

Evaluating the efficacy and impact of the Nursing and Midwifery Exchange Program: a study protocol

AUTHORS

Amy-Louise Byrne

RN, BN, GCEmNurs, GCCFH
Nursing Director Clinical Excellence, South West Hospital
and Health Service
Roma, Queensland, Australia
Amy.Byrne@health.qld.gov.au

Clare Harvey

RN, PhD, MA, BA (Cur)
Associate Professor in Nursing, School of Nursing,
Midwifery and Social Science, Central Queensland
University, Townsville, Queensland, Australia
c.l.harvey@cqu.edu.au

Adele Baldwin

RN, RM, PhD
Senior Lecturer in Nursing, School of Nursing, Midwifery
and Social Science, Central Queensland University,
Townsville, Queensland, Australia
a.baldwin@cqu.edu.au

Brody Heritage

PhD, BPsych(Hons)
Lecturer in Organisational Psychology, Murdoch
University, Western Australia, Australia
b.heritage@murdoch.edu.au

Diane Chamberlain

RN BN BSc MN MPH PhD Associate Professor
Critical Care Nursing College of Nursing and Health
Sciences, Flinders University, South Australia,
Australia
di.chamberlain@flinders.edu.au

Elsbeth Wood

RN MN Associate Lecturer
School of Nursing, Midwifery and Social Science,
Central Queensland University, Townsville,
Queensland, Australia
e.wood@cqu.edu.au

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ABSTRACT

Objective

The following research protocol evaluates the Queensland Health Nursing and Midwifery Exchange Program (NMEP) and evaluates how exposure to diverse clinical settings, may impact the nursing and midwifery workforce on individual and organisational levels.

Design

This protocol details a mixed methodology allowing for both quantitative and qualitative data. The study is being undertaken in three stages; a survey of the participating nurses and midwives; a systematic review; and a Delphi study with an expert review group.

Setting

The study is a Queensland wide study across rural/remote, regional and metropolitan locations.

Subjects

This study will follow approximately 70 nurses and midwives employed by Queensland Health from diverse areas and streams at various stages within their clinical career.

Interventions

Nurses and Midwives participate in a three or six-month professional exchange to a rural/remote or metropolitan location.

Main outcome measure(s)

This study will evaluate the impact and sustainability of the NMEP program through measurement of burnout, job embeddedness, job strain, job satisfaction and attrition through a series of surveys. In addition to this, a systematic review and Delphi with executive experts will be conducted to consider a future pathway/model for nursing and midwifery exchange.

Results

This study has commenced and will be completed September of 2019.

Conclusion

The NMEP program is one novel approach to nursing and midwifery workforce concerns and looks to present excellent opportunities for the crossover of skills and ideas related to clinical, professional and service integration between metropolitan and rural practice.

Conflicts of Interest and Course of Funding

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INTRODUCTION

Global concerns about current and impending nursing workforce shortages have necessitated innovative strategic approaches that incorporate a revision of cost allocations and a shift in service management. The complexities associated with these shortages include an ageing workforce, increasing patient acuity and escalating costs of care provision (Hudspeth 2016; Sherman et al 2013; Productivity Commission 2005). The pressures of cost and space associated with acute hospital admissions have placed an increasing focus on community services in an attempt to reduce unnecessary and avoidable admissions (Australian Health Minister's Advisory Council 2017). This has compounded existing challenges related to health service provision in areas geographically removed from major metropolitan centres, where the difficulties associated with recruitment and retention of the workforce and access to services require special consideration. In Australia, just under half of the nursing workforce is over the age of 45 years, of which only 8.2% are located in community settings (Australian Institute of Health and Welfare 2013). Rural and remote nursing and midwifery is not identified in these statistics, although work undertaken by Rural Health West (2014) showed that there was a ratio of one nurse per 150 to 500 population in rural and remote areas.

Community nursing, an area which rural/remote nurses work collaboratively across, is of particular importance to health service provision as it supports home care and hospital avoidance. In spite of this knowledge, community nursing is largely invisible, and is not seen as an attractive career choice because of its generalist nature (Gray et al 2011; Kennedy et al 2008). Exposure to living in regional, rural and remote areas is therefore fundamental to attracting a suitable nursing workforce. It is a well-known fact that nurses who have grown up in, or have clinical experience in a particular region, are more likely to engage with it, and return to it for work. Moreover, preparing nurses to deal with the diversity of care and the challenges of rural and remote life is not always adequate (Francis et al 2016) and detailed consideration must be given to providing opportunities for nurses at all levels to develop the necessary understandings.

This research study builds on work that is currently being undertaken in Queensland Health, to develop strategies that support early transition into specialty practice, professional development and the encouragement of life-long learning including experience in rural and remote health (Fox et al 2015). One such project is the Nursing and Midwifery Exchange Program (NMEP). NMEP was conceived in the South West Hospital and Health Service (SWHHS), developed in partnership with the Office of the Chief Nursing and Midwifery Officer, in response to continued nursing and midwifery recruitment, retention and professional development difficulties. NMEP commenced in August 2017 and will run until June 2019. NMEP was designed to be an innovative, low risk opportunity for nurses and midwives to engage in professional exposure to different geographic locations and clinical environments within a supportive and nurturing framework.

BACKGROUND

Nurses working in rural and remote locations may be generalist in nature with primary and preventative healthcare as core business. However, they need to be able to transition quickly to acute and emergency nursing as situations demand, often in the absence of support from medical and other nursing staff. Thus, in addition to their usual scope of practice, rural and remote nurses take on additional skills and tasks, accepting significant additional responsibility for the welfare of their patients (Knight et al 2016).

For rural/remote localities, considerations for access, environment, lifestyle and isolation, complicate the health services ability to recruit, retain and maintain nurses with the broad repertoire of skill required to provide safe and effective services (Productivity Commission 2005). The complex nature of rural and remote nursing can lead to increased work pressures, stress and burnout. Burnout is a real and prevalent issue for nurses, often leading to increased staff turnover and sick days, all factors that can spill over to clinical practice effectiveness resulting in patient dissatisfaction and potential patient safety concerns (Hegney et al 2014). Mitigating factors of the nursing work experience, such as the degree of embeddedness and job satisfaction perceived by nurses, have been identified as potential approaches to reducing nurse turnover (Reitz and Anderson 2011; Cohen 2006; Holtom and O'Neill 2004). Embeddedness, a construct that refers to a constellation of fit perceptions, social ties, and elements that would be sacrificed upon leaving a job (Lee et al 2004), has demonstrated relevance to the retention strategies directed towards rural nurses specifically (Chandra 2010). Preventative strategies to mitigate these concerns include engaging the current workforce through innovation and building capacity and capability in graduate and early career nurses (Health Workforce Australia 2012). Feeling valued is a significant factor in how nurses respond to workplace pressures. Therefore, the importance of supporting isolated staff through workplace incentives, professional development, education and ongoing learning opportunities cannot be excluded from strategic planning (Mbemba et al 2013).

AIMS OF THE STUDY

The aims of this study are to evaluate the efficacy and sustainability of NMEP and to develop a formal pathway for ongoing implementation across the health services. To do this, we want to explore the perceptions of the exchange program, as viewed by the nurses and midwives who have taken part in the exchange program; we want to identify if there are similar models that have been trialled in other countries and settings; and gain a consensus from the managers of health services as to what they view as a sustainable model.

The original NMEP concept centred on a reciprocal relationship between rural/remote and metropolitan nurses and midwives, fostering the cross translation of skills and experiences. The core concept was designed around exposure to different areas with the hypothesis that exposure could lead to future recruitment. The program was developed through a state-wide steering committee of nursing leaders from rural/remote and metropolitan health services, aiming to build a more sustainable nursing and midwifery workforce through the collective strength of the state's resources. Candidates are matched with a partner, typically one rural nurse/midwife with one metropolitan nurse/midwife, and a swap of substantive positions is facilitated. The timeframe for the exchange may be either a period of three or six months. Rural/remote nurses have the opportunity to expand their skills and experience through exposure to higher acuity services and reduced hospital length of stay. The metropolitan nurses are able to expand their skills in rural continuity of care, Indigenous health services and 'rural generalist' nursing. The anticipated outcomes are for each cohort to develop skills that will support ongoing learning and professional development; improve networking, communication and collaboration between health services; and foster leadership and mentorship across diverse practice locations. While rural/remote exposure is important to improve recruitment, the relationship between metropolitan exposure for current rural/remote staff and retention to their rural/remote locations is also considered within the context of this study.

RESEARCH QUESTIONS

1. Can exposure to clinical practice in alternate settings change future employment intentions as viewed by the nurses and midwives?
2. Is there evidence of:
 - a) increased job satisfaction, and reduced burnout and job strain, amongst nurses and midwives who have completed an exchange placement?
 - b) self-reported confidence in relation to clinical and professional practice?
 - c) job and community embeddedness in practice?
3. Is NMEP financially sustainable in the long-term?
4. What is a sustainable model for NMEP, as viewed by experts?

METHODOLOGY

To facilitate inclusion of the variables the project uses a mixed methodology within a pragmatic research framework (Onwuegbuzie and Leech 2005). It allows for a systematic approach to exploring meanings in context and to examining “constructivist formulations, particularly those that theorize the role of agents in the creation of meanings, practices, structures, and institutions through their speech acts and communicative interactions (Duffy 2008, pp. 168). Pragmatic analysis allows for both qualitative and quantitative paradigms to be combined in a way that allows for the analysis of social phenomena, in real world situations that have not been fully explored.

The study is being undertaken in three stages; a survey of the participating nurses and midwives; a systematic review; and a Delphi study inviting executive directors of nursing to be a part of an expert review group (table 1).

Stage 1 – This stage has commenced and will run over 18 months (Completion September 2019). The survey consists of a series of questionnaires that address burnout, well-being, embeddedness, and job satisfaction, alongside questions rating nurses’ and midwives’ NMEP experience, with free text space to discuss their views of the program. The survey consists of the 12 item version General Health Questionnaire [GHQ-12] (Goldberg et al 1997), a short measure of turnover and attrition intentions adapted from Jaros (1997; Heritage et al 2018), the Short Burnout Measure (Malach-Pines 2005), the Abridged Job in General (Russell et al 2004) to measure job satisfaction, the community and workplace embeddedness measures of Lee et al (2004), and items generated by the authors specific to the NMEP project, which includes demographics such as place of employment, place of exchange, experience, age and education levels. The GHQ-12 has demonstrated good utility as a screening tool for minor psychological disturbance (e.g., anxiety) in general non-clinical populations (Goldberg et al 1997). Heritage et al (2018) have previously demonstrated acceptable reliability and use as outcome variables for both the job-based and occupation-based turnover measures ($\alpha = .82$, $\alpha = .86$, respectively) adapted from Jaros (1997). Malach-Pines (2005) has similarly demonstrated good evidence of reliability ($\alpha = .85$ -.92 across samples) and convergent validity with related burnout measures for the Short Burnout Measure. The Abridged Job in General has been previously demonstrated as a robust measure of global job satisfaction with adequate reliability and validity evidence by Russell et al (2004). Lee et al.’s (2004) job/community embeddedness measures have similarly demonstrated evidence of adequate reliability and validity (e.g., relationships with turnover intent).

Table 1: Research process

Research stage	Data collection	Inclusions/Exclusions	Analysis
Stage 1 – Survey of exchange staff	Survey on job strain, turnover intention, embeddedness, burnout, job satisfaction, and perceptions of NMEP. Analysis will determine whether or not there is a change to the way nurses perceive their work and if any of the above parameters have altered as a result of the exchange experience.	Inclusions: Nurses and midwives employed by Queensland Health and involved in NMEP. Exclusions: Nurses not employed by Queensland Health and not involved in NMEP.	Two sets of analyses will be conducted: Comparative analyses between exchange participants and non-exchange nurses on the study's measures (job satisfaction, job strain, embeddedness, burnout, and turnover intention) via MANCOVA will be conducted, following checks for analysis data assumption compliance. This analysis will provide pilot cross-sectional results on the differing facets of the cohorts on these variables, without placing undue burden on the non-exchange nurses to complete longitudinal measurement. The second set of analyses will be within-subject generalised linear mixed model analyses of the exchange program nurses, and whether their change in turnover intention over time is attributable to their perceived level of job satisfaction, job strain, burnout, and embeddedness at the pre/during/post/follow-up measurement periods.
Stage 2 – Systematic review	Search focuses on rural and remote recruitment and retention of nurses and midwives across UK, Australia, New Zealand, United States of America and Canada. Focus on types on gaps and common themes within this area.	As per PROSPERO registration	The systematic review will follow the international guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (PRISMA, 2018) and the Joanna Briggs Institute (Joanna Briggs Institute, 2014) approach for systematic reviews. Full details of the overall search strategy for the project can be found in the research protocol and will be registered with the International Prospective Register of Systematic Reviews (PROSPERO).
Stage 3 – Delphi with experts	Series of survey and interviews rounds to develop a consensus on a draft policy for the roll out of NMEP.	Inclusions: Executive directors of nursing and midwifery employed by Queensland Health and involved in NMEP. Exclusions: Executive directors of nursing and midwifery not employed by Queensland Health and not involved in NMEP.	A series of surveys will be sent out, followed by a final interview conducted over ZOOM™ in which the draft policy will be shared, and specific questions related to the model posed to a group of nursing managers

Stage 2 – A systematic review is underway which will explore similar models that have been trialled and/or are in practice and the context around current rural remote recruitment, retention and practice gaps. The search will include the United States of America, United Kingdom, New Zealand, Australia and Canada. The outcome of this stage will be to develop a model for NMEP based on the early analysis of data (first 6 months) from the surveys and the data synthesis from the review. This will be used as a baseline for the development of a draft model.

Stage 3 – A four round Delphi technique inquiry method will gather input from a draft model informed by the initial data analysis of the Stage 1 surveys and the outcomes of the systematic review. It will require feedback from a consenting panel of executive directors of nursing experts from Queensland Health. The first round Delphi questionnaires thus comprise a combination of open and closed questions using Survey Monkey™. Where closed questions are used, asking panellists to specifically rate through a 5-point Likert system some component of the NMEP formal pathway; panellists will be asked to explain their opinions. The second-round questionnaire will ask further questions on new issues that emerge from responses to previous open questions, plus iterated closed questions. Feedback on the opinions of panellists on the first two rounds along with summaries of the written arguments given by panellists will pre-empt Round 3, a consultative consensus meeting through an online meeting platform to allow discussion and debate of synthesised themes and agreement for further modelling. Comments, recordings, transcripts, and notes will be collated by the Delphi moderators, who are two of the researchers chosen for this purpose. Upon completing the analysis of the third round, we will merge the predictive statements into patterns based on common themes. Data will be thematically analysed to develop sub-themes around purpose, process, enablers, and evaluating outcome and impact of a NMEP formal pathway. Round 4 consists of a survey where synthesized themes will be incorporated into a Likert-type scale, and the expert panel participants will be asked to validate responses. Participants will be asked to rate statements, which will be both positively and negatively formulated, using a five-point Likert scale, effectively re-ranking components from strongly disagree (1) to strongly agree (5), with the option to include comments if desired. The standardised mean, median, as well as the interquartile range of all answers, will be computed. When statements meet more stringent criteria (IQR of ≤ 1 instead of ≤ 2); this will be regarded as strong consensus (Franklin et al 2007).

RECRUITMENT

Stage 1 – Nurses and midwives who have participated in the exchange program and are employed by Queensland Health. Over the period of the program, there will be an estimated 70 nurses and midwives who will have been involved in the exchange program. Participants will be provided with an information sheet at the beginning of their placement, on which is a link to an online anonymous survey. They will be invited to complete the survey four times, on commencement of the exchange; midway through the exchange; at the end of the exchange and three months post-exchange.

To better understand the impact of NMEP, a comparative cohort of nurses and midwives is included. This cohort consists of participants from health services involved in the exchange, but whom have not undertaken exchange themselves. Typically, these nurses/midwives' wards or services have seen someone engage in the program, hence being exposed to the program philosophy, but the nurses in the comparative group have not engaged in exchange themselves. They will be invited to complete the survey once only. Depending on sample size adequacy, *t*-tests with alpha corrections to account for multiple family-wise comparisons, or a multivariate analysis of variance that accounts for sociodemographic covariates (MANCOVA) will be conducted to examine differences between the NMEP participants and the comparison group. The outcome variables that will be compared are job satisfaction, job strain, burnout, embeddedness, and turnover intention.

The surveys for both groups are voluntary and submission of the survey is consent to participate. Ethical approval was provided by the academic institution conducting the surveys.

Stage 3 – Executive directors of nursing from 16 Queensland health services participating in the exchange program will be invited to participate in a Delphi Study round in which they will be asked to consider and comment on a draft policy for NMEP.

Ethical approval was provided by the Darling Downs Human Research Ethic Committee (HREC).

Data collection and analysis

The overview of data collection and analysis is outlined in table 1.

The survey uses a collection of questionnaires that support the review and analysis of the nurses/midwives' perceptions of the program related to job satisfaction, embeddedness (table 2), in addition to demographic questions and free text for participants to provide their views of the program. Analysis via generalised linear mixed models will be used to examine the unique variance in job-related turnover intentions, and profession-based attrition intentions, explained by the predictors outlined prior. This approach will allow for time-related change in these relationships to be examined without the stricter data requirements of comparable repeated-measures ANOVA-based approaches.

Table 2: Questionnaires used in the Survey

Construct Measured	Name of Measure	Description
Demographic questions	Related to age, location, experience	Establishment of context in normal practice
Questions related to NMEP experience	Questions aimed at finding out how well the exchange program worked for the participant (Likert scale and free text)	Questions aimed at collecting data related to the efficacy of the exchange program
Burnout	Burnout Measure –Short Version (Malach-Pines 2005)	10-item version of the original 21-item scale. Example item: 'Difficulties sleeping'.
Job Strain	General Health Questionnaire (Goldberg & William, 1988)	A 12-item measure that captures general psychological distress using a 4-point Likert Scale. Example item: 'Felt constantly under strain'.
Job Satisfaction	Abridged Job in General (Russell et al 2004)	8-item scale, a short version of the previous Job in General Scale.
Job and Community Embeddedness	Job Embeddedness Measure (Lee et al 2004)	Questions that examine the Fit, Links, and Sacrifice elements that contribute to the construct of embeddedness, reflected by both job-based and community-based factors. Example item: 'I feel like I am a good match for this organisation'.
Attrition	Three-item Turnover Intention Scale (Jaros 1997)	Three items using a five-point Likert scale measures how often respondents consider leaving their occupation, and likelihood of leaving their occupation in the future. Example item: 'How likely is it that you would leave your organisation in the next year?'

Thematic analysis will be used to draw out the common themes that are found across all data sets (Braun and Clarke 2006). The focus of this will be to examine alternatives around a sustainable exchange program, using both peer reviewed literature and the views of nurses and midwives, and nursing managers.

The Delphi, a structured communication technique initially developed as a systematic, interactive forecasting method comprising a combination of open and closed questions with mixed methods analysis, allows for a series of rounds that support the refinement of a draft document. Experts in the field are used to provide discussion and the exploration of ideas based on expert knowledge and experience (O'Keefe et al 2012).

Content analysis is divided into three phases: pre-analysis; the exploration of the material, and the treatment of the results; inference and interpretation.

Validity and rigour

In terms of the quantitative analyses, generalised linear mixed models used to examine time-related change is a rigorous approach that allows for greater flexibility in the data assumptions in comparison to the traditional ANOVA-based approaches (e.g. data non-normality and missingness is tolerated to a greater degree (Heck et al 2014)). Repeated measures designs are additionally better representative of the relationship between predictor/outcome variables by safeguarding against traditional flaws in cross-sectional research (e.g., regression to the mean). While we acknowledge that the between groups comparisons (i.e. NMEP participants and non-participants) are limited to cross-sectional inferences, this analysis provides the basis for future comparisons across these participant groups that would benefit from future longitudinal analysis, the latter of which falls outside of the data-collection scope of the current investigation.

In terms of the qualitative analyses, thematic analysis will allow for the inclusion of participant perceptions against questions posed in the survey. Jagd (2011) argues that any organisation "is a space intersected by a multitude of disputes, critiques, disagreements and attempts to produce fragile local agreements" (pp. 345). Participants will reflexively justify and explain their situation within it, and it is this reflexivity that allows for the ordering of themes within the commentaries provided throughout the survey, ordered into pre-determined themes such as job security and satisfaction; job and community embeddedness; and burnout and compassion fatigue.

LIMITATIONS

This project was developed in two stages.

The first stage was a stand-alone project that set out to review the perceptions of nurses and midwives who had participated in NMEP. The exchanges are staggered across the program period between August 2017 and June 2019. This review was always going to have small numbers because of the limited number of placements available in rural and remote regions. Because the staffing compliment is small, it is not feasible to take away more than one experienced rural nurse/midwife at any one time, as it would leave the service at risk in relation to the skills mix of the staffing compliment. Although the service will have a metropolitan based nurse in exchange, as (Francis et al 2016) noted in their study, the probability of that nurse/midwife having the experience and necessary skills to deal with the additional lifespan issues in the rural context is small. This is in spite of careful selection in each exchange taking place.

Shortly after commencement, a request was made to have a procedure developed for ongoing roll out of NMEP by December 2018. This necessitated a systematic review to support the procedure development, in the light of the fact that the surveys of those involved with an exchange will not be complete. Ongoing opportunity though NMEP or a similar program is encouraging, as it supports recruitment and retention in the rural and

remote regions of the state. It does however mean that a systematic review is essential to support ongoing procedures around exposure and exchange, in light of the fact that the surveys of those involved within an exchange may not be complete.

CONCLUSION

This project started out reviewing the perceptions and experiences of a cohort of nurses and midwives who have been involved in a state-wide exchange program to experience different context of practice between rural and metropolitan regions. It was the brainchild of one rural health service to support recruitment of staff to the region and to offer the opportunity of expanding nursing/midwifery workforce professional and clinical skills by spending time in a metropolitan service. What has transpired is the state government seeing this as an opportunity to develop a formal exchange program to support recruitment, retention and opportunities for ongoing professional and clinical learning for their nursing and midwifery workforce across the state. The program is novel and looks to present excellent opportunities for the crossover of skills and ideas related to clinical, professional and service integration between metropolitan and rural practice. Health services are best positioned to identify and understand the specific challenges to providing quality healthcare in their unique settings. Further, the economic pressures of contemporary health care demand cost effective measures to address these challenges.

REFERENCES

- Australian Health Minister's Advisory Council. 2017. *National Strategic Framework for Chronic Conditions*. Canberra: Australian Government.
- Australian Institute of Health and Welfare. 2013. *Nursing and Midwifery Workforce 2011. National health workforce series no. 2. Cat. no. HWL 48*, <http://www.aihw.gov.au/publication-detail/?id=10737422167&tab=2>.
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2):77-101.
- Chandra, S. 2010. Job embeddedness as a nurse retention strategy for rural hospitals. *The Journal of Nursing Administration*, 40(1):32-35.
- Cohen, J.D. 2006. The aging nursing workforce: How to retain experienced nurses. *Journal of Healthcare Management*, 51(4):233-245.
- Duffy, G. 2008. Pragmatic analysis In A. P. Klotz, D (Ed.), *Qualitative Methods in International Relations. Research Methods Series*. London: Palgrave Macmillan.
- Fox, R., Burrige, C., Bowen, A., Curtis, M., Firth, S., Pearson, N. and Wyland, M. 2015. *Framework for lifelong learning* Brisbane: Metro North Hospital and Health Service
- Francis, K., Badger, A., McLeod, M., FitzGerald, M., Brown, A. and Staines, C. 2016. Strengthening nursing and midwifery capacity in rural New South Wales, Australia. *Collegian*, 23(4):363-366.
- Franklin, K.K. and Hart, J.K. 2007. Idea generation and exploration: Benefits and limitations of the policy Delphi research method. *Innovative Higher Education*, 31(4):237-246.
- Goldberg, D., Gater, R., Sartorius, N., Ustun, T., Piccinelli, M., Gureje, O. and Rutter, C. 1997. The Validity of two Versions of the GHQ in the WHO Study of Mental Illness in General Health Care. *Psychological Medicine*, 27(1):191-197.
- Goldberg, D. and Williams, P. 1988. *A user's guide to the General Health questionnaire*. Windsor, UK: NFER-Nelson.
- Gray, C., Hogg, R. and Kennedy, C. 2011. Professional boundary work in the face of change to generalist working in community nursing in Scotland. *Journal of Advanced Nursing*, 67(8):1695-1704.
- Health Workforce Australia. 2012. Health Workforce 2025- Doctors, Nurses and Midwives - Volume 1 from [https://submissions.education.gov.au/forms/archive/2015_16_sol/documents/Attachments/Australian%20Nursing%20and%20Midwifery%20Accreditation%20Council%20\(ANMAC\).pdf](https://submissions.education.gov.au/forms/archive/2015_16_sol/documents/Attachments/Australian%20Nursing%20and%20Midwifery%20Accreditation%20Council%20(ANMAC).pdf) (accessed 02.05.18).
- Heck, R.H., Thomas, S.L. and Tabata, L. 2014. *Multilevel and longitudinal modeling with IBM SPSS*. New York, NY: Routledge.
- Heritage, B., Quails, M. and Cocks, N. 2018 How important is embeddedness in predicting Australian speech-language pathologists' intentions to leave their jobs and the profession? *International Journal of Speech-Language Pathology*, DOI: 10.108/17549507.2018.1441439.
- Hegney, D.G., Craigie, M., Hemsworth, D., Osserian-Moisson, R., Aoun, S., Francis, K. and Drury, V. 2014. Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. *Journal of Nursing Management*. 22(4):506-518.
- Holtom, B.C. and O'Neill, B.S. 2004. Job embeddedness: A theoretical foundation for developing a comprehensive nurse retention plan. *The Journal of Nursing Administration*, 34(5):216-227.

- Hudspeth, R. 2016. Health System Mergers and Future Demands on the Nursing Workforce. *Nursing Administration Quarterly*, 40(4):370-371.
- Jagd, S. 2011. Pragmatic sociology and competing orders of worth in organizations. *European Journal of Social Theory*, 14(3):343-359.
- Jaros, S. 1997. An assessment of Meyer and Allen's (1991) three-component model of organizational commitment and turnover intentions. *Journal of Vocational Behaviour*, 51(3):319-337.
- Kennedy, C., Christie, J., Harbison, J., Maxton, F., Rutherford, I. and Moss, D. 2008. Establishing the contribution of nursing in the community to the health of the people of Scotland: integrative literature review. *Journal of Advanced Nursing*, 64(5):416-439.
- Knight, K., Kenny, A. and Endacott, R. 2016. From expert generalists to ambiguity masters: using ambiguity tolerance theory to redefine the practice of rural nurses. *Journal of Clinical Nursing*, 25(11-12):1757-1765.
- Lee, T.W., Mitchell, T.R., Salbynski, C., Burton, J.P. and Holtom, B.C. 2004. The effects of job embeddedness on organisational citizenship, job performance, volition absences, and voluntary turnover. *Academy of Management Journal*. 47(5):711-722.
- Malach-Pines, A. 2005. The Burnout Measure, Short Version. *International Journal of Stress Management*. 12(1):78-88
- Mbemba, G., Gagnon, M.P., Pare, G., Cote, J. 2013. Interventions for supporting nurse retention in rural and remote areas: an umbrella review. *Human Resources for Health*. 11: 44
- O'Keefe, M., Elshaug, A., Burgess, T., Peirce, E. and Nettelbeck, T. 2012. Use of the Delphi technique to facilitate interdisciplinary consensus on academic program structure [online]. *Focus on Health Professional Education: A Multi-disciplinary Journal*. 14(1):55-66.
- Onwuegbuzie, A.J. and Leech, N.L. 2005. On Becoming a Pragmatic Researcher: The Importance of Combining Quantitative and Qualitative Research Methodologies. *International Journal of Social Research Methodology*, 8(5):375-387.
- Productivity Commission. 2005. Australia's Health Workforce Productivity Commission Research Report. Canberra: Commonwealth of Australia www.pc.gov.au.
- Reitz, O.E. and Anderson, M.A. 2011. An overview of job embeddedness. *Journal of Professional Nursing*, 27(5):320-327.
- Rural Health West. 2014. Rural and remote primary health care workforce planning: What is the evidence?. In M. Coombs (Ed.). Perth: RuralHealth West.
- Russell, S.S., Spitzmüller, C., Lin, L.F., Stanton, J.M., Smith, P.C. and Ironson, G.H. 2004. Shorter can also be better: The Abridged Job in General Scale. *Education and Psychological Measurement*, 64(5):878-893.
- Sherman, R.O., Chiang-Hanisko, L. and Koszalinski, R. 2013. The ageing nursing workforce: a global challenge. *Journal of Nursing Management*, 21(7):899-902.