TITLE: Australian Nurses' Perception of the Impact of their Postgraduate Studies on their Patient Care Related Activities

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Changes in health care delivery resulting from evolving social needs, technological advances and economic imperatives, have forced nurses to expand and advance their practice (Hodson, 1998). Educational processes, either formal postgraduate education or informal, hospital or professionally based short courses, usually support such needs. Increased patient acuity, decreased lengths of stay and advancing technology have also stimulated nurses to seek further education. There has been enormous growth in postgraduate studies in Australia since the undergraduate preparation of nurses moved to the university sector in 1986. While it is often assumed that increased knowledge, skills and attitudinal change will result from postgraduate studies it is recognised that these do not automatically translate into behaviour changes in practice (Francke, Garssen & Abu-Saad, 1995). A perceived lack of documented research examining a link between the motivations for study and care outcomes led the authors to commence a longitudinal study in 1991 at a university in Sydney, Australia. The study is tracking five cohorts of postgraduates at two yearly intervals to determine their career paths, changes in professional behaviour and the perceived impact of their postgraduate education on the care they deliver. This paper will report these five cohorts' perceptions of the impact of their postgraduate studies on their care delivery two years after completion of their study. As expected, the results indicate that their postgraduate education had a positive to strongly positive impact on the majority of these items. These items will be presented. Those items identified as not being affected will also be presented and the majority of the discussion will focus on these.

Literature Review

One of the driving forces for nurses undertaking further study in Australia has been the development of specialist practice and in particular a clear delineation between the roles of nurse unit managers and clinical nurse specialists. This follows research which examined the roles of nursing managers and clinical specialists which raised concerns about the lack of focus on the quality of care issues by nurses in both roles (Duffield, Donoghue and Pelletier, 1996). In addition, a national Delphi study of Australian cardiac educators and clinicians revealed gaps between what behaviours they believed were important in practice and what actually occurs (Pelletier, Duffield, Adams, Mitten-Lewis, Nagy & Crisp, 1997; Pelletier et al., 2000). Many of the items in which such a gap was perceived had the potential to impact on the quality of care. Inadequate or insufficient educational preparation were two of the many reasons why

behaviours highly valued by the respondents in the "ideal" world are not being put into practice in the "real" world (Pelletier et al 2000).

The American literature clearly identifies that clinical nurse specialists who usually have a Masters qualification have a positive effect on the quality of patient care (Ahrens & Padwosjski, 1990; Gurka, 1991; Fenton, 1985). Hodson (1992) believes that in the U.S., Master's-prepared Advanced Practice Nurses (APNs) in surgery require advanced education "to develop critical thinking skills; greater professional competency in communication, physical, and psychosocial assessment; and mastery of interventions within highly sophisticated and technical practice environments" (p 999). Similarly, improved patient care and cost savings were reported in one department of surgery through the utilisation of APNs (Hylka & Beschle, 1995). Koivula, Paunonen and Laippala (1998) found that Finnish nurses' education level, among other items, had a positive influence on quality improvement in nursing.

In Scotland, Allan and Cornes (1998) studying nurses undertaking a diploma course concluded that it is possible to impact positively on patient care following professional education. Jordan, Coleman, Hardy & Hughes (1999) found that all the students undertaking a year-long diploma course in south Wales reported practice changes, for example, closer monitoring for the common side-effects of medication despite barriers to change in the workplace.

Terms such as analysis, critical thinking, synthesis of information, establishing priorities, reflection and creativity have been used to describe advanced practice (Davis, 1993) and claims are made that these are achievable through postgraduate education. However, objectivity in measurement remains problematic (Davis, 1993). The difficulties associated with conducting experimental research into ascertaining the effects of education in general on clinical practice are well-documented (Davies et al., 1997; Meah & Luker, 1997).

In identifying the motivation for undertaking postgraduate study amongst a sample of Australian nurses Pelletier, Donoghue, Duffield, Adams & Brown (1998a) found that personal and job satisfaction ranked as the highest motivation followed by increased professional status and better

job opportunities. Similarly, in another study conducted in Hong Kong, postgraduate nurses' reasons for studying included not only a desire to upgrade qualifications but also to further professional knowledge (Simsen, Holroyd and Sellick, 1996). And, postgraduate nursing students in Northern Ireland were motivated to study because of the clinical focus and the opportunity to develop theoretical knowledge and research (Boore, 1996)

The impact of continuing professional education (CPE) on the enhancement of quality care also provides some valuable insights. For example, Barriball, While and Norman (1992) claim outcomes from CPE should lead to improved care and thus can be evaluated through measuring its impact on patient care. They further argue that CPE should lead to the implementation of research-based practice, enabling changes in practice to be clearly justified. This is particularly important in light of the emphasis being placed on evidence based practice in Australia (Roberts, 1998). Pelletier et al (2000) found that both cardiac educators and clinicians valued facilitation and interpretation of research at a low level in the "ideal" world and that it was valued at an even lower level in the "real" world. Furthermore, a study of nursing unit managers (NUMS) and clinical nurse specialists (CNSs) to determine their competencies found "the item on providing care based on research had the lowest mean score for CNS and the second lowest score for NUMs and carried the lowest percentage of acceptance of respondents in both groups" (Duffield, Donoghue & Pelletier, 1996:337).

The outcomes of CPE in nursing have been evaluated in various studies. For instance personal and professional outcomes are well documented (Larcombe & Maggs, 1991; Turner, 1991; Barriball, While & Norman, 1992; Boore, 1996). Many outcomes such as increased autonomy, assertiveness and self-confidence (Whyte, Lugton & Tonks, 2000; Hughes, 1990; Turner, 1991; Williams, 1991; Nolan, Grant, Melhuish & Maguire, 1995 & Boore, 1996) and becoming more competent and accountable, with greater problem-solving skills (Whiteley, 1989; Nolan, Grant, Melhuish & Maguire 1995; Boore, 1996) and improved care planning (Hughes, 1990) may well have a direct impact on the quality of care.

Nolan, Grant, Melhuish & Maguire (1993) found in their study that the students perceived advantages of CPE, which may impact on the quality of care delivery. These were to update knowledge (24%), facilitate change (16%), provide better patient care (13%) and to develop clinical skills (4%). In another study, nurses reported a broadening of horizons, because they shared knowledge and supported each other to ensure their care was of the highest quality (Hogston, 1995). Continuing education was perceived to positively impact on the quality of patient care through professionalisation and the outcome of professional updating. Nurses also felt that they could influence doctors in certain areas, through their assimilation of knowledge, thereby adding weight and recognition to nurses' professional status. Managerial approval and individual attitudes such as conviction of beliefs and ideas and a lack of complacency were also perceived as essential components of utilising CPE to enhance quality of care.

Scheller's study (1993) also highlighted three important issues that have implications for higher education program planners. The first is that nurses will not prioritise putting into practice knowledge gained through CPE unless they perceive the benefits in improving quality of care outweigh the barriers encountered when attempting to implement them. Secondly, nurses not receiving positive reinforcement for using the CPE-gained knowledge are less likely to share it with colleagues or use it in practice; and, thirdly, nurses will not use CPE-gained knowledge if they perceive it as threatening either their control of their practice or the values surrounding it.

Whyte, Lugton and Tonks (2000) report on a 10 year longitudinal Scottish study of graduates similar to the Australian one reported here. A postal questionnaire was used with a sample of 109. The researchers explored areas of career opportunity, relevance of study to practice, personal satisfaction and growth as well as enhancement of clinical practice. Fifty percent had positions in education which reduces the potential for the subjects to influence care quality directly. However, 89% identified relevance of their education to practice. This was noted to be particularly in terms of research skills, critical analysis and a more strategic approach to practice. This report does suggest the positive impact of graduate education on clinical practice in terms of higher order skills such as critical thinking, applying research and so on. The longitudinal study reported here sought to explore the impact at a higher level of specificity of behaviours affected.

Method

29/04/09

A longitudinal study of registered nurses undertaking postgraduate courses in the Faculty of Nursing at an Australian university in Sydney, New South Wales (NSW) was begun in 1991. Upon completion of their program those graduating between 1991 to 1996 were invited to complete a questionnaire (questionnaire A) concerning their career movements and their future career plans (Pelletier et al, 1998b, 2000). Each cohort was subsequently invited to complete a second questionnaire (questionnaire B) two years later. One component of questionnaire B was a section on the perceived impact of their education on their provision of patient care. The findings from that section are reported here.

The Sample

University ethics approval was obtained and all students graduating were invited to participate in completing the first questionnaire thus forming a convenience sample. All subsequent surveys completed by mail were subsets of the original sample. Participant loss is a well-recognised hazard of longitudinal studies (Polit & Hungler, 1997) and Table 1 delineates the original sample of 403 with their response rate as well as the number completing questionnaire B and the subsequent percentage (40%) of those lost.

Instrument

Questionnaire B is a variation of the original tool piloted, revised and used in the first survey. The section on the impact of education on their practice behaviours was a new component. Respondents were asked to indicate the effect that they felt their postgraduate education had on the listed items of behaviour. They could respond that their education had significantly increased or decreased, increased or decreased or had no effect on their behaviour. The 37 items were selected by the research team from a questionnaire used to study the role of Australian clinical nurse specialists (Duffield, Donoghue & Pelletier, 1994) as representative of items with the potential to influence the quality of care delivered. This component of the questionnaire has not previously been validated.

Procedure

29/04/09

All those completing questionnaire A who had provided a postal address received a mailed questionnaire, stamped addressed envelope and questionnaire B. Respondents were made aware that the need to track student responses for subsequent questionnaire dissemination necessitated identification of the respondent. However, they were assured the data itself would be coded and the identification details stored separately. On all points of contact, which included reminder letters, participants were asked to give details of change of address. Despite this, significant numbers have been lost to the study. It was impossible to determine if a failure to respond was due to undeliverable mail or the desire of the participant to no longer participate. The numbers in the five cohorts are presented in Table 1, giving a total of 236 participants.

Descriptive statistics were used for each item of the questionnaire for each cohort.

Results

As would be expected postgraduate education was reported to have had a positive impact on all of the 37 items. For 11 items, 44% of respondents signalled an increase and over 20% of respondents signalled that postgraduate education had had a significant impact (See Table 2). It is noteworthy that on all these items 50% or more of all respondents considered they had increased their behaviour.

What was more noteworthy were the items where there was a percentage of respondents who indicated that their postgraduate education had no impact on particular items of behaviour. When 20% or more of respondents indicated that there had been no impact on an item this was considered to be important. The 17 items in this category in descending order are presented in Table 3. However, the education process had a positive impact on other students for these items and the percentages of these are also indicated in Table 3. Only one item is included in both tables, that is participation in ethical decision making. For 20% of students education had no impact on this behaviour and for 21% there was a significant increase in this behaviour. There remain 9 items unreported here as they fell in the middle impact range.

Discussion:

Staff Allocation, Teaching and Motivating Patients

The sample comprised managers (actual and aspiring) and clinicians from acute care, mental health, paediatrics and midwifery. Although no significant differences in responses to the questionnaire emerged between these groups, it is likely that some regarded some items as outside of their sphere of practice. For example, those in management may have seen teaching patients (item 10) or motivating patients (item 6) as outside their area of practice and more the responsibility of clinicians. Similarly, clinicians may have felt that making effective staff–patient allocations, ensuring resources were present or providing opportunities for staff development (items 1,3,13) were outside their domain. However, clinicians frequently allocate staff, after hours and on weekends. Participants may have felt they were already practising these activities at a sufficiently high level that postgraduate study could have no further effect. Opportunities for staff development could have been interpreted narrowly as formal or scheduled in-service or education programs or more generally to informal opportunities to teach, at the bedside or elsewhere. This variation in interpretation may influence whether the respondent felt staff development was part of their role.

Communication and support with decision making for patients and their families

The items 9 and 16 relating to the impact of respondent's postgraduate education on their communication with patients and families and the capacity to support patients in the decision making process recorded higher than anticipated responses of no effect (28% and 20% respectively). These may be instances where some respondents may have felt well skilled and that their studies had not had an impact. One would expect that particular participants, for example, those working within the mental health and paediatric streams of study would have developed these skills which may have contributed to the percentages indicating that their studies had an influence. A further reason for education having had no effect might have been that those respondents answering in the negative did not work directly with patients and families whilst those reporting that postgraduate education has an increased or significantly increased impact did.

The use and ethics of computers in nursing practice

Items 2 and 15 relating to computer use in terms of ethical implications and capacity to support practice are also particularly noteworthy. Over the course of the research, those in the Australian health sector were seeing increasing accessibility and training in the use of information technology systems. It should have been the brief of far-sighted educational programs within the Faculty to integrate this throughout the programs so that health care professionals could apply their knowledge in practice. Unless respondents were so well aware of the ethical implications of computer use that little further intellectual debate is needed in this area (which the authors consider unlikely), it could be considered disappointing that postgraduate study had no impact for 38% of the group and that 21% did not recognise that postgraduate education had effected their perceptions of computers being used to support nursing practice. In view of the fact that the world wide web is likely to be the main carrier of information and research in the twenty first century and that all nurses will have to be conversant with finding, utilising and managing data this is a worrying finding both in terms of patient management and evidence based practice. Although other studies have indicated that knowledge and research are more likely to be put into practice as the result of postgraduate education if computers are not used then there is a missed opportunity. One possible explanation is that these high scores reflect an apathy and/or lack of acknowledgment regarding the importance and value of information technology on either the part of nurses responding to the questions or of the health care organisations in which they work. At the time of data collection in NSW the information technology in place within the health care system was more oriented toward finance and management with clinical relevance such as the reporting and recording of results just emerging. The fact that 21% felt no increased effect in their understanding of the capacity of computers to support nursing practice may also reflect the fact that the educational program missed an opportunity to contribute to these students' development as information technology literate professionals. Or, that in spite of what was taught they were unable to consolidate what they had learnt. Furthermore, postgraduate nurses may not as yet need to use computers or may get by without using them. Also, their access to computers might still be limited. This is potentially significant when contrasted with the findings of studies such as that by Scheller (1993) and Nolan, Owens & Nolan (1995) which showed that nurses must perceive the benefits, receive positive reinforcement and not feel threatened in order to incorporate learning into practice. Whatever the reasons, the current NSW context set by the

recent NSW Health Council Report (Menedue, 2000) signals the importance of information technology in health care. It would be hoped that all postgraduate programs integrate both information technology and the importance of information management into their programs to assist in the development of nurses as skilled information users. This finding also signals an area for closer collaboration between the providers of graduate nursing education and health service providers to integrate theory and practice more effectively.

Time management, motivation and quality assurance

No effect was felt for 34% of respondents in terms of the impact of their postgraduate education on time management skills (item 5). As experienced clinicians and managers one would anticipate that students entered the course with highly developed skills in this area. It could also be argued that it would be difficult for any theoretical course to develop such skills more highly. On the other hand the knowledge gained through postgraduate study might give a deeper theoretical underpinning which although supporting more effective decision making processes, remained an unrecognised phenomenon in terms of its impact.

For item 6 motivating patients 33% of respondents reported that postgraduate education had no effect although over half reported that it had had an increased effect (57%). Perhaps this role is outside the responsibility of many respondents or perhaps the fact that it appeared to have no effect for so many respondents was because it is beyond the remit of postgraduate education to effect such a change. However, for those in contact with patients postgraduate education would be expected to increase interpersonal skills and knowledge, leading to greater autonomy, assertiveness and self confidence as described in the literature (Hughes, 1990; Turner, 1991; Williams, 1991; Nolan, Grant, Melhuish & Maguire, 1995; Boore, 1996). Whilst these are difficult to measure, they are likely to have an indirect influence on a respondent's perception of their ability to, for example, motivate patients (item 6) as a result of postgraduate education. The same might also be true for motivating staff (item 11) for which 25% of respondents said that postgraduate education had had no impact on their behaviour and similarly for the enhancement of staff morale (item 7) which 29% of respondents said postgraduate education had had no impact. This might have been the result of a working environment where there is low morale due to shortages of staff, restrictive managerial practices or work place changes. For example

unpopular changes to case-mix resulting in stagnation, apathy and learned helplessness, factors which contribute to an inability to implement behaviour change as described by Scheller (1993). Item 17, the participation in ethical decision making also had high "no effect" score. The lack of impact may be the result of the respondent 's perception that the work environment may not allow time for this or that it was not part of their role. If the reason was that they felt they lacked the necessary skills to engage in this after their education, this could be considered a failure of that process.

Items 11 & 12 motivating staff and their participation in quality assurance activities also scored highly as no effect. This again might have been because of the roles in which respondents were working which did not require them to take part in such activities although it could reasonably be argued that nurses at all levels of health care organisations have a legitimate role to play in both these areas. Thus, either the programs themselves did not enhance skills or awareness in these important areas or did not touch on them.

Workload stress and autonomy

Item 8 sensitivity to workload stress on colleagues also scored a surprisingly high number of responses of "no effect" (28%). This is a surprising finding when contrasted with the anecdotal acceptance that nursing is a stressful job. Possibly it is a deficit in nurse preparation at postgraduate level that nurses remain unaware or feel insensitive to work-load stress or that it is so great that it has become the norm. Item 14 which asked whether the respondents had an increasing degree of autonomy as a result of postgraduate study also had a higher than expected response rate of "no effect" (22%). This was surprising in light of the response to item 8 and may have been because the health care system doesn’t allow autonomy to be developed despite what they have been taught. One would have expected that if this was the case that there would have been increased stress.

Conclusions

The authors do not imply that all nursing postgraduate programs should be attempting to influence all of these behaviours. However, all of the items in the questionnaire were roles,

which it can be argued, should be enhanced either directly or indirectly in courses preparing nurses to work in all spheres of the health service. All of the nursing postgraduate programs this participant sample were drawn from have quality of care as a facet that is central to their purpose. While it is common to try to measure the impact of education on an individual personally or professionally it is harder to try to quantify any impact on their care delivery behaviour. However, the opinion of a reflective practitioner trying to quantify the impact their postgraduate education has had on a range of daily care activities has some inherent value. For example it is necessary for those offering educational programs to try to gauge if the impact that they intend to have is that which is happening in reality.

Analysis of the impact of the results from this study has revealed some interesting findings in terms of what is perceived to have had little effect on postgraduates' subsequent professional behaviours. For example the reluctance or inability of some to recognise the indirect benefits of their study on their practice and the instances where it appears that learning may not be being applied in practice (such as with the use of computers to support clinical practice). There may be several reasons that a higher than expected frequency of responses indicating that there has been no effect on behaviours including the perception that certain aspects of what is learnt is irrelevant, too difficult or is not thought to have resulted from postgraduate study. It is difficult to separate prior learning and experience, from the learning that occurs in the classroom. Indeed, if done well arguably there should ultimately be little demarcation between theory and practice. What the findings of this study do point to, at least to some extent, is that students might not appreciate what it is that they learn from their academic studies or that in some instances they are thwarted when they return to practice and/or don't have the opportunity to use what they have learnt. It is an often heard criticism of academic courses that whilst what is learnt in theory is all well and good it is not always applicable in the "real world." Another angle worthy of consideration is that there is the strong possibility that the educational programs that the students in these cohorts undertook might not have been detailed or explicit enough in content or depth to create the desired behavioural outcomes in practice. This is particularly important in view of the fact that many nurse graduates do not remain in the nursing workforce and therefore need to be equipped not only with nursing knowledge but also with core skills (such as management and computing for example) which are necessary to work in other roles. In view of these factors, the findings of this study do indicate areas of programs and curriculum that should be examined for

content and applicability and highlight the fact that close collaboration with service providers and students should be fostered to ensure that the educational product fits the market demand.

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Table 1 Number of Students (%) Completing First and Second Questionnaire (with original response rate and loss rate)

Cohort by year	Questionnaire A Response Rate (%)	Questionnaire B With Loss Rate (%)
1992	n=70 (55)	n= 39 (49)
1993	n= 90 (75)	n= 48 (47)
1994	n= 82 (40)	n= 37 (55)
1995	n= 80 (40)	n= 51 (34)
1996	n= 81 (47)	n= 61 (25)
Total	N= 403 (51)	N= 236 (40)

Table 2 Items of Behaviour with Significant Effect from Postgraduate Education for 20% or more of Sample

ITEM	Significantly increased %	Increased %	No Impact %	Total Positive Impact %
1Conveying of information, written or verbal	20	59	18	79
2 The awareness of the legal implications of practice	23	56	18	79
3 Questioning care decisions made by other colleagues including doctors	23	58	15	81
4 Enhancing the quality of your patient advocacy skills	21	61	14	82
5 Acting as a change agent	25	58	13	83
6 Identifying research questions	22	60	12	82
7 Acting as a role model	21	63	11	84
8 Teaching colleagues	22	62	10	84
9 Making care decisions based on research findings	26	61	8	87
10 Increasing their degree of autonomy	25	50	22	75
11 Participating in ethical decision making	21	55	20	76

Table 3 Items of Behaviour with No Effect of Postgraduate Education for 20% or more of Sample with % of Sample with Positive Impact

ITEM	No Effect	Increased	Significant increase	Total Positive Impact
1. Making effective patient-staff allocations	38	47	7	54
2. The awareness of ethical implications of computer use	38	44	9	53
3. Ensuring resources present	36	53	17	70
4. Enhancing the morale of patients	34	50	10	60
5. Utilising time management skills	34	48	14	62
6. Motivating patients	33	48	9	57
7. Enhancing staff morale	29	52	13	65
8. Sensitivity to work-load stress	28	51	16	67
9. The communication with patients and family	28	50	17	67
10. Teaching patients	26	52	13	65
11. Motivating staff	25	58	12	70
12. The participation in quality assurance activities	23	56	16	72
13. Providing opportunities for staff development	22	58	13	71
14. Increasing the degree of autonomy in your work role	22	50	25	75
15. The recognition of the potential of computers to support nursing practice	21	53	17	70
16. The capacity to support patients in decision making process	20	59	13	72
17. The participation in ethical decision making	20	55	21	76