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DOES EDUCATION LEVEL INFLUENCE THE PRACTICE PROFILE OF ADVANCED PRACTICE NURSING?

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Abstract***Background and aim***

The health care consumer population is reliant upon accessible and cost-effective health care. Advanced practice nursing is recognized globally as central to meeting this community need. Whilst there is increasing recognition that advanced practice nurses should be educated to at least a master degree level, there is scant evidence on the influence of higher education on the practice profile of advanced practice nursing. The aim of this paper was to address this evidence gap.

Design and Methods

The validated Advanced Practice Nursing Role Delineation (APRD) tool was used to measure the practice profile of advanced practice nurses at different postgraduate education levels, across five domains of nursing practice activities. A cross-sectional electronic survey of nurses was used.

Results

APNs with higher degrees performed at a higher level across all five domains of the APRD tool compared to those who did not hold a higher degree. This was highly significant for the domains of Research and Leadership, followed by the Optimising Health Systems and Education domains, but not significant for the Direct Care domain.

Conclusion

Higher education changes the practice profile of APNs. Those with higher education are more likely to be involved in research and leadership with knowledge integration across all practice domains.

Implications for Nursing Policy

Questions are often raised about the benefits of investing in nurses' education, particularly the need for a higher degree for advanced practice nurses. APNs with higher degrees have a different emphasis in their role activities than those without a higher degree. This difference could be significant given current global health challenges.

Keywords: Advanced Practice Nursing, Advanced Practice Nurses, Domains of Practice, Education, Master's Degree, Performance, Qualifications, Role Delineation tool

INTRODUCTION

The deployment of nurses who work at an advanced level across a wider range of clinical settings is central to the expansion of accessible and cost-effective health care for underserved populations. Advanced practice nursing (APN) positions have been found to ‘value add’ to the quality and timely access of patient care (Altersved et al., 2011; Fagerström, 2012; Lindblad et al., 2010).

Despite the increasing importance of APN in health service, the full and effective deployment of this level of nursing is hampered by ambiguity (Jokiniemi et al., 2012). There are varied titles, roles and levels of practice included under the APN umbrella. This limits cross-border dialogue and collaboration and a universal understanding of nursing and its service potential (). For example, advanced practice titles in the UK include Nurse Practitioner (NP), Specialist Practitioner (SP), Nurse Consultant (NC), and Clinical Nurse Specialist (CNS). In the USA APN titles include Certified Nurse Practitioner (CNP), Certified Nurse Midwife (CNM), Certified Registered Nurse Anaesthetist (CRNA), and CNS; and in Canada as CNS and NP ().

The APN level of practice in Australia is nursing that engages the full extent of the registered nurse scope of practice and is thus different from NP practice which goes beyond the registered nurse scope. In Australia, nursing and midwifery are regulated at national level and titles that are protected by this regulation include registered nurse, nurse practitioner and midwife. However, the classification of nursing practice levels and descriptive titles is managed by each of Australia’s eight jurisdictions and there is currently no standardized description of APN position titles across these jurisdictions. This has resulted in title variability and confusion that mirrors the

international nursing context.

This national role confusion of APN has now been addressed. Research has clearly delineated the practice profile of Australian NPs and APNs and has identified the commonality of practice profiles across these APN titles [REDACTED] [REDACTED]).

However, to date there is no published research on the influence of education level on the practice profile of APNs. This paper addresses this question.

BACKGROUND

Internationally, there is growing acceptance of the need for higher levels of education and training for APNs as this has been shown to contribute to positive patient outcomes (Fagerström, 2012; Institute of Medicine, 2011). Education requirements for APNs can vary across and within countries (Delamaire & Lafortune, 2010), but in many countries a master level qualification is a minimum requirement (Delamaire & Lafortune, 2010; International Council of Nurses, 2017). More highly educated APNs are in a better position to address the needs of the health care system (Fagerström, 2012), as they possess the critical thinking skills needed in increasingly complex health environments (Institute of Medicine, 2011; Shen et al., 2015). The Institute of Medicine (2011) goes a step further recommending the evolution of APN education to doctoral level (American Association of Colleges of Nursing, 2004; Nichols et al., 2014) as these roles can play a pivotal role in translating research into practice and strengthen opportunities for professional partnerships (Murphy et al., 2015).

However, as illustrated above there is no universal understanding of the nature of the APN role discussed in this context.

Positive patient-related outcomes have been linked to the work of APNs with a higher

degree (Donald et al., 2013; Swan et al., 2015). While the underlying mechanism for this association is unclear (Murphy et al., 2015), some suggest that it is related to the ability of nurses educated at master, or higher level to communicate well using their expanded clinical knowledge, critical thinking and analytical skills (Cotterill-Walker, 2012; Drennan, 2012; Ge et al., 2015). There is also recognition of increased self-esteem and confidence, improved decision-making skills (Cotterill-Walker, 2012) and use of a more evidence based approach in this cohort (Morilla-Herrera et al., 2016; Zwakhalen et al., 2007).

Nurses report that enhanced problem solving approaches are directly related to their postgraduate education (Cotterill-Walker, 2012; Currey et al., 2015). In a systematic review of the literature, Cotterill-Walker (2012) found that increased self-esteem and confidence as a result of master's level education, were associated with nurse empowerment in assessment and management of complex care situations.

Furthermore, improved decision-making skills was associated with improvements in critical analysis of care, clinical judgement, autonomous practice, application of evidenced based care with changing patient conditions and faster patient-related responses.

The level of educational preparation can influence the role undertaken in practice.

Kilpatrick et al. (2013) reported that APNs prepared at the baccalaureate level tend to carry out roles that focused mostly on direct clinical care. Conversely, master prepared APNs were more likely to be caring for complex patients, specific patient populations and were involved in a range of system activities such as policy, program development and quality assurance (Donald et al., 2013). Masters prepared APNs were more likely to hold both clinical and academic positions (Melnik et al., 2014).

Despite these reports, measurable and observable criteria for evaluation of APN practice against educational level and skill based outcomes, have been lacking (Cotterill-Walker, 2012). To date there has been no agreed or acceptable outcome measures, nor appropriate design methods for evaluating the influence of the level of education on level and complexity of nursing practice.

The study aims: To investigate the relationship between level of education and nursing domain practice scores of nurses in advanced practice roles.

METHOD

The research approach for the study has been reported in detail elsewhere ([REDACTED] [REDACTED]). In summary, the study was a national survey of registered nurses across all eight Australian jurisdictions. Inclusion criteria were registered nurses currently employed in a clinical setting. Recruitment was conducted through wide dissemination of study details, invitation and instruction to participate through Australian professional and industrial nursing organisations.

Data collection and Instrument

Data were collected through a national e-survey. Recruitment information included a hyperlink to the survey host website where nurses who met the inclusion criteria were invited to log on, complete, and submit the survey. Data collection was conducted over a six-week period.

The study instrument was the validated Advanced Practice Nursing Role Delineation (APRD) tool. The APRD was developed from the Strong Model of Advanced Practice (Ackerman et al., 1996; Mick & Ackerman, 2000), amended and validated for the Australian context, with permission from the original authors ([REDACTED]).

The 41-item APRD questionnaire consists of five Domains of Practice:

1. **Clinical Care** (clinical care activities involving direct interaction with patients/clients and family -15 items),
2. **Optimising Health Systems** (activities contributing to the effectiveness of the facility's nursing service and equitable, patient-centred health systems - 8 items),
3. **Education** (dissemination of health-related scientific knowledge for enhancement of caregiver, student and public learning - 6 items),
4. **Research** (conducting clinical research, identifying funding sources and using evidence and audit findings to guide practice and policy (6 items) and
5. **Leadership** (activities promote nurses, nursing and healthcare including dissemination of knowledge within and beyond the institutional setting - 6 items).

In each Domain activity, respondents were asked to rate: in their current role, the extent to which they undertake the activity, and record on a 5-point Likert scale, where: 4 = to a very great extent; 3 = to a great extent; 2 = to some extent; 1 = to a little extent; 0 = not at all.

Data analysis

Data were analysed using IBM SPSS Version 22. Descriptive statistics were used to examine the characteristics of the sample. Data are presented in two ways.

Categorical variables presented as counts and percentages and continuous variables presented as means (standard deviation) or median (minimum and maximum) as appropriate to the distribution of the data. Domain means for each participant were calculated from the survey responses, recorded on a scale from 0 to 4. Education levels of advanced practice were compared using Student *t*-tests and one-way analysis of variance on each domain mean. The alpha for all tests was set at 0.05.

Ethical Considerations

The study was approved by the relevant University Human Research Ethics Committee (Ref #1300000748). Participants were assured of the anonymity of their responses and that completion of the e-survey would indicate their consent to participate.

RESULTS

Almost 7,000 nurses responded to the primary survey. After removing ineligible respondents, incomplete questionnaires and nursing position titles with less than 10 respondents, the final sample included 5599 participants from 66 different nursing position titles.

Of this final sample of respondents, 537 participants from four nursing position titles were identified as advanced practice according to their practice profile scores. These APN titles include: clinical nurse consultant, clinical nurse coordinator, nurse clinical practice consultant and clinical nurse specialist. This cohort constitutes the sample for results reported here.

The research addressed the question: Is there a relationship between level of education and the practice profile pattern of nurses in advanced practice roles? This involved analysis of a sub-set of data from the primary study described above. This sub-set included only those data from the participant cohort practicing at an advanced level as identified by their domain practice scores. Accordingly, the remainder of this paper will report results on this cohort.

Demographics

The majority of participants were female and 50-59 years old. They had been registered as a nurse on average for more than 26 years (range 2-52 years, SD 9.6

years) and held their current position for 6.5 years (0-29 years, SD 5.5 years). Most participants worked in metropolitan regions in the public sector with 60% working in hospitals. Thirty-eight percent of participants held a higher degree (master or doctorate), with a further 38.4% having other postgraduate qualifications (graduate certificate or diploma). There remained a significant proportion of APNs holding a hospital certificate or “other” (10.8%). The majority of these participants worked under the title of Clinical Nurse Consultant (81.0%), in the public sector (90.7%), mainly community or hospital settings (90.1%).

[Insert Table 1 About Here]

Performance of APNs across different levels of education

To ascertain the influence of education on APN domain mean scores, means were calculated for each level of education (hospital certificate, bachelor, postgraduate certificate/diploma, master and doctorate). Domain means for each education level can be seen to rise step-wise from hospital certificate to doctorate (Figure 1).

ANOVA was used to determine the significance of any difference between these education levels and the domain means of the APRN tool. Again, means of all domains except Clinical Care were significantly different according to ANOVA ($p < 0.05$). A wide variability was seen between means of both the Research and Leadership domains, less so with the other domain.

[Insert Figure 1 About Here]

When comparing the domain means between those who held a higher degree (master level or doctoral degree) and those who did not, nurses in APN positions with higher

degrees achieved higher mean scores across all five domains of the APRD tool. These results are shown in Table 2.

[Insert Table 2 About Here]

The influence of education on domain means for APNs who held a higher degree (master or doctoral) were also compared to domain means for those who did not. ANOVA was used to determine the difference. These differences were significant for Optimising Health Systems and Education domains ($p < 0.05$), highly significant for both the Research and Leadership domains ($p < 0.001$) but the difference was not significant for Clinical Care ($p = 0.12$; See Figure 2.

[Insert Figure 2 About Here]

DISCUSSION

The findings from this research clearly show that APNs with higher degrees (master or doctoral level) have a different level of involvement in nursing activities than those without this level of education. Advanced practice nurses with higher degrees performed at a higher level across all five domains of the Advanced Practice Role Delineation tool compared to those who did not hold a higher degree. This difference was significant for the domains of Research and Leadership, followed by the Optimising Health Systems and Education domains, but not significant for the Clinical Care domain. The literature supports these findings by highlighting greater involvement of APNs at an organisational level with a focus on evidence-based practices (Morilla-Herrera et al., 2016).

Nurses working in advanced practice roles have been found to act as knowledge brokers where they promote the uptake of knowledge and evidence-based practice

(Gerrish et al., 2011). In general, nurses base their practice on workplace experiences, which could stem from interactions with more experienced staff or in-house training rather than by reading evidence-based journals (Gerrish et al., 2012). This is where APNs can serve as knowledge brokers, assisting front line nurses to make links between evidence and practice (Gerrish et al., 2012). APNs are also involved in facilitating change through ‘collaboration and consultation with health care providers and decision-makers’ (Bryant-Lukosius et al., 2004, p. 521).

Another important aspect revealed by this research is the nature of the care provided by APNs with higher levels of education. Those with doctoral and masters’ degrees showed higher scores in clinical care and other practice domains (such as research, leadership, optimizing health systems) than APNs with less education. This describes practice at an advanced level based upon layers of knowledge and clinical engagement that is grounded in academic preparation. Nursing activities at this level, whilst seemingly manifest, are often structured in complexity [REDACTED]

These results are consistent with prior research that shows APNs with a higher level of education and scope of practice, have a greater depth and breadth of knowledge and clinical skills, higher data synthesis ability, greater role autonomy, and more advanced complexity of interventions and frequency of interactions (Looman et al., 2013). As a result, APNs function at a higher level of ‘Care Coordination’ looking after populations with high complexity health care needs. APNs also add to the wider system as they have the capacity to improve the efficiency of care, improve access to care (by reducing fragmentation of care), reducing costs and improving quality of life (Bryant-Lukosius et al., 2004; Ruel & Motyka, 2009).

CONCLUSIONS

These results clearly indicate that advanced practice nurses who have a higher degree function at a different level and complexity of care provision than those who do not have a higher degree.

These findings have implications for senior nursing workforce management, health service planning and career planning for registered nurses. The findings can also inform the design and content of postgraduate nursing programs.

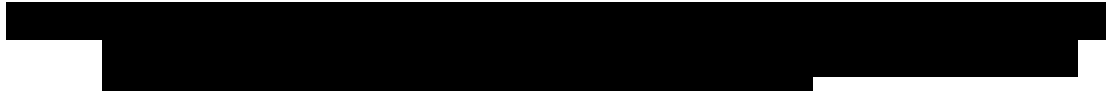
However, the results are not linked to the potential impact on patient and system level outcomes. Future research should focus on developing measurable and observable criteria, which can directly determine the impact of different educational levels and skill-based outcomes on patient care for APNs. Some performance related outcomes that have been recommended for APNs in future study include quality of care provided, time spent by APNs in individual activities, collaboration, adherence to best-practice guidelines, and effect of the APN role on recruitment, retention, workload, and job satisfaction for nursing and medical staff. In addition, a cost benefit analysis should be explored to determine whether the costs of nurses attaining a higher degree translate into system-wide efficiencies providing leverage for industry-supported scholarships for clinical nurses.

RELEVANCE TO CLINICAL PRACTICE

The findings from this research have shown that nurse clinicians who have higher degrees practice at a level of complexity and knowledge integration that has direct application for contemporary health care consumer populations. Increasingly patients and clients in hospital and community settings have complex and often multiple

health care needs. This research shows that higher education best prepares nurses to meet these consumer care needs.

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Table 1

Table 1: APN Participant characteristics

	n	Percentage (%)
Age Categories		
20 - 29	7	1.3%
30 - 39	63	11.7%
40 - 49	146	27.2%
50 - 59	256	47.7%
60 - 69	65	12.1%
Sex		
Female	479	89.2%
Male	58	10.8%
Education		
Doctorate	5	0.9%
Master	199	37.1%
Postgraduate certificate/diploma	206	38.4%
Bachelors	69	12.8%
Hospital Certificate or Other	58	10.8%
Position Titles		
Clinical Nurse Consultant	435	81.0%
Clinical Nurse Coordinator	14	2.6%
Nurse Clinical Practice Consultant	51	9.5%
Clinical Specialist Nurse (WA)	37	6.9%
Settings		
Aged Care	11	2.0%
Community	159	29.6%
Hospital	325	60.5%
Multi-site	33	6.1%
Other	9	1.7%
Workplace Sector		
Mixed	5	0.9%
Non-Government Organisation	15	2.8%
Private	25	4.7%
Public	487	90.7%
Sole Trader	5	0.9%
Region		
Metropolitan	358	66.7%
Mixed	23	4.3%
Regional	124	23.1%
Rural and Remote	32	6.0%

Table 2

Table 2 Domain means comparison between higher degrees and other educational levels

<i>Domain</i>	<i>Other (Hospital Certificate, Bachelor, PG Cert/Diploma)</i> <i>Mean (SD)</i>	<i>Higher Degrees (Master & PhD)</i> <i>Mean (SD)</i>	<i>Student t-test Statistic</i>	<i>P value</i>
Clinical Care	2.74 (0.85)	2.86 (0.87)	-1.55	0.12
Optimising Health Systems	2.65 (0.80)	2.82 (0.71)	-2.40	0.02
Education	2.64 (0.80)	2.79 (0.77)	-2.05	0.04
Research	2.04 (0.87)	2.40 (0.83)	-4.74	<0.001
Leadership	1.85 (1.01)	2.33 (0.92)	-5.60	<0.001

Note: SD = Standard Deviation

Figure 1

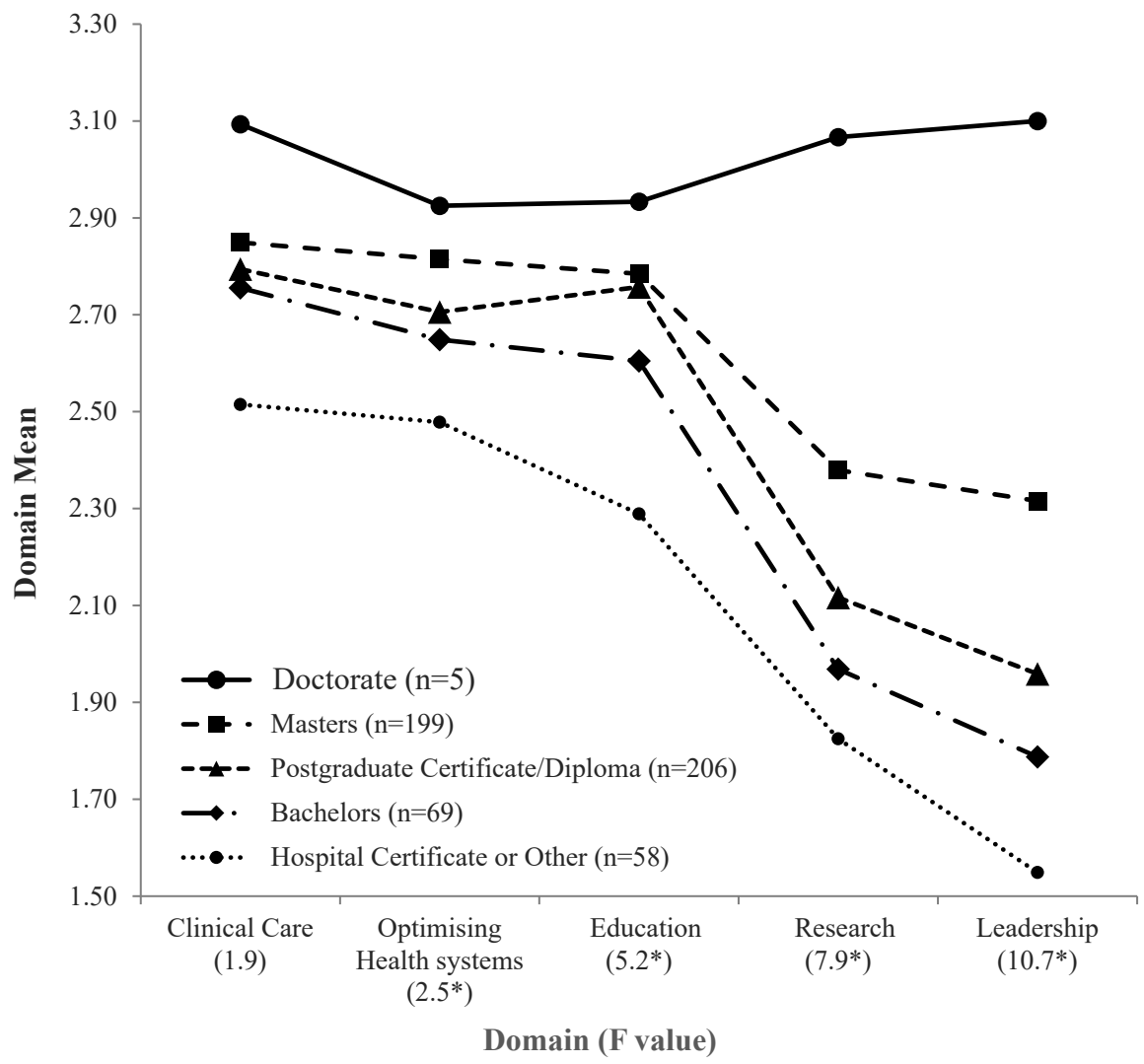
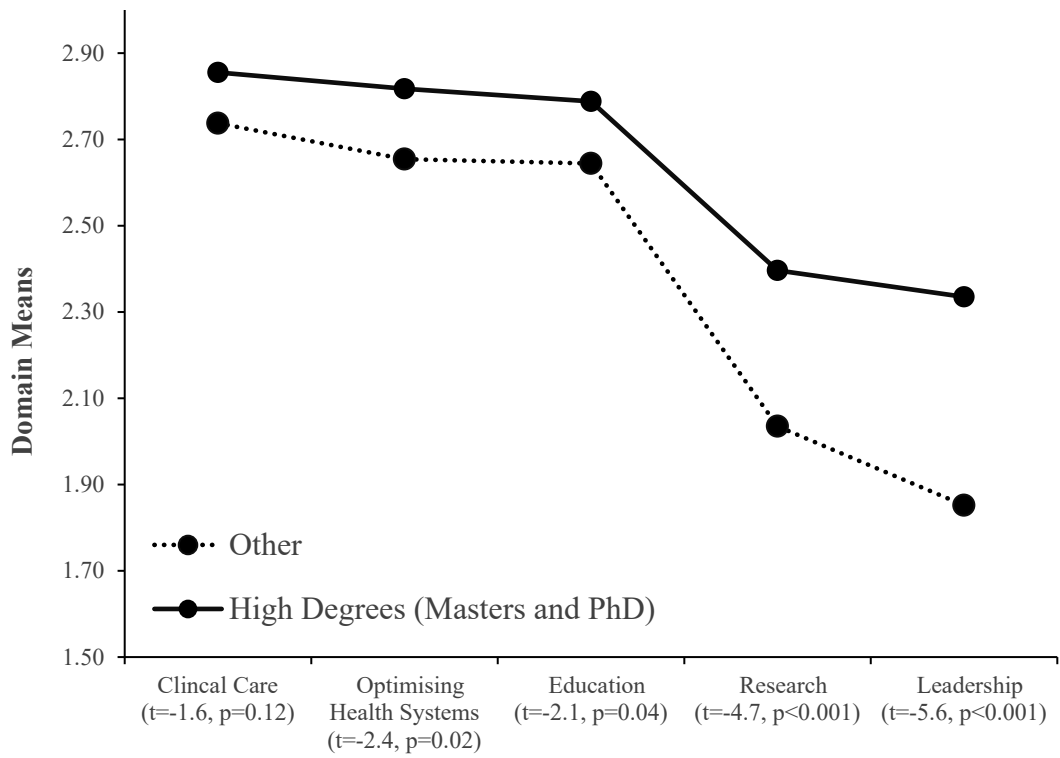


Figure 1: Differences in mean scores between education levels (* P<0.05)

Figure 2



Domains (Student t-test, P value)

Figure 2: Compared Domain means between higher degrees and other qualifications