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Exploring new graduate nurse confidence in interprofessional collaboration: A mixed methods study

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ABSTRACT

Background: Confidence is required for effective engagement in interprofessional collaboration. New graduate nurses often lack confidence in interprofessional interactions, and this may compromise the delivery of safe and effective healthcare.
Objectives: The overall objective of this study was to explore new graduate nurse confidence in interprofessional collaboration.
Design: An explanatory sequential mixed methods design was used.
Methods: New graduate nurses from Ontario, Canada ($N = 514$) completed a cross-sectional descriptive survey in 2012. The survey measured perceived confidence in interprofessional collaboration, and it included items that were proposed to have a relationship with new graduate nurse confidence in interprofessional collaboration. Follow-up qualitative telephone interviews were conducted with 16 new graduate nurses.
Results: The quantitative findings suggested that several factors have a positive relationship with new graduate nurse confidence in interprofessional collaboration: availability and accessibility of manager, availability and accessibility of educator, number of different disciplines worked with daily, number of team strategies, and satisfaction with team. The qualitative phase supported the quantitative findings and also provided new information about factors that facilitated and challenged new graduate nurse confidence when engaging in interprofessional collaboration. The facilitators were: experience, knowledge, respect, supportive relationships, and opportunities to collaborate. Challenges included: lack of experience, lack of knowledge, communication challenges, and balancing practice expectations. The overall findings relate to team and organizational support, and new graduate nurse development.
Conclusion: Interventions that provide support for interprofessional collaboration at the team and organizational levels, and develop new graduate nurse knowledge and experiences regarding collaborative practice, are essential for enhancing new graduate nurse confidence in interprofessional collaboration.

What is already known about the topic?

- There is moderate to strong international evidence that interprofessional collaboration improves the delivery of healthcare and results in better healthcare outcomes.
- Confidence is a precursor for interprofessional collaboration; however, new graduate nurses often lack confidence in professional practice activities, including collaborative practice.

What this paper adds

- This mixed methods study provides credible evidence about the important role that team and organizational

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leaders have in supporting new graduate nurses to confidently engage in collaborative practice.
- Opportunities for new graduate nurses to interact with a variety of interprofessional healthcare professionals, and within respectful work environments, are essential to facilitate new graduate nurse confidence in interprofessional collaboration.
- Academic institutions and health care institutions should partner in the development of knowledge and experiences in interprofessional collaboration for nursing students and new graduate nurses.

1. Background

There is continued international emphasis on improving processes that promote safe and quality healthcare. Interprofessional collaboration is reported to play an important role in this global health priority by improving the delivery of healthcare and reducing patient morbidity and mortality (World Health Organization, 2010) by decreasing wait times, enhancing healthcare to rural and remote locations, improving chronic disease management, and promoting patient safety and healthy workplaces (Canadian Interprofessional Health Collaborative, 2009). It is further suggested that investing in interprofessional collaboration can enhance the recruitment and retention of nurses (Aiken et al., 1999; Canadian Interprofessional Health Collaborative, 2009; World Health Organization, 2010). Confidence in engaging with other professional disciplines is a theoretical requisite for interprofessional collaboration (Henneman et al., 1995). Lack of confidence can negatively impact competent nursing practice (Ulrich et al., 2010) and impede collaborative behaviors (Henneman et al., 1995). In the case of new graduate nurses, numerous studies have reported that these nurses lack confidence in interprofessional collaboration (Boswell et al., 2004; Casey et al., 2004; Fink et al., 2008) and may deliberately avoid interactions with other healthcare professionals (Dyess and Sherman, 2009). The purpose of this study was to explore the confidence of new graduate nurses to engage in interprofessional collaboration and the factors associated with this confidence. The findings may inform strategies to promote new graduate nurse confidence in interprofessional collaboration, thus supporting the quality and safety of care provided by these nurses.

The first year of nursing practice is challenging for many new graduate nurses, particularly as they strive to build confidence in their professional practice. Although many new graduate nurses report confidence at hire (Casey et al., 2004; Chernomas et al., 2010), this confidence often wanes in the first month of practice (Casey et al., 2004; Etheridge, 2007; Fink et al., 2008) and may not recover until the end of the first year in practice (Duchscher, 2001; Dyess and Sherman, 2009; Olson, 2009). Unfortunately, most academic programs provide limited opportunities for nursing students to develop a sense of confidence in interprofessional collaboration (Fink et al., 2008; Olson, 2009). This gap in preparation may also continue into the transition period. A review of published new graduate transition programming suggests a disparity among many transition curricula with regard to interprofessional collaboration (Rush et al., 2013), and this may fail to adequately prepare new graduate nurses for collaborative practice.

For the new graduate nurse, this lack of preparation in interprofessional collaboration can result in challenges. Although the majority of new graduate nurses acknowledge the importance of teamwork (Greenwood, 2000; Rochester and Kilstoff, 2004), they report an overall lack of confidence with physician communication and delegation of care to ancillary staff (Dyess and Sherman, 2009; Fink et al., 2008; Olson, 2009). While most new graduates expect that confidence in interprofessional collaboration will improve with experience (Boswell et al., 2004; Ramritu and Barnard, 2001), this performance gap is concerning and requires supportive intervention. A comprehensive understanding of the factors that influence new graduate confidence in their ability to engage in interprofessional collaboration is not currently known, but is required to better equip new graduate nurses to deliver safe, quality healthcare.

2. Design and methods

An explanatory sequential mixed methods design (QUAN → qual) was used (Creswell and Plano Clark, 2007) to explore the confidence to engage in interprofessional collaboration among new graduate nurses who were employed in the acute care, community and long-term care/complex continuing care sectors. The aim of the quantitative phase was to identify the factors that influence new graduate nurse confidence in interprofessional collaboration. The purpose of the qualitative phase was to explain and expand upon these factors. An exploratory survey of new graduate nurses across the province of Ontario, Canada was conducted in phase one of the study. In phase two, qualitative telephone interviews were conducted with 16 new graduate nurses. An interpretive descriptive method (Thorne, 2008) was used to direct the collection, analysis, and interpretation of the qualitative data. Thorne's (2008) method can assist researchers to develop new insights and potential applications of the research findings. All data were collected between April and December of 2012. The research team met regularly throughout this time frame to discuss and document the steps taken in this research project.

2.1. Quantitative phase: mailed survey

The quantitative phase was guided by the following research question: *What factors influence perceived confidence to engage in interprofessional collaboration among new graduate nurses who are employed in various healthcare sectors?* Written surveys were mailed to 1556 new graduate nurses whose mailing addresses were obtained from the College of Nurses of Ontario, the regulatory body for all professional nurses in Ontario, Canada. The survey was designed by the researchers and based on a comprehensive integrative review of the literature (Pfaff et al., 2013a). It solicited participant responses related to demographic information, and factors that were theoretically proposed to influence confidence toward interprofessional collaboration, such as length of employment,

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number of different disciplines worked with daily, and having a preceptored or mentored clinical experience. Participants were also invited to provide written comments at the end of the survey. Relevant comments were analyzed with the qualitative data in phase two.

The following item measured new graduate nurse confidence in interprofessional collaboration: "*How confident do you feel collaborating with other healthcare professionals on your team?*" Responses were ranked on a 5-point Likert-type scale and ranged from 1 = *extremely non-confident* to 5 = *extremely confident*. To maximize the response rate, reminder cards and follow-up packages were sent to unresponsive participants (Dillman, 2000). The response rate was 43%. After discarding surveys that did not meet inclusion criteria or were incomplete, the final sample included 514 new graduate nurses. The recruitment process is displayed in Fig. 1.

2.2. Qualitative phase: interviews

The qualitative phase was guided by the following research question: *As described by new graduate nurses, what factors facilitate and challenge confidence to engage in interprofessional collaboration among new graduate nurses who are employed in various healthcare sectors?* A semi-structured interview guide was developed to explain and expand upon the quantitative findings. The interview guide consisted of open-ended questions that were designed to focus the discussion and elicit responses that informed the research questions. Pilot testing of the interview guide was completed with three new graduate nurses to assess content, clarity and elicitation of the necessary data to address the research question. The guide underwent minor revisions based upon this feedback. The interview process was flexible, and questions were re-phrased based upon participant responses and feedback. Interviews were conducted by telephone and ranged from 45 to 60 min in length. Participants were reminded of their self-reported confidence level on the quantitative survey and invited to describe the factors that influenced their confidence in interprofessional collaboration. The interviews were flexible, and probes were used to clarify participant responses and draw out further information that might explain the quantitative findings. Interviews were digitally recorded, and field notes were kept to capture researcher insights. Data collection continued until data redundancy was achieved.

2.3. Sample

The sampling procedures for both phases of the study are described in the following sections.

2.3.1. Survey respondents

A convenience sample of new graduate nurses was obtained from the registration database of the College of Nurses of Ontario. The sampling frame included the mailing addresses of 1603 new graduate nurses who

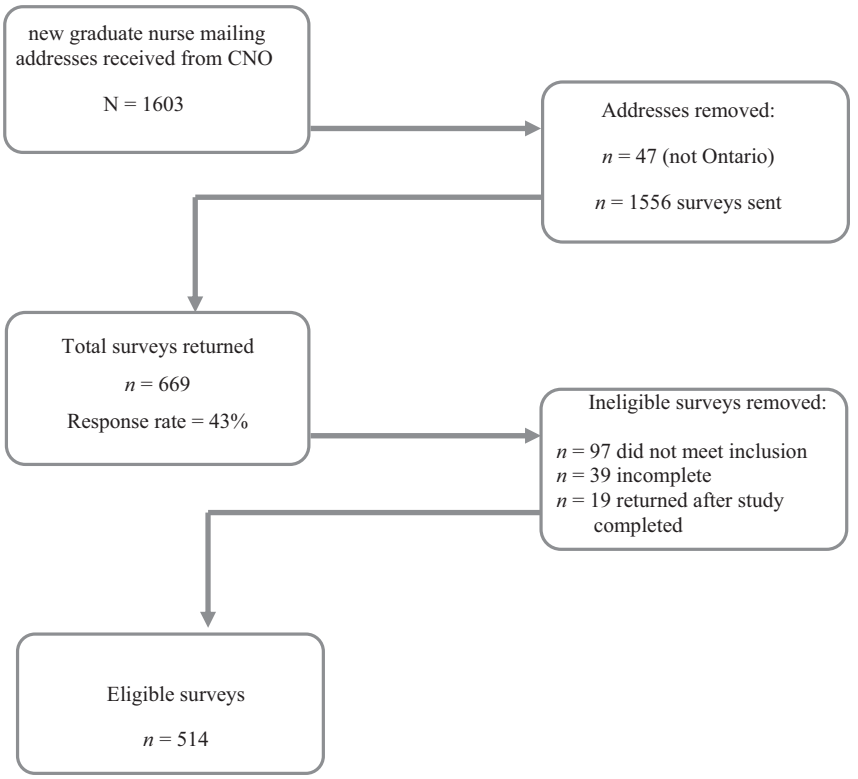

Fig. 1. Quantitative phase recruitment. *Note*: *n* = 62 survey packages returned via Canada Post as new graduate nurse no longer residing at mailing address and no forwarding address available.

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Table 1
Confidence levels of qualitative sample.

Confidence	*n* (%)
Extremely confident	2 (12.5)
Very confident	2 (12.5)
Confident	6 (37.5)
Non-confident	4 (25.0)
Extremely non-confident	2 (12.5)

N = 16.

had registered with the College of Nurses of Ontario for the first time between 2009 and 2011. Inclusion was limited to individuals who had graduated from a baccalaureate program in nursing, were employed as a registered nurse in Ontario, Canada, and had three years or less employment experience in a registered nursing position since graduation. This time frame was selected to consider the time required for the process of interprofessional collaboration to unfold (D'Amour et al., 2005) among new graduate nurses who are known to experience an extended period of transition stress (Duchscher, 2008; Kramer, 1974).

2.3.2. Interview participants

To explain the survey findings, a convenience sample of thirteen participants was recruited from the quantitative sample to participate in individual interviews. These participants were purposely selected based upon their self-reported confidence levels toward interprofessional collaboration in the quantitative survey. An additional three participants were recruited through snowball sampling; therefore, they did not complete the quantitative survey. The final sample included 16 new graduate nurses who reported variations in confidence levels when engaging in interprofessional collaboration. These levels ranged from a score of 1 (*extremely non-confident*) to a maximum score of 5 (*extremely confident)* (Table 1). It also included participants who were employed in a variety of healthcare settings across the acute care ($n = 9$) community ($n = 4$) and long-term care sectors ($n = 3$).

2.4. Ethical considerations

Research Ethics Board approval was granted from two university institutions, and proof of ethics clearance was required by the CNO prior to release of the mailing addresses. Written consent was obtained from survey participants. The interview participants provided verbal consent prior to data collection. In follow-up, written consents were mailed to each interview participant with pre-addressed, stamped envelopes for return to the researchers.

3. Data analysis

3.1. Quantitative analysis

Quantitative data analysis was conducted using the SPSS 19 statistical software package. Following data entry, the database was screened for normality, outliers, and missing data. The data were treated accordingly (El-Masri and Fox-Wasylyshyn, 2005; Hazard Munro, 2005). Descriptive statistics included frequencies, percentages, medians, means, and standard deviations. A two-tailed alpha of .05 was used to determine the significance of statistical findings. Given ordinal data (scales ranged from a rank of '1' to '5') and non-normally distributed data, non-parametric statistics were used. Spearman Rank-order Correlation and Kendall's Tau were used to correlate the ordinal and non-normally distributed continuous variables against the outcome variable. Both tests revealed equivalent statistically significant findings. Kendall's Tau is known for being a more robust statistical test (Croux and Dehon, 2010); therefore, its findings are reported in this paper. Mann Whitney *U* was used to compare confidence scores with independent variables that were dichotomous, for example, gender, having a formal orientation, and participation in a preceptored or mentored experience.

3.2. Qualitative data analysis

Qualitative data analysis was conducted concurrently with data collection (Thorne, 2008), and it was continually focused by the research question. A codebook was established to facilitate coding. Two members of the research team independently read and coded three transcripts. All data were transcribed verbatim and electronically transferred to NVivo 10 software. This qualitative analysis tool supported organization retrieval and coding of the data but did not preclude critical reading and manual coding by the researcher. The process involved a constant comparative method (Corbin and Strauss, 2008) to reduce, display, and draw conclusions about the data (Miles and Huberman, 1994) while remaining open to the patterns and relationships among the data (Thorne). The data were merged in a side-by-side process (Creswell and Plano Clark, 2007) to support the interpretation of the overall findings.

4. Results/findings

The following text summarizes the study results. The quantitative results are presented first and are followed by the qualitative findings. The latter findings help to explain and expand upon the quantitative findings.

4.1. Quantitative results

The new graduate nurses averaged 29 years of age (SD ± 6.28) with 22 months of professional nursing experience (SD ± 10.6). Consistent with the College of Nurses of Ontario registration data, the majority of the sample was female (92.8%; $n = 477$). 80% ($n = 409$) worked in the acute care sector. Almost 19% (18.5%; $n = 95$) worked in the community and 6.5% ($n = 33$) reported employment in the long-term care or complex continuing care sectors. The mean confidence in interprofessional collaboration score was 3.93 (SD ± .82; Mdn = 4.0) out of a total possible score of 5.0.

What factors influence confidence to engage in interprofessional collaboration among new graduate nurses who are employed in various healthcare sectors?

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Table 2
Comparisons of differences in new graduate nurse confidence in interprofessional collaboration.

Variable	Mean rank	*U*	*H*[a]	*P*
Gender				
Female	258.45	8370.50		.577
Male	245.23			
Sector				
Hospital	264.02		6.397	.041*
Community	250.34			
Long-term care	201.88			
Formal orientation				
Yes	259.74	7754.50		.189
No	228.58			
Preceptorship or mentorship				
Yes	262.31	20,579.50		.137
No	240.25			
Previous career in healthcare				
Yes	249.74	18,698.00		.554
No	259.19			
Working in >1 sector				
Yes	236.81	17,795.50		.110
No	262.13			

Mean confidence = 3.93; median = 4.0.
[a] Kruskal–Wallis reported.
* Significant at <.05.

As presented in Table 2, there was a statistically significant difference in new graduate nurse confidence in interprofessional collaboration among the three healthcare sectors ($H(2) = 6.397$ $p = 0.41$). New graduate nurses employed in the acute care sector reported higher confidence levels in interprofessional collaboration (mean rank = 264.02) as compared to those in the community care (mean rank = 250.34) and the long-term care/continuing care sectors (mean ranks = 250.34 and 201.88, respectively). There were no significant differences in new graduate nurses confidence in interprofessional collaboration based upon gender ($p = .577$), having a previous career in healthcare ($p = .554$), working in more than one sector ($p = .110$), participation in a formal orientation ($p = .189$), preceptorship or mentorship ($p = .137$). The findings in Table 3 indicate seven variables that had a statistically significant relationship with confidence in interprofessional collaboration among new graduate nurses: proximity to educator ($r = .107$; $p = .005$), accessibility to educator ($r = .128$; $p = .001$), proximity to manager ($r = 144$; $p = .000$), accessibility of manager ($r = .172$; $p = .000$), number of team strategies ($r = .113$; $p = .002$), number of different disciplines worked with daily ($r = .104$; $p = .006$), and satisfaction with team ($r = .526$; $p = .000$).

4.2. Qualitative findings

As described by new graduate nurses what factors facilitate and challenge confidence to engage in interprofessional collaboration among new graduate nurses who are employed in various healthcare sectors?

The qualitative analysis suggested a number of factors that explain and expand upon the quantitative findings (Table 4). Consistent with the quantitative results, the new graduate nurses reported that supportive relationships within the team and with organizational leaders facilitated confidence to engage in interprofessional collaboration. Participation in formal and informal opportunities supported

Table 3
Correlation of confidence in interprofessional collaboration scores.

Variable	Confidence		*r*[a]	*p*
	M ± SD	Mdn		
Age	29.04 ± 6.28	27.0	.026	.467
Months employed	22.13 ± 10.6	24.0	.049	.155
Hours worked per week	37.79 ± 8.71	37.5	.041	.245
Number of different disciplines in agency	11.51 ± 4.42	12.5	.040	.255
Number of different disciplines on team	6.70 ± 3.60	6.0	.041	.241
Number of different disciplines worked with daily	3.91 ± 1.36	5.0	.104	.006*
Proximity to educator	3.93 ± 1.21	4.0	.107	.005*
Accessibility of educator	3.85 ± 1.01	4.0	.128	.001*
Proximity to manager	4.27 ± 1.08	5.0	.144	.000*
Accessibility of manager	3.89 ± 0.96	4.0	.172	.000*
Number of team strategies	3.39 ± 1.82	3.0	.113	.002*
Satisfaction with team	3.81 ± 0.81	4.0	.526	.000*

Mean confidence score = 3.93 ± .82; median = 4.0.
[a] Kendall's tau reported.
* Correlation significant at <.05.

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Table 4
Merged overall findings.

Quantitative Findings	Qualitative Findings	Overall Findings
Proximity of educator Accessibility of educator	Supportive relationships Team leaders Organizational leaders Team members	Team support Leadership Respect Opportunities
Proximity of manager Accessibility of manager		Organizational support Leadership
Number of different disciplines worked with daily	Respect	
Satisfaction with team	Opportunities to Collaborate Formal Informal	
Number of team strategies	Other factors Experience Knowledge	New graduate nurse development Experience Knowledge

confidence through exposure to different disciplines. Satisfaction with the team was characterized by respectful interactions with other healthcare professionals. Although there was not a statistically significant relationship between number of months of experience and confidence in interprofessional collaboration, the qualitative findings suggested that experience does influence collaborative practice, but not as a function of length of work experience. Rather, experience is maturational and relational in nature. It includes life events and interprofessional experiences, and is related to knowledge acquisition. As described by the new graduate nurses, challenges to confidence in interprofessional collaboration included: lack of experience, lack of knowledge, communication challenges, and balancing practice expectations. The relationships among these factors are depicted in Fig. 2 and explained in the following text.

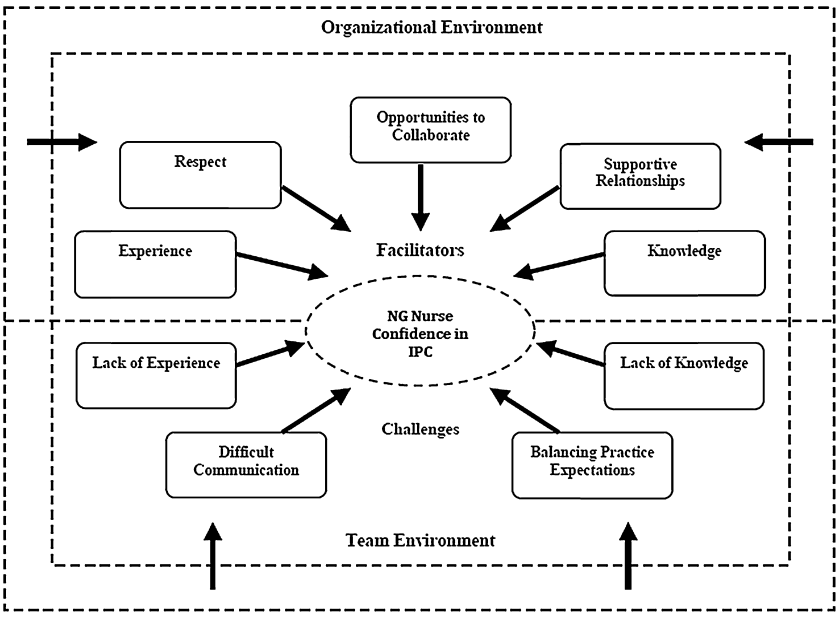

Fig. 2. Explanatory model of new graduate nurse confidence in interprofessional collaboration.

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4.2.1. Supportive relationships

Among new graduate nurses, supportive relationships were reported to facilitate confidence in interprofessional collaboration. Consistent with the quantitative findings, the most frequently reported sources of support were preceptors and mentors and organizational leaders. Charge nurses and interprofessional team members were also perceived to enhance new graduate nurse confidence in interprofessional collaboration. Collectively, these individuals role-modeled collaborative behaviors and supported the socialization of the new graduate nurse to the team and organizational cultures. Charge nurses were perceived to be knowledge brokers regarding the interprofessional plan of care. Managers and administrators were important sources of new graduate support, particularly when interprofessional conflict occurred. A new graduate nurse employed in the community setting noted, "*My conclusion is that [the] manager plays the most important role. . .people [interprofessional team members] left because a new manager came and he didn't let them behave in the way they used to. Work here on the team. . .strongly depends on [the] manager*".

4.2.2. Respect

As suggested by the quantitative findings, satisfaction with the team had a statistically significant relationship with new graduate nurse confidence in interprofessional collaboration. The qualitative participants reported that satisfaction with the team was associated with respect. That is, new graduate nurses universally perceived respectful interactions with other healthcare professionals as a key factor in supporting their confidence toward interprofessional collaboration. One new graduate nurse working in long-term care emphasized: "*It's that mutual respect, yeah clear mutual respect*". In this study, lack of confidence was hindered by disrespect and previous or recurrent challenging interactions with interprofessional team members; "*I have always had more issues speaking to physicians because I have had bad experiences speaking to physicians in the past*". Although new graduate nurses perceived overall positive interactions with other healthcare professionals, challenges did occur across all care settings and these interactions were associated with decreased team satisfaction.

4.2.3. Opportunities to collaborate

The new graduate nurses reported that exposure to formal and informal interprofessional collaboration opportunities increased their confidence. These opportunities allowed the new graduate nurse to meet a variety of healthcare professionals, learn about their roles, and eventually share in decision-making regarding care. Team strategies ranged from informal exchanges to formal processes, such as interprofessional rounds and case management meetings. Although confidence improved with time and experience, several participants reported discomfort with early participation in these team strategies. One new graduate nurse related her first experience with interprofessional rounds on an acute care unit: "*It's tough when you're new. . .especially if you're a new grad too to speak up. . .When you're sitting around and you've got ten other disciplines sitting there, it's pretty easy to just kind of be quiet about things*".

4.2.4. Experience

As described by new graduate nurses, confidence in interprofessional collaboration was enhanced through experience. This confidence did not relate to length of employment within the unit or organization; rather, it was influenced by life experience, pre-graduate, and post-graduate experience with interprofessional collaboration, and clinical experience. Four new graduate nurses described life experience as an important confidence builder. That is, being older and having previous careers and work experiences were perceived to enhance confidence in interprofessional collaboration. One new graduate working in the long-term care sector commented, "*Although I'm a new grad. I'm older I'm 50. . .I feel like I have life experience. I have people experience. I don't have issues with conversing with any of the disciplines. . .that way I have confidence*". Participants who engaged in pre-graduate interprofessional educational opportunities viewed these as positive experiences that assisted them to understand the practice roles of other healthcare disciplines and gain interprofessional communication skills. Gaining clinical experience and post-graduate experience with interprofessional collaboration were perceived to increase confidence to engage in interprofessional collaboration. It was through experience that new graduate nurses perceived having credible knowledge that allowed them to offer relevant suggestions toward client care-planning. Repeated experiences with the same and different professionals were also seen to increase confidence. One acute care new graduate commented: "*I think with experience you are more confident to bring up your issues with the other disciplines*".

In contrast, lack of experience with interprofessional collaboration was reported to challenge confidence in interprofessional collaboration. The majority of new graduate nurses wished that their undergraduate programs had prepared them better for interprofessional collaboration. Lack of experience with interprofessional collaboration resulted in "*trial and error*" approaches. Several new graduate nurses reported "*jumping in*" and having to cope with the less than ideal experiences with interprofessional collaboration. First experiences with interprofessional collaboration were often uncomfortable: "*I mean especially after the one first time I had to call a doctor. I felt so stupid after. So I'm like oh my goodness like why didn't you have yourself better organized. And I know that comes with experience*".

4.2.5. Knowledge

In this study, knowledge increased confidence in interprofessional collaboration among new graduate nurses. This relationship was not explored in the quantitative survey; however, the interview participants universally voiced this association. According to the new graduate nurses, confidence was achieved through knowing other disciplines, their roles, and how and when to collaborate with another healthcare professional. For most new graduate nurses, this knowledge was achieved informally through asking others or being introduced to

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others. One community health nurse described her experience with meeting the interprofessional team: "*We kind of said 'I'm a nurse. . .I'm a dietician. . .This is what I do and kind of let the rest of the team know what you could do. . .It wasn't in detail it was kind of as we went along*". In contrast, a lack knowledge regarding team and organizational processes for interprofessional collaboration challenged the confidence of new graduate nurses. A new graduate nurse working in acute care shared, "*There really wasn't a lot of actually any formal 'this person does this.' If you didn't know then you had no idea what was available in the hospital and how you could refer somebody to get a service*". Clinical knowledge was also perceived to enhance confidence in interprofessional collaboration. Similar to having clinical experience, possessing clinical knowledge allowed the new graduate nurses to more confidently exchange information with other healthcare professionals. This knowledge allowed the new graduate nurse to "*have the answers*" when being asked questions by another healthcare professional. When clinical knowledge was lacking, the new graduate nurses reported discomfort with interprofessional interactions. "*She [the physician] was like 'How come you don't know this?...Why don't you have the labs right in front of you?'...That knocked my confidence even further and it took a while to build it up*".

4.2.6. Balancing practice expectations

Not examined in the quantitative survey, the majority of new graduate nurses interviewed reported struggling with balancing the expectations of collaborative practice. This included learning to cope with self-imposed expectations of practice, and the expectations of other healthcare professionals. This dichotomy negatively impacted their confidence in interprofessional collaboration. A new graduate nurse working in the community commented, "*You don't know what to expect. You don't know what other people expect from you so you have very much stress about your role among the other disciplines*". Engaging in interprofessional collaboration was perceived to be an additional stressor. As articulated by an acute care new graduate nurse: "*You have all of these disciplines who are kind of expecting something from you. . .when I first started I didn't appreciate it so much. I found it more frustrating because. . .I felt like I couldn't do my own job*".

5. Discussion

This mixed methods study is the first study to provide a comprehensive exploration of new graduate nurse confidence in interprofessional collaboration. Interprofessional collaboration is an international healthcare system priority (World Health Organization, 2010), and this study's findings offer new and important strategies to support the confidence of new graduate nurses to engage in interprofessional collaboration, with a goal of supporting safe, quality care by new graduate nurses. The overall findings indicate that supportive team and organizational leadership may influence new graduate confidence in interprofessional collaboration. Further, the qualitative analysis suggests that new graduate nurse knowledge and experience should be acknowledged as key factors that are associated with the confidence levels of new graduate nurses toward interprofessional collaboration. These findings are particularly relevant to organizations across a range of sectors that employ new graduate nurses, and academic institutions that provide baccalaureate education in nursing. The following discussion interprets the overall findings (Table 4) and discusses implications for team and organizational support, education, and research.

5.1. Overall findings

The quantitative and qualitative analyses validate a key relationship between several factors and new graduate nurse confidence in interprofessional collaboration. In this study, new graduate nurse confidence levels were moderately high. Although surprising, this is likely explained by the 22-month mean practice experience among the survey participants, during which time clinical and interprofessional collaboration-related knowledge and experience were likely to increase. This explanation was validated by the interviews, wherein participants reported that confidence in interprofessional collaboration increased with experience. These confidence level findings are also consistent with other studies of new graduate nurses where confidence was reported to increase with experience (Casey et al., 2004; Ulrich et al., 2010). Nevertheless, new graduate nurses who worked in the community and long-term care/complex continuing care sectors reported significantly lower perceived levels of confidence in interprofessional collaboration. These participants reported shortened orientation periods, and less connection with organizational leadership. There were also fewer formal opportunities through which interprofessional collaboration occurred in these sectors, and these factors may have affected their confidence when engaging in interprofessional collaboration.

This study's overall findings emphasize the importance of support. This is a key theme that has been identified by other researchers as a crucial element of successful transition from student to professional nurse (Cho et al., 2006; Duchscher, 2001; McKenna and Newton, 2007; Oermann and Moffitt-Wolf, 1997). Of direct relevance to this study's research questions, the findings suggest that support in the form of leadership is required at the team and organizational levels to promote new graduate nurse confidence in interprofessional collaboration. These findings are consistent with Cockerham and colleagues (2011) who reported that connecting new graduate nurses with formal leaders, including managers, educators, and charge nurses can increase confidence in team communication. These resources may be less readily available to new graduate nurses working in the community and long-term care sectors. Although preceptorship and mentorship did not have a statistically significant relationship with new graduate nurse confidence in interprofessional collaboration, the interviewed participants perceived formal preceptors, mentors, and other healthcare professionals to support their confidence in interprofessional collaboration. This qualitative finding is consistent with the new graduate literature that also indicates a relationship between preceptorship, mentorship, and collaborative

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practice (Cantrelle and Browne, 2005; Chandler, 2012; Olson, 2009; Reddish and Kaplan, 2007; Wright et al., 2011). Regardless, education and training of preceptors and mentors is essential; unqualified and inexperienced preceptors can diminish the overall confidence levels of new graduate nurses (Johnstone et al., 2008).

5.1.1. Team support

To promote new graduate nurse confidence in interprofessional collaboration, formal and informal opportunities for new graduate nurses to engage in interprofessional collaboration should be prioritized within the team structure. These opportunities broaden new graduate nurse experience in interprofessional collaboration, and this may result in more confident interprofessional interactions (Deppoliti, 2008; Duchscher, 2001). Each of these opportunities promotes interprofessional dialog. Austin (2007) found that dialog is inherently supportive, as it promotes team involvement rather than a sense of perceived loneliness and exclusion. These opportunities also expose the new graduate nurse to interdependent practice. This is a gap for many new graduate nurses, and it may be further challenged by a perceived new graduate need to function independently (Duchscher, 2001). In order to assist the new graduate nurse to balance clinical expectations with interprofessional collaboration, protected time away from the hectic patient care environment should be provided to support new graduate nurse engagement in interprofessional collaboration (Pfaff et al., 2013b).

A culture of respect must underlie each of these interprofessional opportunities. The importance of respect is well documented in the literature related to interprofessional collaboration (D'Amour et al., 2005; D'Amour and Oandasan, 2005; Henneman et al., 1995) and it has been reported to improve new graduate nurse confidence and assertiveness when communicating with interprofessional team members (Deppoliti, 2008). Because team member devaluation of the new graduate nurse's knowledge and experience can perpetuate feelings of low self-confidence among new graduate nurses (Forneris and Peden-McAlpine, 2006), team members should understand and provide support for the new graduate nurse's knowledge and experiential shortcomings related to interprofessional collaboration (Chernomas et al., 2010; Duchscher, 2001). The new graduate nurse should also be allowed adequate time to adjust to the team culture. This adjustment is a developmental process (Duchscher, 2008); it is learned through experience with the team, and it can vary among individuals and organizations. Team leaders should cultivate inclusive team environments that support the new graduate nurse's needs for belonging and acceptance (Chernomas et al., 2010; Duchscher, 2001; Fink et al., 2008) within the interprofessional team.

5.1.2. Organizational support

Supportive leaders are known to facilitate the overall transition of new graduate nurses (Anderson et al., 2009). As described in this study, there is a relationship between organizational leadership and new graduate nurse confidence with engagement in interprofessional collaboration. In particular, available and accessible organizational leaders enhance the confidence of new graduate nurses in interprofessional collaboration. The qualitative findings of this study support those of Seright (2011) that administrators and managers are key sources of support in managing interprofessional conflict. Unfortunately, little else is known about the relationship between the accessibility and availability of organizational leaders and how this impacts confidence to engage in interprofessional collaboration. Although transformational leadership styles may support new graduate integration within the team (Thyer, 2003), further study is needed. Organizational leaders are encouraged to promote collaborative learning opportunities (Cho et al., 2006) and provide opportunities to interact with the new graduate nurse through drop-in visits, regular progress meetings (Goodwin-Esola et al., 2009), and a visible presence on the unit.

5.1.3. New graduate nurse development

Strategies that build new graduate nurse knowledge and experience in interprofessional collaboration should be an academic, team, and organizational priority (Casey et al., 2004; Chernomas et al., 2010). As a means of better preparing new graduate nurses for interprofessional collaboration, academic institutions are encouraged to integrate theoretical and experiential content related to interprofessional collaboration in undergraduate curricula (Chernomas et al., 2010; RNAO, 2006; Schwartz et al., 2011). Interprofessional education has been proposed as a solution to the knowledge and experiential gaps in interprofessional collaboration in the post-graduate period (World Health Organization, 2010), and models have been developed to support its educational integration (D'Amour and Oandasan, 2005). According to these models, confidence in interprofessional collaboration should be theoretically enhanced when learners engage in interprofessional education and achieve the knowledge, skills, attitudes and behaviors required for competent interprofessional practice. (D'Amour and Oandasan, 2005).

Although discipline-specific practice interventions related to interprofessional education remain unclear (Reeves et al., 2013), the findings of this study do provide additional support for interprofessional education in the pre-graduate and transition phases of nursing education. As suggested by new graduate nurses in this study, interventions may include interprofessional lectures and roundtable discussions, interprofessional simulation experiences, and emphasis on collaborative practice in clinical practica. Clinical areas that actively involve students in interprofessional learning activities are ideal settings to enhance knowledge and experience in interprofessional collaboration (Schwartz et al., 2011). Clinical experiences that provide extended and repeated opportunities for new graduate nurses to work in one unit or area may also enhance knowledge and experiential development in interprofessional collaboration (Chernomas et al., 2010).

5.2. Research

This research study provides a descriptive exploration of new graduate nurse confidence in interprofessional

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collaboration. The new graduate confidence levels are based upon self-report data that may not reflect actual confidence in interprofessional collaboration. Future studies may consider participant observation as a data collection strategy that may offer greater insight into the confidence of new graduate nurses toward interprofessional collaboration. Further, this study offers limited understanding of the development of confidence in interprofessional collaboration over time. Qualitative examination of the process of confidence building in interprofessional collaboration would contribute to intervention development that could be specifically geared to the knowledge and practice experience of new graduate nurses. This is the first study to suggest an empirical relationship between supportive leadership and new graduate nurse confidence in interprofessional collaboration. A concurrent study found that accessible and available leadership at the team and organizational levels predicts new graduate engagement in interprofessional collaboration (Pfaff et al., 2013a,b). The most recent findings raise questions about the role confidence may play in mediating the relationship between team and organizational leadership and engagement in interprofessional collaboration. As suggested in the previous section, further research is also needed with regard to the nature of leadership and how this affects new graduate nurse confidence in interprofessional collaboration. Consistent with the literature (Reeves et al., 2013), nursing-specific educational interventions that promote confidence in interprofessional collaboration require testing in the pre-graduate and transition phases of new graduate nurse development.

5.3. Limitations

There are several limitations to this study. The use of convenience sampling introduces selection bias and reactivity as potential threats to the validity of this study. Due to the data management processes of the College of Nurses of Ontario, the ability to recruit new graduate nurses within the first year of practice was challenged; therefore, the reported confidence levels may not reflect those of new graduate nurses who have less than one year of practice experience. The item used to measure the confidence of new graduate nurses in interprofessional collaboration provided a median new graduate nurse confidence level in interprofessional collaboration within the immediate healthcare team only. Future studies should consider a broader definition of interprofessional collaboration that includes collaboration across sectors and settings. The qualitative interviews required participants to report experiences with interprofessional collaboration that may have occurred months previous to the interview, potentially resulting in missed or distorted information. Non-verbal behaviors are normally relevant data in qualitative research and these could not be gathered using telephone interviews. No causation can be inferred from this descriptive study. The quantitative relationships, although statistically significant, are relatively small, and transferability of the findings is limited to BScN prepared new graduate nurses.

6. Conclusions

Globally, the healthcare needs of clients are becoming increasingly complex, and healthcare is typically delivered by a number of healthcare professionals. This challenges healthcare providers, including new graduate nurses, to work together to provide quality healthcare across all care settings and sectors. Nevertheless, interprofessional collaboration is a complex process that requires confidence (Henneman et al., 1995) an attribute that requires development among the majority of new graduate nurses. Support for interprofessional collaboration is required at the team and organizational levels. In particular, team and organizational leaders are important sources of support and strategies that allow new graduate nurses to connect with leaders are highly recommended to build new graduate confidence in interprofessional collaboration. Finally, confidence in interprofessional collaboration is related to the knowledge base and experiences of the new graduate nurses. Opportunities to engage in interprofessional collaboration are important, and should be recognized as such by organizations, teams, and new graduate nurses.

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References

Aiken, L.H., Clarke, S.P., Sloane, D.M., Sochalski, J., Weber, A.L., 1999. Organization and outcomes in inpatient AIDS care. Medical Care 37, 760–772.

Anderson, T., Linden, L., Allen, M., Gibbs, E., 2009. New graduate RN work satisfaction after completing an interactive nurse residency. Journal of Nursing Administration 39, 165–169.

Austin, W., 2007. The ethics of everyday practice: healthcare environments as moral communities. Advances in Nursing Science 30, 81–88.

Boswell, S., Lowry, M., Wilhoit, K., 2004. New nurses' perception of nursing practice and quality patient care. Journal of Nursing Care Quality 19, 76–81.

Canadian Interprofessional Health Collaborative, 2009. Program Evaluation for Interprofessional Initiatives: Evaluation Instruments/Methods of the 20 IECPCP Projects. Author, Vancouver.

Cantrelle, M., Browne, A., 2005. The impact of a nurse externship program on the transition process from graduate to registered nurse: Part II. Qualitative findings. Journal for Nurses in Staff Development 21, 249–256, http://dx.doi.org/10.1097/00124645-200511000-00001.

Casey, K., Fink, R., Krugman, M., Propst, J., 2004. The graduate nurse experience. Journal of Nursing Administration 34, 303–311.

Chandler, G., 2012. Succeeding in the first year of practice: heed the wisdom of novice nurses. Journal for Nurses in Staff Development 28, 103–107.

Chernomas, W., Care, W., McKenzie, Guse, L., Currie, J., 2010. "Hit the ground running": perspectives of new nurses and nurse managers on role transition and integration of new graduates. Nursing Leadership 22, 70–86.

Cho, J., Laschinger, H., Wong, C., 2006. Workplace empowerment work engagement and organizational commitment of new graduate nurses. Nursing Leadership 19, 43–60.

Cockerham, J., Figueroa-Altmann, A., Eyster, B., Ross, C., Salamy, J., 2011. Supporting newly hired nurses: a program to increase knowledge and

confidence while fostering relationships among the team. Nursing Forum 46, 231–239.
Corbin, J., Strauss, A., 2008. Basics of Qualitative Research: Grounded Theory Procedures and Techniques, 3rd ed. Sage, Thousand Oaks.
Creswell, J., Plano Clark, V., 2007. Designing and Conducting Mixed Methods Research. Sage, Thousand Oaks.
Croux, C., Dehon, C., 2010. Influence functions of the Spearman and Kendall corrélation measures. Statistical Methods and Applications 19 (4) 497–515.
D'Amour, D., Ferrada-Videla, M., Martin-Rodriguez, L., Beaulieu, M., 2005. The conceptual basis for interprofessional collaboration: core concepts and theoretical frameworks. Journal of Interprofessional Care 19, 116–131.
D'Amour, D., Oandasan, I., 2005. Interprofessional education for collaborative patient-centred practice: an evolving framework. Retrieved from: http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/interprof/chap-10-eng.php.
Deppoliti, D., 2008. Exploring how new registered nurses construct professional identify in hospital settings. The Journal of Continuing Education in Nursing 39, 255–262.
Dillman, D., 2000. Mail and Internet Surveys: The Tailored Design Method, 2nd ed. Wiley, New York.
Duchscher, J., 2001. Out in the real world: newly graduated nurses in acute-care speak out. Journal of Nursing Administration 31, 426–439. Retrieved from: http://www.letthelearningbegin.
Duchscher, J., 2008. Transition shock: the initial stage of role adaptation for newly graduated registered nurses. Journal of Advanced Nursing 65, 1103–1110, http://dx.doi.org/10.1111/j.1365-2648.2008.04898.x.
Dyess, S., Sherman, R., 2009. The first year of practice: new graduate nurses' transition and learning needs. Journal of Continuing Education in Nursing 40, 403–410, http://dx.doi.org/10.3928/00220124-20090824-03.
El-Masri, M., Fox-Wasylyshyn, S., 2005. Missing data: an introductory overview for the novice researcher. Canadian Journal of Nursing Research 37 (4) 156–172.
Etheridge, S.A., 2007. Learning to think like a nurse: stories from new nurse graduates. Journal of Continuing Education in Nursing 38, 24–30.
Fink, R., Krugman, M., Casey, K., Goode, C., 2008. The graduate nurse experience: qualitative residency program outcomes. Journal of Nursing Administration 38, 341–348, http://dx.doi.org/10.1097/01.NNA.0000323943.82016.48.
Forneris, S., Peden-McAlpine, C., 2006. Evaluation of a reflective learning intervention to improve critical thinking in novice nurses, Journal of Advanced Nursing.57, 410–421, http://dx.doi.org/10.1111/j.1365-2648.2006.01420.x.
Goodwin-Esola, M., Deely, M., Powell, N., 2009. Progress meetings: facilitating role transition of the new graduate. The Journal of Continuing Education in Nursing 40, 411–415.
Greenwood, J., 2000. Critique of the graduate nurse: an international perspective. Nurse Education Today 20, 17–23, http://dx.doi.org/10.1054/nedt.2000.0424.
Hazard Munro, B., 2005. Statistical Methods for Health Care Research. Lippincott Williams & Wilkins, Philadelphia.
Henneman, E., Lee, J., Cohen, J., 1995. Collaboration: a concept analysis. Journal of Advanced Nursing 21, 103–109, http://dx.doi.org/10.1111/j.1365-2648.1995.tb02501.x.
Johnstone, M., Kanitsaki, O., Currie, T., 2008. The nature and implications of support in graduate nurse transition programs: an Australian study. Journal of Professional Nursing 24, 46–53.
Kramer, M., 1974. Reality Shock: Why Nurses Leave Nursing. Mosby, St. Louis.
McKenna, L., Newton, J., 2007. After the graduate year: a phenomenological exploration of how new nurses develop their knowledge and skill over the first 18 months following graduation. Australian Journal of Advanced Nursing 25, 9–15.
Miles, M., Huberman, A., 1994. Qualitative Data Analysis, 2nd ed. Thousand Oaks, Sage.
Oermann, M.H., Moffitt-Wolf, A., 1997. New graduates' perceptions of clinical practice. Journal of Continuing Education in Nursing 28, 20–45.
Olson, M.E., 2009. The "millenials": first year in practice. Nursing Outlook 57, 10–17, http://dx.doi.org/10.1016/j.outlook.2008.06.001.
Pfaff, K., Baxter, P., Jack, S., Ploeg, J., 2013a. Factors influencing new graduate nurse engagement in interprofessional collaboration: an integrative review. Journal of Advanced Nursing. Available at: http://onlinelibrary.wiley.com/doi/10.1111/jan.12195/Abstract.
Pfaff, K.A., Baxter, P.E., Ploeg, J., Jack, S.M., 2013b. A mixed methods exploration of the team and organizational factors that may predict new graduate nurse engagement in collaborative practice. Journal of Interprofessional Care. Available at: http://informahealthcare.com/doi/abs/10.3109/13561820.2013.851072.
Ramritu, P., Barnard, A., 2001. New nurse graduates' understanding of competence. International Nursing Review 48, 47–57, http://dx.doi.org/10.1111/j.1466-7657.2001.00048.x.
Reddish, M.V., Kaplan, L.J., 2007. When are new graduate nurses competent in the intensive care unit? Critical Care Nursing Quarterly 30, 199–205.
Reeves, S., Perrier, L., Goldman, J., Freeth, D., Zwarenstein, M., 2013. Interprofessional education: effects on professional practice and healthcare outcomes (update). Cochrane Database of Systematic Reviews (3) , http://dx.doi.org/10.1002/14651858.CD002213.pub3, Art. No: CD002213.
Registered Nurses' Association of Ontario, 2006. Healthy Work Environments Best Practice Guidelines. Collaborative Practice Among Nursing Teams Registered Nurses' Association of Ontario, Toronto.
Rochester, S., Kilstoff, K., 2004. Hitting the floor running: transitional experiences of graduates previously trained as enrolled nurses. Australian Journal of Advanced Nursing 22, 13–17. Retrieved from: http://www.ajan.com.au/ajan_22.1.html.
Rush, K., Adamack, M., Gordon, J., Lilly, M., Janke, R., 2013. Best practices of formal new graduate nurse transition programs: an integrative review. International Journal of Nursing Studies 50, 345–356, http://dx.doi.org/10.1016/j.ijnurstu.2012.06.009.
Schwartz, L., Wright, D., Lavoie-Tremblay, M., 2011. New nurses' experiences of their role within interprofessional healthcare teams in mental health. Archives of Psychiatric Nursing 25, 153–163, http://dx.doi.org/10.1016/j.apnu.2010.08.001.
Seright, T.J., 2011. Clinical decision-making of rural novice nurses. Rural and Remote Health 11, 1–12.
Thorne, S., 2008. Interpretive Description. Left Coast Press, Walnut Creek.
Thyer, G., 2003. Dare to be different: transformational leadership may hold the key to reducing the nursing shortage. Journal of Nursing Management 11, 73–79.
Ulrich, B., Krozek, C., Early, S., Ashlock, C., Africa, L., Carman, M., 2010. Improving retention confidence and competence of new graduate nurses: results from a 10-year longitudinal database. Nursing Economic$ 28, 363–375.
World Health Organization, 2010. Framework for Action on Interprofessional Education and Collaborative Practice. World Health Organization, Geneva.
Wright, D., Lavoie-Tremblay, M., Drevniok, U., Racine, H., Savignac, H., 2011. Relational dimensions of a positive integration experience for new mental health nurses. Archives of Psychiatric Nursing 25, 164–173, http://dx.doi.org/10.1016/j.apnu.2010.07.008.

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