Graduate nurses’ evaluation of mentorship: Development of a new tool

Abstract

Aim

Develop and test an instrument to measure graduate-nurses’ perceptions of a structured mentorship program.

Background

New graduate nurses may experience difficulties in the transition from student to practitioner. Mentoring is commonly used to support graduates. However, there is a lack of published tools measuring graduate nurses’ perceptions of mentorship. As mentoring is resource intensive, development and testing of a validated tool is important to assist in determining program effectiveness.

Methods

A quasi-experimental design was used. Following a critical review of literature and content experts’ input, the 10-item National University Health System Mentorship Evaluation (NUHS ME) instrument was tested with a convenience sample of 83 graduate nurses. Psychometric tests included internal reliability, stability, content validity, and factor analysis. Changed scores were evaluated using paired samples t-test.

Results

Seventy-three graduates (88%) out of a possible 83 completed the pre-and post-program survey. Internal reliability was excellent with a Cronbach’s alpha of 0.92. Test-retest
reliability was stable over time (ICC=0.81). Exploratory factor analysis supported a 1-factor solution explaining 58.2% of variance. Paired Sample t-test showed statistically significance between the pre- and post- program scores (p<0.001).

Conclusions

The NUHS-ME measure was found to be valid and reliable. Confirmatory Factor Analysis of the tool with different groups of nursing graduates is required. Mentorship programs can be an effective recruitment and retention strategy, but are also resource intensive. Measuring new graduates’ perceptions of mentoring contributes to program relevance in addressing their personal, professional and clinical skill development needs. As mentoring engages a diverse range of mentors, feedback through measurement may also positively alter organizational learning culture.
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Background

Graduate nurses often face difficulties in the transition to practice in highly complex, dynamic and intense healthcare environments (Jewell, 2013). Induction, orientation, mentorship and preceptorship programs are often developed and implemented to help graduates in their professional and workplace transition (Rush et al., 2013; Whitehead et al., 2013; Chen & Lou, 2014). The introduction of undergraduate baccalaureate level education in Singapore occurred less than ten years ago. Since the transition of baccalaureate graduates into the workplace in mid-2009, there have been anecdotal reports of difficulties experienced by graduates and the registered nurse (RN) workforce about the performance of new graduates. These difficulties often related to a lack of understanding by the RNs about the skills and attributes of new graduates; conflicting expectations that the new graduates would quickly become nurse leaders; and graduates’ desire to move quickly into specialty practice and use their knowledge of evidence-based practice and research (as many had completed a 4th year research-based Honours program). In response to these issues, a 3 year mentoring program, with a focus on graduate professional development, was implemented to support and retain new graduates at a major tertiary facility. This paper presents the development and testing of a new tool to measure graduate perceptions of the mentoring program.

Mentorship is the preferred term used in Singapore to describe the process of providing structured support to new graduates, roles in transition and / or talent development. Mentors do not necessarily have a formal teaching qualification as they do in the UK (Nursing & Midwifery Council, 2008), nor does the Singapore Nursing Board require hospitals to offer
a compulsory graduate support program, as is the case in some other countries (Levett-Jones and FitzGerald, 2005). For the purposes of this study, mentorship is defined as a relationship between an experienced and knowledgeable mentor assisting and supporting a less experienced mentee to develop professionally and personally (Hendricks & Cope, 2013; Huybrecht et al., 2011; Komaratat & Oumtanee, 2009; Lipscomb & An, 2010; Mariani, 2012). However, in our review of mentorship programs, where particular authors of cited studies refer to ‘preceptorship’, that term is used when discussing their work.

New graduate nurses can become frustrated and experience reduced confidence when faced with stressful and challenging work environments (Chen & Lou, 2013). The stress experienced by new graduates may develop as a result of poor relationships with co-workers and managers, perceived lack of reward, and lack of organizational support (Shacklock & Brunetto, 2012). Research findings suggest that graduate nurses can experience role performance stress, moral distress, and become discouraged, disillusioned, and leave the profession (Duchscher, 2009; Komaratat & Oumtanee, 2009; Persaud, 2008). Mentorship aims to help graduates overcome elements of transitional stress (Duchscher, 2008).

In order to assist new graduates, the National University Hospital (NUH), a member of the National University Health System (NUHS) in Singapore, developed a 3-year Graduate Nurse Residency Program (GNRP) structured specifically to address the identified needs of new graduates. In Year 1 of the program, emphasis is given to induction and opportunities to develop clinical competence and confidence through a close working relationship with a registered nurse buddy. In Year 2, graduates commence a one-year structured mentorship program which focuses on workplace relationship issues, and provides a dedicated mentor for coaching in professional development and fostering a sense of professional identity.
Year 3 focuses on clinical rotations, professional role consolidation, and preparation for an area of specialty practice.

A multi-faceted evaluation program was implemented. The evaluation framework explored graduate nurses’ engagement with their mentors, impact of the program on graduate nurses’ retention, perceived value of the program by stakeholders, and sustainability of the program in regards to cost-effectiveness. To the best of our knowledge, no published studies have evaluated graduate nurses' perceptions about a mentorship program in such a comprehensive manner. As an element of this evaluation program, the focus of this paper is on the development and testing of a tool to measure graduate nurses’ perceptions of the structured mentorship program in Year 2.

**Framework underpinning the Graduate Nurse Residency Program**

A critical review of the literature was undertaken to identify best available evidence on mentorship programs. The framework underpinning the GNRP considered the process of transition from novice to expert, alignment between mentors and mentees, development of critical competencies, possible inter-generational issues, and duration.

*Transition support*

Patricia Benner’s Novice to Expert model (1984) was used as a guiding framework to identify possible developmental initiatives and processes for the GNRP. Mentorship was perceived to play a critical role in facilitating the development of new graduates’ clinical, professional and leadership abilities (Abdullah et al., 2014; Duchscher, 2008). In a recent systematic review by Chen and Lou (2014), mentorship was deemed to be a Level 3
evidence-based practice, which may help to reduce employee attrition, turnover costs to the organization, and medical negligence rates. However, job satisfaction and professional identity were also identified as areas for improvement in the field. Theoretically, mentoring in the GNRP is underpinned by concepts of: psychosocial support (role modeling, acceptance / confirmation, counseling, and friendship) (Eller et al., 2014); psychological empowerment for career development via “sponsorship, exposure / visibility, coaching, and challenging assignments” (Wagner et al., 2010) and “consideration of inter-generational differences” (Pool et al., 2015).

Alignment between mentors and mentees

The GNRP was developed on the premise of bringing together two individuals with near compatible personalities in a respectful, nurturing relationship with the common goal of guiding the novice nurse towards personal and professional growth (Jewell, 2013; Hendricks & Cope, 2013; Huybrecht et al., 2011). The new graduates (mentees) were matched with compatible mentors, who were nurses at a certain level of seniority, with demonstrated attributes and aptitudes for this role, such as a willingness to commit to a mentoring relationship, being accessible, open minded, supportive, a good listener, and sensitive to the mentees’ needs and areas of interest (Wright-Harp & Cole, 2008). Both mentors and mentees attended mentorship program workshops to orient them to their respective roles and responsibilities (Abdullah et al., 2014; Duchscher, 2008).

Development of critical competencies

In line with best available evidence, mentorship in the GNRP was used to address critical competencies required by novice nurses working in intensive and complex clinical
environments with escalating levels of patient acuity and workload (Duchscher, 2009). Competencies in areas such as clinical reasoning, information processing, decision-making, problem solving, human relationships, communication, quality assurance and evidence based practice (Komaratat & Oumtanee, 2009) are best developed through supported practice, observation, and critical reflection in conjunction with a mentor (Whitehead et al., 2013).

Consideration of inter-generational differences

Despite the advantages of mentorship, its implementation in the workplace can be problematic (Duchscher, 2009; Carver & Candela, 2008; Beecroft et al., 2006; Eller et al., 2014). One area of potential difficulty relates to the widening age gap of over 40 years in the nursing workforce, which is certainly evident in Singapore. Today, the healthcare industry employs at least three distinct generations of nurses: Baby boomers, born between 1943–1960; Generation X born between 1961–1981 and Generation Y / Millennial nurses born between 1982–2003 (Hendricks & Cope, 2012). Individuals from each era are known to demonstrate different values, work-related motives, competencies and professional development attitudes (Hendricks & Cope, 2012; Pool et al., 2015). Currently, little is known about the impact of these generational differences on Generation X and Y / Millennial nurses’ continuing professional development (Poole et al., 2015). Generation Y and millennial nurses appear to be more inclined towards mentoring and coaching (Carver & Candela, 2008; LeDuc and Kotzer, 2009; Shacklock & Brunetto, 2012). They prefer listening to individuals who are willing to share their wisdom, personal life experiences and knowledge (Pool et al., 2015). They seek employability over employment, are mobile, exceedingly well educated, and techno-intellectual (Carver & Candela, 2008). With Baby
Boomers gradually exiting from the workforce, younger Millennial nurses are highly sought after (Hendricks & Cope, 2013). Leaders of the GNRP wanted to ensure that the personal and professional needs of young mentees were understood by middle aged and older mentors. Appropriate education and sharing of relevant mentoring processes were therefore offered during mentor training.

**Program duration**

The integrative review by Rush et al. (2013) identified that programs supporting graduates varied in length from one month to over 12 months with the median being around 6 months. However, NUHS wanted to adopt a longitudinal, ‘whole of organization’ approach to investing in new graduates, and so developed a structured 3-year graduate residency program as a point of difference to potential graduate recruits.

**Measures of mentorship effectiveness**

Our search of the literature indicated a lack of published measures on perceptions of mentorship for use by graduate nurses. For example, in a systematic review of 24 studies on preceptorship support in various health disciplines in the UK, only 6 used a quantitative or mixed methods designs to evaluate the program (Whitehead et al., 2013). Of these, only 2 investigated perceptions of preceptorship with new graduates of social work (Bates et al., 2010) and medicine (Whitehouse O’Neill & Dornan, 2002). An integrative review of 47 studies by Rush et al. (2013) identified best practices for formal graduate nurse transition programs, but impact was predominantly considered by retention rates, turnover, cost benefit, and job satisfaction. Only one study reported on ‘new hire’ satisfaction with their preceptorship experience (Baggot et al., 2005). New recruits (n=526) were surveyed 45 days
post-orientation and asked to reflect on their experience to date, what they still needed in order to be successful, and current gaps in orientation and preceptorship processes (Baggot et al., 2005). However, no detail was provided on the survey tool such as item content, reliability and validity. Similarly, a systematic review of 11 quantitative studies by Missen, McKenna and Beauchamp (2014) focused on first year graduates’ job satisfaction and confidence levels; impact of training programs, retention and turnover rates but not perceptions of mentorship. A systematic review of 28 papers on mentorship measurement tools by Chen et al. (2016) reported most mentorship scales were developed in the fields of education (50%), business and industry (32%). Three (14%) were developed in Health and Science.

In summary, our review identified that tools of graduates’ perceptions of personal / professional development from the mentoring relationship were lacking. Nursing researchers and clinical educators often use tools from business and other fields. The concepts underpinning mentorship tools obtained from other fields may measure different aspects with different outcomes (Chen et al., 2016). Therefore, little is known about the mentees’ perceptions of mentoring and measurement of positive behavioral outcomes from mentoring. To address this gap, the current study aimed to develop an outcome oriented scale and evaluate its validity and reliability.

Aim

To develop and test a tool to measure graduate nurses’ perspectives of a structured nursing mentorship program.

Method
Design

A quasi-experimental design was used.

Sample and setting

Convenience sampling was used to recruit participants. All graduate nurses (n=83) participating in the second year residency program at a large metropolitan tertiary hospital were invited to participate in the study. There were no exclusion criteria. In order to achieve a 5% margin of error, 95% confidence interval and 50% response distribution, a sample size of 69 was required (Cohen, 1992).

Development of the instrument

DeVellis (2016) scale development guidelines was used. The initial first two steps comprised development of items generated from (1) a review of the literature and (2) input from the mentoring program team according to the aims of the program. Face validity of the tool was tested with 10 content experts (DeVellis, 2016). The expert panel members had previously completed mentorship training, had mentored nurses previously, and were experienced nurse leaders with more than 10 years of management experience at different levels. The items were evaluated individually for relevance and appropriateness on a 4-point scale of: 1 = Strongly Disagree (2) = Disagree (3) = Agree and (4) = Strongly Agree. The content validity index (CVI) was calculated based on the percentage of total items rated by experts as either (3) or (4). A CVI above 80% was considered to be valid (Polit & Hungler 1999). Our study achieved a CVI of at least 90% on all items indicating universal agreement.
Steps 4-10 involved psychometric testing of the draft 10-item tool named the National University Health System Mentoring Evaluation (NUHS ME) and utilized a 10-point Likert response scale, starting from 1 = least agree to 10 = most agree.

NUHS ME which utilizes a 10-point Likert response scale, starting from 1 = least agree to 10 = most agree.

Administration to development sample

At the commencement of the mentorship program [Year 2 of the GNRP], all graduate nurses were invited to complete the survey which consisted of a demographic information form, and NUHS ME tool. Completed forms were submitted via a sealed locked box placed in their department office. Using a sub-sample, test-retest reliability was conducted 10 days apart. The results were examined using intra-class correlation coefficient.

All participants were then invited to complete the tool at the end of the mentoring program. The internal reliability of the instrument was evaluated by Cronbach’s alpha and exploratory Factor Analysis (EFA) was conducted with Varimax rotation to examine the factor-structure of the instrument. Paired sample t-test was used to examine if there was any difference between the pre- and post-program NUHS MS score. All the computations were conducted using SPSS 21.

Ethical considerations

Ethical approval was granted by the National Healthcare Group Domain Specific Review Board and the National University Hospital. Verbal and written information were provided to all mentees. Mentees were informed of their rights to not participate, stop participating at
any time without penalty, and that completion of the survey implied consent. No identifying
details were required.

Results

Sample Characteristics

Eighty-three graduates (100%) completed the tool at baseline, and 73 participated in both
phases of the tool evaluation study giving an 88% response rate. The majority of
participants were female (n=77, 92.8%), with a mean age of 22.9 years. Most were
baccalaureate graduates (n=79, 94.0%) and were of Chinese (n=67, 80.7%) decent.
Participant characteristics are presented in Table 1.

Test-retest and internal reliability

A convenience sample of 19 subjects were invited to complete the 10-day retest. The intra-
class correlation coefficient was 0.81 implying the stability of the instrument over time.

The Cronbach’s alpha of the 10-item instrument among the 83 subjects was 0.92 indicating
an excellent internal consistency.

Factor structure of the instrument

The Kaiser-Meyer-Olkin (KMO) statistic was 0.88 and the Chi square value of the Barlett’s
was 509.29 (df = 45; p = 0.01), implying sample adequacy.

Exploratory Factor analysis revealed a single factor structure based on an eigen-value
greater than 1. The factor accounted for 58.93% of the total variation. The factor loading is
shown in Table 2 below and the factor was labelled ‘Supportive Guidance’.
Pre- and post-program comparison

Seventy-three participants completed the post program questionnaire. Paired samples t-test showed a significant difference in total scores between the pre- and post-program (difference= 12.27, 95% CI 8.9 -15.64, t = 7.27 p<.001). Significant differences were observed for every NUHS ME item (as shown in Table 3).

Item 7 which asked whether mentoring helped the graduate to network effectively to learn more about organizational resources and internal opportunities had the lowest mean score. However, responses to this item also demonstrated the most change with the highest difference in pre (mean = 4.58) and post (mean = 6.42) program scores.

Item 9 (being comfortable requesting and receiving feedback) achieved the highest item mean score of 7.9. Other high ranking items included: item 3 ‘my mentor knows the kind of work activities that interested me’ (mean = 7.73); item 4 ‘my mentor is aware of my strengths and development needs’ (mean = 7.49); and item 10 ‘my mentor has a good sense of my career path’ (mean = 7.36).

Discussion

The NUHS ME scale showed good psychometric properties. The high Cronbach’s coefficient indicated the internal consistency of the scale was excellent (DeVellis, 2003). The exploratory factor analysis procedure supported the premise that the tool measured a uni-dimensional construct named ‘Supported Guidance’. Response patterns on individual items reflected high agreement which aligns with the proposed characteristics of this group of Millennial nurses (Wolf et al., 2010). These included the likelihood of young graduates
valuing mentorship, wanting to understand their role in the organization, and wanting to enhance their employability.

Although mentoring programs have differing goals or objectives, the mentor/mentee relationship aims to provide supportive guidance to assist graduate nurses’ transition to become competent nurse professionals (Beecroft et al., 2006; Chen & Lou, 2013). In line with other transition / residency programs with / without mentorship, the elements of the GNRP program included developing competence, providing support, and integration into the workplace environment and organizational culture (Rush et al., 2013; Beecroft et al., 2006; Melynyk, 2007). However, the 10-item NUHS ME scale aimed to specifically evaluate participants’ perceptions of mentoring as part of their career development. Our approach differed from other studies in that we used a measure to directly assess the mentor-mentee relationship in the GNRP. For example, Komaratat and Oumtanee (2009) examined the basic competencies of novice nurses in four categories: (1) nursing care; (2) human relationship and communication; (3) decision-making and problem-solving; and (4) quality development and quality assurance. In another study, Mariani (2013) measured the concept of career satisfaction. We believe the NUHS ME scale contributes to a better understanding of the supportive guidance provided by mentors and graduates’ satisfaction with this support.

Carefully deployed mentor-mentee matching may help to improve the success of mentoring. The overall high level of agreement on the NUHS ME indicated that graduates were satisfied with the support provided by their mentor and felt understood by them. Other authors have reported that older mentors who were appropriately matched to a mentee, were more likely to help reduce stress, provide guidance and support to new graduates, and
improve their level of job satisfaction (Rush et al., 2013; Beecroft et al., 2006; Melnyk, 2007). Evidence also suggests the quality and nature of the mentor-mentee relationship is a key success factor and can affect the quality of the mentees’ learning experiences (Ali & Panther, 2008). According to Rush et al. (2013), an appreciation of generational characteristics of the workforce can enhance unit cohesiveness, organizational commitment, and improve patient care quality, particularly if differences amongst staff are considered during the mentoring process. Conversely, poorly managed generational mentoring can create tensions, adversely affect performance, job satisfaction and ultimately recruitment and retention (Rush et al., 2013).

Although networking opportunities to learn more about organizational resources and internal opportunities (item 7) scored low, change was evident. According to Rush et al. (2013), the availability of a defined resource person assigned in a one-to-one mentoring relationship can help new graduates’ socialization. Our research identified that over the course of 12 months, mentoring was successful in facilitating the graduates’ understanding and integration into the organizational culture.

The low pre-program perceptions of graduates in regards to ‘assistance with networking’ could imply generational differences between mentors and mentees. Millennial nurses seek out opportunities for collaboration, networking, interdependence, and independent endeavors (Rush et al., 2013). These goals are possibly in contrast to the priorities of mentors who are more likely to network through learning and working together in collaboration with others. This difference in expectations of mentors and graduates highlights the need for explicit consideration to be given to generational differences in mentoring programs (Rush et al., 2013).
In general, Millennial nurses tend to dislike hierarchy, are not concerned about job security, and expect to achieve a certain level of work-life balance (Rush et al., 2013; Shacklock & Brunetto, 2012). The combination of these factors may adversely affect their intention to remain in nursing (Shacklock & Brunetto, 2012; Rush et al., 2013). Participating mentors in the GNRP needed to understand the graduates’ drive for lifelong learning and preference to work in environments where they could have a direct say about how work is done and where they can contribute, innovate, or create (Stewart, 2000). The high level of participant agreement in regards to requesting and receiving feedback (item 9) aligns with previous research that identified the desire for positive feedback as a motivating factor for Millennial nurses (LeDuc & Kotner, 2009). Millennial nurses also have a desire to know how their career can advance and develop (LeDuc & Kotner, 2009). Thus, our findings support the view of mentoring as critical to career development and its role in guiding mentees to position themselves for career advancement (LeDuc & Kotner, 2009; Beecroft et al., 2006).

Given that the extended one-to-one mentoring component of the GNRP entailed heavy resource utilization and investment, it is not surprising that our organization was concerned about return on investment. While we cannot demonstrate cause and effect, there was evidence of reduced staff attrition within the 3 year GNRP. This finding was significant for the organisation as competition for high performing graduates in Singapore is intense. Future research could determine the extent to which our well-planned and structured mentoring program contributes to improved organizational commitment, satisfaction, engagement and cohesiveness of participating staff. Future research could also investigate the extent to which the mentoring program facilitates opportunities for each generation of nurses to consider the beliefs, values, and worldviews of others (Wallen et al., 2010).
Implications for nursing

This paper presented a preliminary validation of the NUHS ME scale. This brief, freely available scale can be tested, and adapted for mentorship programs in other organizations. An examination of mentee responses on the tool may provide mentors with an improved understanding of issues that matter most to new graduates. Another potential use of this scale could be for selection of mentors. A revised version of the scale could be used to identify mentors with similar values to mentees. The scale could also be used to provide feedback to mentors about their support role across the specific areas (such as provision of feedback, networking, and sharing the organizational mission). Items could also be used to guide the content and processes in leadership programs designed to strengthen mentors’ knowledge and skills in these areas.

Residency transition or mentoring programs enable graduates to transit successfully into their new role as practicing nurses (Fink et al., 2008). When working in unfamiliar and challenging work environments, graduates may encounter complex practice issues. The guided support offered through mentorship enables graduates to ask questions or raise issues in a safe trusting relationship that contributes to their practice development. Indirectly, mentorship contributes to better patient care and safety. We need to learn more about how mentoring can enhance graduate nurses’ self-esteem and confidence, contribute to their personal well-being, improve their sense of job satisfaction and reduce workforce attrition through burnout.

Limitations
There are several limitations inherent in this study. Firstly, the sample size was relatively small (n=73). Although the response rate was good (88%), and the sample size provide adequate power, further research and testing involving a Confirmatory Factor Analysis needs to be conducted with large samples of different groups of nurse mentees. The current sample was recruited from a single site and the views of this cohort of graduate nurses may differ from those of nurses in other contexts and countries. The pre-post study design enabled us to show changes over time, but findings would have been stronger if an experimental design with a comparison group had been used, however, this approach was not feasible in the current context. Future co-operative research could involve a multi-site randomized controlled trial where different models of mentorship are tested. This approach will support a causal relationship between mentoring and positive outcomes. Responses to survey items reflected those of the graduates only. Mentors’ views might be different. Researchers could now develop a comparative mentor version of the scale so that mentee-mentor views could be correlated.

As the data collection was via survey only, participants’ responses could not be explored for further insights. A mixed methods study could be undertaken in future. Additionally, it is well-recognized that there is a likelihood of social desirability response bias in surveys, however, as responses were anonymous, it is likely that respondents were candid in their views.

**Conclusion**

This study developed and tested the NUHS ME scale with a small sample of graduate nurses to assess the effectiveness of a longitudinal mentoring program. Internal reliability and
stability of the NUH ME scale was excellent. Exploratory factor analysis supported a 1-factor solution. Perceptions of mentorship changed significantly over time.

While the NUHS ME scale was found to be valid and reliable, confirmatory factor analysis needs to be undertaken with large samples of graduate nurses in other contexts. Although participating graduate nurses perceived the GNRP mentoring program to be effective, the causal relationship between mentoring and its outcomes could also be improved if an experimental study design was used.
References


