other metropolitan hospitals, whereas 17% of graduates from the capital city or metropolitan schools moved to nonmetropolitan hospitals.

Two traditional ways of measuring retention are the retention or turnover rates of health professionals and the duration of time they stay in rural areas. Unfortunately, these two measures focus only on the number of stayers or the duration of stay. To overcome this analytic challenge, the World Health Organization (2010) recommended that nontraditional methods, such as survival analysis, are needed to evaluate more precisely the effects of policy interventions to increase the retention of health workers in rural areas. Thus, survival analysis has the advantage of taking into account both the occurrence of turnover and the duration of stay (Cho et al., 2012b). Another analytic challenge that survival analysis helps overcome is the analysis of "censored" data at the termination of study observations. For example, consider a study of nurse retention in rural areas with a 1-year study observation period. If, at the end of the study period, two nurses had left the area after working for 6 and 10 months, respectively, and another two nurses remained for 6 and 10 months, respectively (i.e., censored cases), applying the two traditional measures would yield a retention rate of 50% and an average duration of stay of 8 months ($[6 + 10 + 6 + 10]/4$). The retention rate fails to take into account differences in the duration of stay (6 vs. 10 months) among nurses. Also, the duration of stay does not differentiate between the 6 or 10 months of stay for the leavers and stayers. Therefore, survival analysis is expected to produce more accurate results than traditional methods, and some have suggested that this approach become the standard in nurse turnover research (Gilmartin, 2013).

This study extends prior work on the internal migration of Korean new graduate nurses by analyzing their geographic mobility from their first to their subsequent jobs. The specific aims were to compare nurse retention among the geographic locations (capital, metropolitan, and nonmetropolitan) where nurses had their first jobs, to explore migration patterns from nurses' first to subsequent jobs, and to compare nurses' job satisfaction by geographic location as a push or pull factor in nurse migration. This analysis will shed light on the complex mechanisms that might explain new graduate mobility behaviors and inform the development of policies to address them. We also discuss our findings in light of the