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EDITORIAL

Jill Iliffe

Federal Secretary, Australian Nursing Federation

Our guest editorial this month is written by Joy Bickley Asher who is a member of the AJAN's Editorial Advisory Board. Joy's reflections on nursing describe a career in nursing committed to scholarship and research. Authors in this issue of the AJAN demonstrate a similar commitment to inquiry, scholarship and research across a broad range of nursing and health care contexts.

Joy argues for "greater congruence between generating, funding and publishing research and then applying the relevant findings". Researching and validating processes to apply nursing research to enhance nursing care is a consistent theme in this issue of the AJAN.

Chew et al explored whether a process-oriented integrated care pathway was effective in a rehabilitation setting and whether the improvement gained through the rehabilitation process could be sustained post discharge. The study found that the introduction of a generic clinical care pathway gave positive results with the sample group maintaining functional status and independence post discharge. The authors conclude that process-oriented integrated care pathways may be a useful tool in effectively managing patients with a wide range of complex presentations and diagnosis-related groups in rehabilitation and aged-care units.

The next step in conducting research and disseminating research findings is integrating

research findings into changed practice. Cioffi et al describes a systematic process adopted to change nursing practice in the area of assessment in order to improve health care. They suggest that essential elements in bringing about change include: engaging all staff in the change process; building professional development into the practice change; developing transformational strategies that address not only the dominant organisational culture but also existing subcultures; and employ an emancipatory practice development process. Their main recommendation for practice development in bureaucratic organisations is to develop and establish the evidence base necessary to ensure the process is effective.

Fernandez et al conducted a cross-sectional study to evaluate the long term adherence to medications in patients following percutaneous coronary intervention (PCI). Findings suggested that following PCI medication adherence is high, however knowledge about medication storage is limited and patients report cessation of medications which they consider to be deleterious or unnecessary. Fernandez et al concluded that their findings will be useful for informing development of nursing interventions to improve medication compliance following PCI.

Keatinge et al report on a study to investigate nurses' experiences of implementing and educating colleagues in the Family Partnership Model (FPM) of maternal and child health care. Findings from the study identified that the FPM built on and extended existing knowledge and was relevant and useful to clinical practice. The authors suggest the FPM's value was evident in participants' positive comments about it and their ability to successfully implement it in their practice and educate and encourage colleagues to do the same, however the sustainability of the FPM

program and implementation depends on adequate support for practitioners and the commitment of resources to this process overall.

Access block in emergency departments is a major issue for Australia's public hospitals. Access block refers to the situation where patients in an accident and emergency department (ED) requiring inpatient care are unable to gain access to appropriate hospital beds within a reasonable time frame. Dowling et al studied the nursing issues associated with access block in an accident and emergency department. The themes and inter-related sub-themes which emerged from the data present a distressing picture for nurses working in accident and emergency departments as they endeavour to provide effective and holistic nursing care: lack of space, powerlessness, health and safety issues, infection control issues, poor service delivery, lack of respect/dignity, unmet basic human needs, not feeling valued, moral distress, and stress/burnout. While the research was based in Ireland, the findings have resonance for nurses in Australia and for health policy.

The issue of access block was highlighted during the recent federal election campaign in Australia with all political parties suggesting innovative solutions to improve the responsiveness, the quality of care and the efficiency of Australia's accident and emergency departments. Now that the election is over the new government needs to make fulfilling this election promise a priority.

E-health is another aspect of health care which is having an increasing impact on nurses and nursing practice. Edirippulige et al investigated the perceptions and attitudes of nursing students with regard to e-health, the level of their knowledge in e-health and their expectations of e-health. Barriers which impede the development of knowledge and skills in e-health within a nursing curriculum were also explored. Despite the fact that the majority of the nursing students who participated in the study regularly used computers and the internet in their day to day activities and nursing education, their awareness and knowledge with regard to e-healthcare was very limited. Edirippulige et al

found that the main barrier for nursing students was the lack of systematic education and training and concluded that students need to be provided with formal e-health care training if they are to be equipped with the skills required to effectively incorporate information technology into their practice.

The findings by Edirippulige et al are supported by a larger study conducted by a research team from the University of Southern Queensland for the Australian Nursing Federation with funding from the Australian Government Department of Health and Ageing. This study of 10,000 nurses in Australia (44% response rate) on their use of information technology identified that nurses recognise benefits to adopting more information technology in the workplace; they are however frustrated by limitations of access to the technology; software that is not always fit for purpose; and lack of opportunities for training. The level of use of information technology and information management systems is generally low and confidence in use is low even among those nurses who are users. Nurses feel poorly informed about information technology health initiatives and poorly consulted about their implementation. Workload, number of computers and technical support are the principal barriers to use of computers. Technical support is largely insufficient especially in more remote locations. Neither the full potential of information technology in the provision of health and aged care nor the recognition by nurses that information technology is an integral part of nursing will be realised until these limitations are addressed. The full report of the study can be found at: http://www.anf.org.au/it_project. The Australian Government Department of Health and Ageing are now funding the first phase of a follow up study to develop nursing information technology competency standards. The standards when developed will be integral to improving the education of nurses in information technology applications and use.

Also on the theme of information technology, O'Connell et al explored the education and training experiences of intensive care unit (ICU) registered nurses in using computerised technologies and

assessed the relationship with role performance and level of clinical experience. Participants identified a range of formal and informal education and training sources available to them within their ICU setting and articulated both positive and negative experiences associated with using computerised technologies. Their level of confidence in using computerised technologies was clearly related to their years of experience and differentiated clinical nursing roles and reflected whether they worked in a fully or partially computerised unit. O'Connell et al conclude further research needs to be undertaken to investigate the training needs of ICU nurses to use computerised equipment.

Understanding the nursing workforce is critical to addressing the current nursing shortage and ensuring a sufficient supply of nurses in the future to meet the needs of the Australian community for nursing care. Turner et al gathered data from ten universities across two Australian states in order to: provide a descriptive demographic profile of undergraduate Australian nursing students; provide baseline data for a prospective analysis of attrition within undergraduate nursing programs; and to facilitate student recruitment into a prospective cohort study to examine graduate outcomes. The authors conclude that there is a need to systematically track undergraduates and new graduates to quantify student attrition, graduate retention and career plans. They recommend that a demographic dataset of all undergraduate nursing students in Australia should be established to track trends over time to inform future workforce planning.

Retaining new nursing graduates in the nursing workforce is an essential strategy in addressing nursing workforce shortages. The paper by Litchfield et al presents the findings of a study which explored the lived experience of 'managed time' for new graduate nurses working in a neonatal unit in the public health system in Australia. Litchfield et al sought to understand how the individual graduate nurse copes with the stressors associated with spending the graduate nurse year in the demanding working environment of a neonatal unit. Five themes emerged including: knowing; planning; support; fulfilment; and adapting and being flexible. The findings suggest that the retention of new graduates could be enhanced by providing them with the working environment and the skills to better manage the stresses associated with the graduate year.

Advocating for patients is an integral part of nursing care. In a paper by Massey et al the association between income inequality and health status is reviewed and an appropriate nursing response considered. Massey et al argue that social factors, such as income inequality, are at the root of much of health inequality and that this knowledge needs to invoke political action and advocacy from the nursing profession to promote the development of healthy public policy.

Finally, the provision of the AJAN free online has been an outstanding success. Statistics for the month of October and November indicate a high level of exposure for authors with an impressive number of manuscripts downloaded from right across the world. This dissemination of Australian nursing research can only enhance nursing practice world wide.

Reflections on nursing : a fortunate life



GUEST EDITORIAL

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I am glad to have the opportunity to address the readers of the Australian Journal of Advanced Nursing. I have been writing for nursing, midwifery and health related publications for almost thirty years and I continue to appreciate the chance to communicate with nurses and midwives. Here I present evidence of one nurse's engagement with the health and education sectors in Aotearoa/New Zealand through writing.

The first research project I did was consumer-focused (1978). My small unpublished survey identified new mothers' preferred family planning providers. I was hoping that they might nominate nurses. I should not have been surprised they preferred general practitioners because of the expectation of continuity of medical care.

In 1979, I advocated for greater support for home birth in: *Why women and their partners are dissatisfied with maternity care* (1979). Negative and unsafe experiences of hospital care led to women and their partners claiming their own home space for the safe arrival of their babies. In those days, only a tiny number of women had their babies at home, cared for by a tiny number of staunch and courageous midwives. Medical and societal opposition to home birth was played out in a number of different ways but throughout the eighties, support for greater choice in both maternity carer and location grew. In 1989,

my survey of 100 women's groups formed the basis of the New Zealand Nurses Organisation midwifery policy and contributed to the midwifery law reform of 1990 (1989). The findings showed that women wanted to experience continuity of care; to know who their midwife was before they went into labour.

One of the consequences of the return to independent midwifery practice after 1990 was intense media interest in consumer complaints against midwives. Occasionally, this turned into a witch hunt. In 1998, my concern about distorted media representations of midwifery accountability led me to write an article: *Can people having babies trust midwives?* in the New Zealand Health Review, a short-lived publication that took a critical approach to health policy events and issues of the time (1998).

Support of women was also evident in the book chapter: *The wages of caring: women, health and socialism*, published in 1985. In this I referred to Hilary Graham's (1984) materialist analysis of the lives of low income single mothers. Her study made a major and long lasting impact on my thinking. Hilary concluded that mothers are the key expert providers of primary health care for their children. She also revealed the ambiguities for women who smoked cigarettes. On the one hand they knew it was bad for them and their children. On the other hand it helped them to bear their burdens of responsibility. In the same chapter I also used medical research to critique the over-prescribing of prescription drugs to women 65 and over.

My commentary on cervical screening in 1987, pre-Cartwright Enquiry: *Safety screen or smoke screen? A feminist critique of current policies and practices*, focused on the inadequacy and

the unreliability of existing cervical screening practices. Shortly afterwards, the Cartwright Inquiry investigated the research practices at National Women's Hospital, Auckland. They concerned the treatment of women with cervical cancer (Cartwright, 1988). The recommendations in the report have had more influence than those of any other inquiry in the history of the New Zealand health service especially with regard to patient rights and ethical research practices. Post-Cartwright in 1988, I critiqued the way nurses had been portrayed in the Inquiry in: *What does the cervical cancer inquiry mean for nurses?* In spite of the New Zealand Nurses Organisation being a party to the Inquiry, Judge Cartwright reported nurses appeared to lack courage and were prepared to protect patients only by stealth. This was an unfair assertion in my view. There were good reasons why nurses did not speak out about Professor Green's experiments or come forward to speak to the Inquiry. In 1993, in a book chapter: *Watchdogs or wimps? Nurses' response to the Cartwright Report*, I reported the attempts by nurses to comply with the Report's recommendations, eg support for the development of a new Code of Patient Rights and Responsibilities.

Seeking social justice for the indigenous Aotearoa/New Zealand people underpinned the paper: *The white nation has a lot to answer for: toward an analysis of racism* in a New Zealand journal founded by a collective of which I was a member, *Nursing Praxis in New Zealand* (1987). I also published a short article on the emergence of cultural safety in nursing (1990). Irihapeti Ramsden's thinking on cultural safety has also made a major and long lasting impact on me as a thinker, social activist and researcher (2002). Consumer rights at the end of life attracted my interest in the 1990s, resulting in a PhD study (2002) which, amongst other things, showed that consumers and their families had more decision-making power about not-for-resuscitation orders than previous studies suggested. This interest has developed in more recent years to include the requested death movement. New Zealand has no end-of-life legislation in place though there have been attempts to introduce a private member's

Death with Dignity Bill into Parliament. My concern that nurses need to debate the issue and clarify their positions was raised in a 2004 article: *The practice of euthanasia: more than a debate*, which argued that nurses would be able to support their patients more substantially if they knew what their own values were regarding requested death.

In 1997, I was pleased to accept an invitation to write an article for the international journal *Nursing Ethics* on nurses' strike action in New Zealand (1997). In the resulting article, I tried to argue that the language of industrial conflict actively works against peaceful resolution. From writing to publication took almost a year of communicating between editor and author; a very salutary experience. Happily, this first contact has resulted in a long and continuing association with the *Nursing Ethics* journal as a reviewer. I still think this journal is the best nursing ethics journal in the world. It is truly international and truly research-based. Best of all, it is useful. The knowledge I have gained from it has inspired me in my teaching and practice. For example, it is where I first discovered Corley's significant work (2002) on moral distress.

My own writing on ethics in the New Zealand context has been very superficial by comparison. I have written short articles on ethical practice such as nurses as moral agents (1998), the ethics of safe staffing (2006), the ethical responsibility of voting (2005), keeping boundaries with patients clear (2005), and linking patient safety and nurse safety (2006). The New Zealand Nurses Organisation journal, *Kaitiaki: Nursing New Zealand*, has been a faithful and regular vehicle for my words. How fortunate I have been that my writing skills have been regarded favourably by the Kaitiaki editors. Since 1979, the numbers of Kaitiaki readers have increased steadily to currently around 40,000; quite a sizeable audience.

My association with the Australian Journal of Advanced Nursing as a Trans-Tasman reviewer and member of the Editorial Advisory Board now extends back several years. It is a privilege to be a part of this journal and to have witnessed its stubborn survival and metamorphosis into an online publication. This

development makes the AJAN universally available and therefore overcomes the disadvantages of being seen as a regional publication. Like previous guest editors, I ponder on future possibilities for the publication of nursing research and commentary. I believe there are good days ahead. I look forward to a time when there is closer collaboration in publishing between Australian and New Zealand research-based journals. I look forward to the day when there can be greater congruence between generating, funding and publishing research and then applying the relevant findings.

The Performance-Based Research Fund (PBRF) is the current system of evaluating research outputs and funding research in the academic setting in New Zealand. According to PBRF assessment, nursing research is struggling to emerge as a credible and therefore fundable field of endeavour. Such an assessment misses the point and disregards context. It has resulted in increasing tensions between entrepreneurial and caring values as individual departments and academics compete for very scarce resources. The PBRF system undermines the fundamental objectives of professional nursing practice, education and research. An alternative process for fostering nursing research that is in keeping with nursing philosophy and values is needed.

Like previous guest editors, I support national research planning and strategising, rather than individual research institutions competing with one another for resources and influence, especially in a country as small as New Zealand. We are not too small to have a national nursing research centre, an organisation to represent nursing research interests and negotiate with funders for resources to promote and support excellent research. Currently, New Zealand's academic and research funding environment precludes this from happening. There is not yet enough mutual trust and respect among nursing research stake-holders to support such an endeavour. What is worth celebrating in New Zealand is that, in spite of the difficulties, nursing researchers are slowly steadily gaining a foot hold in the research

world. There are strong links with international nursing and midwifery research communities, particularly in Australia, the United Kingdom and the United States of America, and with international health organisations like ICN and WHO where New Zealand has much more influence than its size suggests. In this we are only doing what New Zealand has always done.

I have reflected on one nurse's experience of the practice, education and research sectors in New Zealand. I was one of a number of academic nurses who didn't make the cut in the first PBRF round. It was one of my motives for leaving the academic environment. It seemed I was a round peg in a square hole. Why stay in a system that didn't appear to value the contribution I was making to nursing knowledge?

Being able to move on has great rewards and deep ironies. Without planning to, I have arrived in my current employment as a health researcher, happily working closely with research-savvy nurses of great integrity. I feel optimistic about the future. The New Zealand nursing research community is poised to enter a new era of research capacity, founded on a solid cohort of fresh new researchers from all the cultures in New Zealand who are currently undergraduate nursing students. I am sure they will participate in collaborative projects in order to achieve new levels of quality improvement and innovation in health care. There will probably always be contention over the equitable distribution of limited resources and the relevance of education and research to practice, and vice versa. Nevertheless, overall progress will be made. There are major issues to contend with, eg climate change, globalisation, new diseases, new health inequities.

The biggest risk to the achievement of a bright future is that there will not be enough nurses. Workforce shortages undermine every aspect of nursing work in the health, education and research sectors. Those participating in nursing workforce research, in Australasia and in other parts of the world, deserve commendation and support. My own small contribution in this area is in my current thinking

about the link between self-esteem, competence and ageism. I am interested in the notion that if older nurses' self-esteem is low they may be less competent. They may perceive such things as a regulatory body audit or a compulsory education program as too much of a challenge. That, together with the ageism they face at work and in the world at large, may result in their premature departure from their profession.

Therein lies a problem and a challenge. How can those good nurses be supported to stay at work until they really want to finish and retire? As for me, I am doing my best to avoid retirement. Perhaps that is because I am no good at conclusions. Nevertheless, let me finish by saying that what is important to me is kindness, honesty, respect and generosity. In my fortunate nursing life I have been the recipient of these gifts from nurses and patients in a number of different places in the world. This is what has helped me to write the things I have. A fortunate life indeed!

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The future nursing workforce in Australia: baseline data for a prospective study of the profile, attrition rates and graduate outcomes in a contemporary cohort of undergraduates

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KEY WORDS

attrition, retention, undergraduate, nursing, evidence-based, demographic profile

ABSTRACT

Objective

To gather data from ten universities across two Australian states in order to: provide a descriptive demographic profile of undergraduate Australian nursing students; provide baseline data for a prospective analysis of attrition within undergraduate nursing programs; and to facilitate student recruitment into a prospective cohort study to examine graduate outcomes.

Methods

Approval was sought from each Head of School to enable recruitment of undergraduate nursing students as a sub-sample of an ongoing large scale longitudinal e-cohort study involving Australian, New Zealand and United Kingdom nurses and midwives (<http://www.e-cohort.net>). Each nursing school nominated a contact person to become part of the research team; provide aggregate data on the quantity and demographic profile of currently enrolled undergraduate nursing students; and to facilitate recruitment of students into the cohort study.

Results

Two of the ten universities could not supply any demographics of their undergraduate nursing student body and one university could not provide data on year levels. The remaining data revealed an interesting demographic profile in the following areas: the age range of students across both states was 17 to 68 years, with just under half the population of students aged over 25 years. Some universities had a younger cohort of students in comparison to others and this was potentially associated with universities which only offered their program in full-time mode. The high proportion of students choosing to enrol in their undergraduate program part-time in South Australia (22.5%) as well as the large number of international students at one Queensland university (28% in year one) may impact on the future graduate nursing workforce supply. Retrospective analysis of the average attrition rate in Queensland universities was estimated at 24.5% which is consistent with the findings of a recent systematic review of published primary studies.

Conclusion

Whilst this preliminary data reveals some interesting issues, in general, there is a paucity of evidence about the demographics of the future Australian nursing workforce, attrition within undergraduate nursing programs and graduate outcomes. Clearly there is a need to systematically track undergraduates and new graduates to quantify student attrition, graduate retention and career plans and begin to build this evidence-base. A minimum demographic dataset of all undergraduate nursing students in Australia should be established to track trends over time that will inform future workforce planning.

INTRODUCTION

The world has entered a period of scarcity for human resources in health which in turn impacts on the health of populations (Anand and Barnighausen 2004). The shortage of qualified health professionals, including nurses, is now one of the largest barriers to achieving the Millennium Development Goals for improving the health and well being of the global population (Anand and Barnighausen 2004). In response to this shortage, the International Council of Nurses (ICN) launched the Global Workforce Project in 2004, and in 2006, the World Health Organisation (WHO) announced the decade of the Health Care Workforce 2006-2015 (WHO 2006; ICN 2004).

Nurses are the 'front line' staff in most global health systems. A nursing shortage undermines the effectiveness of any health care system, particularly in small rural and remote communities where a nurse may be the only health practitioner (WHO 2006; ICN 2004). Predicted shortages of qualified nurses are reported in Australia, New Zealand, United Kingdom, United States of America and Canada (RCN 2005; Crow and Hartman 2005; ICN 2004; CNA 2002; Crowley and West 2002; DEST 2002).

Nurses comprise 40%-50% of the global health care workforce and represent 55% of the Australian health care workforce (Productivity Commission 2006; WHO 2006). As nurses occupy the largest share of the health workforce, a viable health care system providing optimum population health outcomes relies on a sustainable and healthy nursing profession (WHO 2006; AIHW 2004). While it is important to understand the demographics of the current nursing workforce in Australia to plan retention strategies and predict retirement trends for workforce planning, it is also critical to recruit and retain a viable future nursing workforce. Undergraduate nursing students comprise the future nursing workforce and yet there is currently no demographic data gathered to profile this group for workforce planning or to quantify projected graduate figures.

There is an estimated deficit of 40,000 nurses predicted in Australia by the year 2010 (AHWAC 2004;

DEST 2002). Projected estimates to meet workforce demands report the need for 10 000 graduates per year from 2006 onward (AHWAC 2004). The latest figures from the Australian Government Department of Education, Science and Training (DEST) show that only 5306 domestic nursing students, who form the majority of the future supply stock, completed their undergraduate program in 2003 (DEST 2004a). The Australian Health Workforce Advisory Committee (AWHAC), a national government body to oversee health workforce planning in Australia, anticipates a shortfall of 4,000 graduates per year, which is 40% above projected graduate completions. Although there are attempts to increase graduate supplies by increasing university places over the next four years, there will still be a significant shortfall in the nursing supply. Additionally, projected workforce supply estimates are calculated using stable commencement rates for undergraduate student nurses and therefore do not include the number of non-completers of pre-registration nursing courses, as well as assuming a 95% retention rate of new graduates (AWHAC 2004).

There is a paucity of state or national data in Australia that quantifies attrition in undergraduate nursing programs for workforce supply estimates. National statistics are reported on all student commencements and completions in undergraduate programs but these figures are not reported by specific field of study (DEST 2004b). The National Nursing and Nursing Education Taskforce (N³ET), was a government body formed in Australia in 2003 to implement recommendations from the *National Review of Nursing Education* (DOHA 2002). The N³ET reference a report from the Australian Council for Educational Research (ACER) which quotes student attrition rates in nursing programs in Australia at 7% (N³ET 2005; McMillan 2005). The ACER report is based on a sample of young people in Year 9 in 1995 and follows the cohort for three years after leaving school (McMillan 2005). The report however does not state a 7% attrition rate in nursing programs; it reports a 9% attrition rate within health as a field of education (excluding medicine, dentistry and veterinary science) and there is no data to determine

if any of the cohort followed were enrolled in nursing programs (McMillan 2005). Thus the N³ET data about undergraduate nurse attrition rates may not be accurate.

Despite decades of debate within the nursing profession about undergraduate attrition and graduate retention, a recent global systematic review found only four studies that examined undergraduate attrition as an outcome, and no studies were found that examined retention of new graduates as an outcome measure (Gaynor et al 2006). Only two of the four studies followed cohorts of students prospectively and were able to provide a high level of evidence. These studies reported a range of 25-27% attrition within the first year. The only prospective Australian study, based on four universities, measured attrition of undergraduate first year nursing students at 27%, and was published over ten years ago (Harvey and McMurray 1994). It is important to quantify contemporary undergraduate attrition rates for workforce planning and projected university enrolments.

The highest level of evidence for quantifying attrition in undergraduate nursing programs would be yielded by a prospective cohort study that examines a large cohort of students (or all students) from a range of programs and measured individual attrition over time. This type of study would also enable analysis of factors associated with attrition. The next best level of evidence would be to prospectively gather aggregate data and quantify attrition over time.

The aim of this paper was to do the latter and gather data from ten universities across two Australian states from which it would be possible to: provide a descriptive demographic profile of undergraduate Australian nursing students; provide baseline data for a prospective aggregate analysis of attrition within undergraduate nursing programs; and to facilitate individual student recruitment into a prospective cohort study to examine graduate outcomes.

METHODS

Approval was sought from each Head of School in Queensland (n=7) and South Australia (n=3) to

enable recruitment of undergraduate nursing students as a sub-sample of the Nurses and Midwives e-cohort study (<http://www.e-cohort.net>), an ongoing large scale longitudinal cohort study involving nurses and midwives from Australian, New Zealand and the United Kingdom. This recruitment phase will continue into first semester 2007 with a view to reporting on graduate outcomes beyond this time.

Each Head of School nominated a contact person to become a part of the research team for the undergraduate demographic and attrition project. Each contact was requested to provide aggregate data on the quantity and demographic profile of currently enrolled undergraduate nursing students and to facilitate recruitment of students into the cohort study. The Behavioural and Social Ethical Review Committee of The University of Queensland granted ethical clearance for the study.

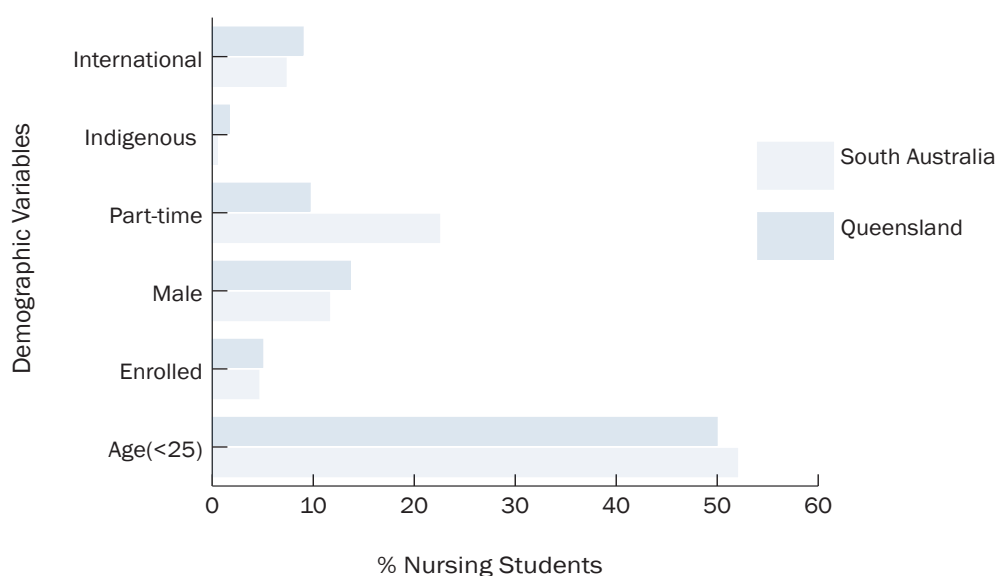
Each university contact was made an associate investigator of the Nurses and Midwives e-cohort study (<http://www.e-cohort.net>) and invited to become co-authors of papers reporting the results of the aggregate data that each would contribute. One university contact declined co-authorship. Each university contact was requested to provide aggregate data quantifying all undergraduate nursing students enrolled at their university after census date in first semester, 31 March 2006. Census date is the cut off date where withdrawal from an undergraduate program will not attract academic or financial penalty. It should be noted that some universities have earlier census dates, however this is the final date at a national level. To prospectively gather data over time on attrition within programs, the exact number of first, second and third year students was requested from participating universities. Current DEST data reports a much higher attrition within the first year of university programs compared to subsequent years (DEST 2004b). It is important to know the distribution of undergraduate attrition by year level across the three years of the program. Additional demographic data collected included: age range and mean and proportion of students less than 25 years; proportion of enrolled nurses; proportion of

males; proportion of part-time enrolments where applicable; proportion of Indigenous students and proportion of international students. Tables 1-3 outline the demographic aggregate data requested per total student cohort and for each year level; reported per state and reported aggregates across both states of Australia.

In addition, the in-kind support of the Queensland Nursing Council was obtained to quantify the aggregate number of eligible graduands for nursing

registration submitted by each Queensland university in December 2005. These figures were matched to Queensland Tertiary Admissions data (QTAC) of aggregate enrolments for undergraduate nursing students three years prior, based on census figures reported from 31st March 2003. Table 4 shows the estimate of attrition within each program and the state average based on these figures. This could not be replicated in South Australia as the same data could not be accessed from the South Australia Tertiary Admissions Centre (SATAC).

Figure 1. Comparison of Queensland and South Australia universities Demographic Profiles.



RESULTS

Baseline Aggregate Student Data

A major finding of the study was the difficulty that some university contacts experienced in accessing the data requested from university administrative databases. Most of the contacts were program coordinators and maintained aggregate and demographic data on their undergraduate cohort at school level. Surprisingly, not all universities were able to provide data that either quantified all undergraduate nursing students or 1st, 2nd and 3rd year undergraduate nursing students. Those

university contacts able to supply baseline data will remain involved in the study over the next few years as further aggregate data is gathered in 2007 and 2008 and actual attrition figures can be reported prospectively from 1st to 2nd year and 2nd to 3rd year. Tables 1 and 2 outline the data able to be provided as of university census date 31st March 2006. At present, figures indicate that n=3,755 potential nursing graduates in Queensland over the next few years and n=3,610 potential nursing graduates in South Australia. A comparison of the demographic details between the two states is illustrated in figure 1.

Table 1: Demographic profile of undergraduate nursing students as at census 31st March 2006 Queensland

University	Year		Age			Enrolled Nurses		Male		Part-time enrolments		Indigenous students		International students	
	level	Total	Range	Mean	<25 years	n	%	n	%	n	%	n	%	n	%
Australian Catholic University	1st	178	18-60	25.8	n=107, 60%	*	*	17	10	18	10	1	1	50	28
	2nd	131	19-55	26.9	n=74, 56%	*	*	14	11	24	18	2	2	31	24
	3rd	89	20-57	27.0	n=55, 62%	*	*	11	12	10	11	1	1	0	0
	Total	398	18-60	26.4	n=236, 59%	*	*	42	11	52	13	4	1	81	20
Central Queensland University	1st	362	17-56	27.5	*	6	2	49	14	9	3	11	3	7	2
	2nd	229	18-55	30.0	*	30	19	25	11	4	1	1	0.4	3	1
	3rd	140	19-53	31.2	*	20	14	18	13	7	5	5	4	4	3
	Total	731	17-56	30.0	*	56	8	92	13	20	3	17	2	14	2
Griffith University	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
James Cook University	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Queensland University of Technology	1st	*	*	*	*	Enter 2nd Year		*	*	*	*	*	*	*	*
	2nd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	3rd	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Total		*	*	n= 946, 61%	47	3	260	17	210	13	26	2	157	10
The University of Queensland	1st	164	17-50	21.7	n= 127, 77%	13	8	13	8	Full-time enrolment only		1	0.6	10	6
	2nd	105	18-53	22.6	n= 81, 77%	7	7	7	7			1	0.9	6	6
	3rd	78	19-50	26.8	n= 51, 65%	32	41	5	6			0	0	1	1
	Total	347	17-53	23.2	n= 259, 75%	52	15	25	7			2	0.5	17	5
University of Southern Queensland	1st	245	17-53	25.6	n= 148, 60%	π	*	39	15.9	32	13	6	2.4	*	*
	2nd	228	18-58	27.5	n= 122, 54%	*	*	26	11.4	30	13.2	2	0.9	*	*
	3rd	249	19-54	26.9	n= 184, 74%	*	*	31	12.4	21	8.4	7	2.8	*	*
	Total	722	17-58	26.6	n= 454, 63%	*	*	96	13.3	83	11.5	15	2	*	*
Aggregate Totals		3755	17-60	26.6	n=1895, 50%	155	5	515	13.7	365	9.7	64	1.7	269	9

* = unable to supply data

Demographic Profile of undergraduate Australian nursing students

A significant finding from this data is the age demographics of the student population. The age range from the combined data sets (table 3) is 17-68 years of age, with just over half of this population (51%) under 25 years of age. Each university had students enrolled who were aged 50 years and some obviously had students aged 60 years or greater, the latter able to make a minimal contribution in employment years, to the workforce on graduation. The age profile of these students has implications for future workforce planning strategies, considering that over 42% of the current workforce are aged 45 years or older and will therefore be retiring over the next 10 to 15 years (AIHW 2004).

Another interesting finding related to age demographics is the relationship between the younger ages of the cohort of students at universities that only offer courses as a full-time option. Both The University of Queensland and the University of Adelaide have well over half the student population under the age of 25 years (75% and 84%, respectively). Perhaps this reflects the likelihood of a younger aged cohort to enrol full-time and further investigation of these findings, while beyond the scope of this paper, may be significant with respect to workforce planning.

Within the South Australian population of students, it is interesting to note a much higher proportion of students who choose to study part-time, compared to their Queensland counterparts (22.5% and 9%

respectively, see figure 1). This may also impact on future workforce patterns, as almost one quarter of South Australian students have chosen this mode of study, and may also choose to work part-time after they graduate. The increase in part-time work status (and therefore decrease in average weekly hours worked) is significant when taken into consideration with population growth. The AIHW (2004) report that the nursing supply has decreased from 1,127 FTE (full time equivalent) nurses per 100,000 in 1995 to 1024 in 2001, due to the change from full-time to part-time work status.

Large numbers of international students in the undergraduate cohort (28% of year one level students at ACU, refer table 1) may also be significant with respect to future graduate supply, if these students choose to leave Australia once they have completed their degree. The other universities show low international student figures, with South Australia having an aggregate total of 7.3% and Queensland 9%, although three Queensland universities did not supply this data and are not reflected in the state total.

Table 2: Demographic profile of undergraduate nursing students as at census 31st March 2006 South Australia

University	Year		Age			Enrolled Nurses		Male		Part-time enrolments		Indigenous students		International students	
	level	total	Range	Mean	<25 years	n	%	n	%	n	%	n	%	n	%
Flinders University	1st	367	17-56	25.0	n= 237, 65%	60	16	50	14	93	25	4	1	52	14
Bedford Park	2nd	329	19-62	28.0	n= 182, 55%	79	24	41	12	60	18	1	0.3	52	16
	3rd	239	20-54		n= 139, 58%	27	11	29	12	64	27	2	0.8	38	16
	Total	935	17-62	26.5	n= 558, 60%	166	18	120	13	217	23	7	0.8	142	15
Riverland	1st	25	18-47	27.0	n= 14, 56%	*	*	1	4	4	16	2	8	0	
	2nd	25	20-61	35.0	n= 9, 36%	*	*	4	16	4	16	1	4	0	
	3rd	16	20-56	36.0	n= 3, 19%	*	*	2	13	1	6	0	0	0	
	Total	66	18-61	32.0	n= 26, 39%	*	*	*	*	9	14	3	5	0	
University of Adelaide	1st	50	17-50	22.2	n= 42, 84%	0		6	12	Full time enrolment only		0	-	0	
	2nd	0	First year only in 2006									-			
	3rd	0										-			
	Total	50	17-50	22.2	n= 42, 84%	0		6	12			0	-	0	
University of South Australia	1st	773	17-62	23.0	n= 409, 53%	*	*	88	11	163	21	*	*	59	8
City East	2nd	685	18-58	23.0	n= 356, 52%	*	*	99	15	116	17	*	*	41	6
	3rd	632	20-68	26.0	n= 290, 46%	*	*	59	9	222	35	*	*	22	3
	Total	2090	17-68	25.0	n=1055, 51%	*	*	246	11	501	24	*	*	122	6
Whyalla	1st	173	17-52	30.0	n= 70, 41%	*	*	20	12	50	29	*	*		
	2nd	183	18-58	35.0	n= 71, 39%	*	*	12	7	23	13	*	*	1	0.5
	3rd	113	20-59	29.0	n= 46, 41%	*	*	9	8	12	11	*	*		
	Total	469	17-59	30.0	n= 187, 40%	*	*	41	9	85	18	*	*	1	0.2
Aggregate Totals		3610	17-68	27.1	n=1868, 51.7%	166	4.6	420	11.6	812	22.5	10	0.5	265	7.3

* = unable to supply data

Table 3: Aggregate demographic profile of undergraduate nursing students as at census 31st March 2006 Queensland and South Australia

Aggregate Total	Age			Enrolled Nurses		Male		Part-time enrolments		Indigenous students		International students	
	Range	Mean	<25 years	n	%	n	%	n	%	n	%	n	%
7365	17-68	26.9	n=3763, 51%	321	4.8	935	12.7	1117	16	74	1	534	8

Retrospective data on enrolments and attrition in Queensland 2003 -2005

Table 4 outlines the aggregate enrolments in undergraduate university programs for Queensland universities as of census date in 2003: the corresponding aggregate graduates presented by each university to the Queensland Nursing Council in December 2005 and estimated program attrition over the three years.

There is a wide range in attrition rates between the universities: 9.7%-41.8%, however it needs to be acknowledged that these figures may not reflect a true picture of current attrition rates. For example, these figures do not take into consideration movement of students between universities and courses, and it would be prudent therefore to account for transfer students or entries from other courses in future

analysis to gain a more accurate attrition figure, if possible.

Transfer students might partly explain the high attrition rates attributed to the regional universities as co-authors anecdotally report students often transfer from regional to metropolitan universities after their first year. In addition, some universities might have a high attrition in the first year but supplement this with second year entry level students from either enrolled nursing programs, transfer students from other undergraduate programs or a graduate entry level option.

The state average aggregate total of 24.5% is consistent with previous Australian attrition figures found in a recent systematic review conducted that examined studies using attrition rates as an outcome measure (Gaynor et al 2006).

Table 4: Retrospective estimate of attrition in undergraduate pre-registration nursing programs from Queensland universities January 2003 - December 2005

University	Aggregate first year enrolments March 2003 ¹	Aggregate graduates December 2005 ²	Estimated Attrition over 3 year program
Australian Catholic University	72	61	15.30%
Central Queensland University	220	128	41.80%
Griffith University	340	307	9.70%
James Cook University	198	138	30.30%
Queensland University of Technology	310	248	20.00%
University of Queensland	N/A program commenced in 2004		
University of Southern Queensland	241	161	33.20%
Total	1381	1043	24.50%

¹ Based on census 31.03.03 QTAC statistical reports of university enrolments

² Based on eligible graduand lists provided by each university to QNC

DISCUSSION

Maintaining an adequate supply of nurses within the workforce is partly a function of the number of nursing students completing undergraduate programs (Ogle et al 2001). It is therefore vital that key stakeholders are aware of the demographic profile of contemporary nursing student populations and can quantify attrition rates of programs in order to take these issues into consideration for workforce planning.

Quantifying and building a demographic database of the future nursing workforce provides an evidence

base for estimating attrition and graduate retention and systematically tracking trends in changing demographics and career plans that impact on workforce planning.

There is a lack of data gathered routinely by state regulatory authorities and national nursing organisations to determine actual figures for attrition in undergraduate programs and graduate outcomes. Attrition should be considered as an important outcome of program evaluation by both universities and regulatory authorities accrediting and monitoring

programs. Apart from educational evaluation purposes, it is essential for workforce planning. The Council of Deans of Medicine in Australia (CDAMS) have recognised this need and have established in recent years a Medical Outcomes project (CDAMS 2006). The project aims to establish a national minimum dataset of all newly enrolled first year medical graduates in Australian universities to assess demographic trends over time and career choices to inform workforce planning, particularly in specialty areas. The nursing profession as a matter of urgency should establish a similar approach. Nursing needs to monitor trends over time, changes, assess attrition and provide data to inform appropriate numbers of undergraduate funded places.

While attrition rates for undergraduate nursing programs may be calculated and used internally within individual universities, this data is not always made publicly available. For the purpose of this study, the reasons for gathering minimum datasets on first year nursing students is the same as the underlying principles of the CDAMS project - to begin to develop an evidence-base that will enable key stakeholders to design appropriate workforce planning measures to meet future nursing workforce requirements.

The authors acknowledge that there are limitations of data matching the QTAC and QNC data as this does not account for movements in and out of pre-registration programs during the three years. This data is not detailed enough to account for part-time enrolments, graduate entry, enrolled nurses who might commence in second year, international overseas nurses fast-tracking, transfers between universities, and dual degree enrolments. All these possibilities of different types of students enrolled that may complete the program in less or more than three years are included in both the aggregate enrolment and graduand figures. Whilst the figures are not perfect estimates they provide some insight into aggregate state-based numbers going in to Queensland pre-registration courses in one year and graduating three years later.

The university data presented in this paper is cross-sectional and will form baseline data for a

subsequent prospective analysis of attrition across year levels within undergraduate programs over the next few years.

CONCLUSION

There is a paucity of collated and published evidence that captures a demographic picture of our future nursing workforce; attrition within undergraduate nursing programs; and graduate outcomes. Understanding the factors that impact on this population is central to ensuring appropriate workforce planning strategies. Systematically tracking undergraduate and newly graduated nurses by establishing a minimum demographic dataset on all Australian undergraduate nursing students will facilitate the development of an evidence-base to inform appropriate future workforce planning policies.

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Working in an overcrowded accident and emergency department: nurses' narratives

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KEY WORDS

accident and emergency, overcrowding, access block, burn-out, caring, powerlessness

ABSTRACT

Aim

The aim of this study was to highlight nursing issues associated with overcrowding (or access block) in the Accident and Emergency (A&E) department.

Design

An interpretive phenomenological approach was adopted, with the utilisation of unstructured interviews.

Setting

The A&E department of a general hospital situated in the West of Ireland.

Participants

Eleven nurses working in the A&E department volunteered to be interviewed.

Findings

Three central themes, with inter-related sub-themes, emerged from the data. The central themes identified were: lack of space, elusive care, and powerlessness, with sub-themes being health and safety issues, infection control issues, poor service delivery, lack of respect/dignity, nurses hovering, unmet basic human needs, not feeling valued, moral distress, and stress/burnout.

Conclusions

The nurses in this study provide a distressing picture of nursing in an A&E department, as they pursue the provision of effective, holistic care of patients in overcrowded conditions.

INTRODUCTION

Overcrowding and its associated problems have been highlighted since the late 1980s (Ardagh and Richardson 2004). The problem reflects an international trend, with commentary from Ireland (Department of Health and Children 2005), New Zealand (Richardson et al 2002), United States (Trzeciak and Rivers 2003), Canada (CAEP and NENA 2001), and Australia (Fatovich 2002).

Overcrowded emergency departments are portrayed as a high risk environment for medical errors and pose a threat for patient safety (Gorden et al 2001). In an effort to manage overcrowding, the Irish Health Service Executive recommends that no patient is to wait for more than 24 hours in an A&E department for admission; no A&E department is to have more than 10 patients waiting for admission; and while awaiting admission, patients will be guaranteed privacy and dignity (Health Service Executive 2006). In Australia, Fatovich et al (2005) reported that improving inpatient flow is the most likely intervention to directly reduce access block. Access block refers to “the situation where patients in the emergency department (ED) requiring inpatient care are unable to gain access to appropriate hospital beds within a reasonable time frame” (Fatovich et al 2005 p.351).

Specific measures aimed at addressing the issue of overcrowding in A&E departments have proven successful in the United Kingdom. In 2002, Sir George Alberti was appointed as National Clinical Director for Emergency Access, and given the responsibility for overseeing the implementation of the Reforming Emergency Care strategy. The Reforming Emergency Care strategy aim is that the patient’s experience of emergency care is represented by shorter waiting times, with few if any waiting more than four hours from A&E arrival to admission, transfer or discharge; quicker ambulance response times with better training and equipment; more primary care based services for minor ailments; and finally, better integration within emergency and critical care (Hughes 2004). Others, too, report some success in

projects to manage operational delays in emergency departments (Bartlett et al 2002).

METHODOLOGY AND METHODS

The philosophical views of Heidegger provided guidance for the study’s methodology. Research guided by Heideggerian phenomenology is focused on ontological issues about what it means to be a person (Walters 1995). A purposive sample of 11 A&E nurses working in the A&E department of a regional hospital in the West of Ireland, participated in the study. The nurses had between two and 20 years experience of emergency nursing, and all grades of staff were included to obtain rich data. Approval was sought and granted from the hospital’s ethics committee to undertake the study. Recruitment of participants was achieved through displaying an information leaflet on the nursing notice board in the A&E department, explaining study details, and requesting volunteers willing to be interviewed to contact the first author. Because the first author was well known to nurses in the department, a concern was the possibility that nurses might feel obliged to agree to be interviewed if they were approached. Therefore the volunteering approach was deemed appropriate. All eleven participants provided written consent.

Initial sampling decisions were purposive, that is, the selection of participants was made on the basis of their ability to provide significant data about the area under inquiry. However it was decided to also interview three nurses who had recently left the A&E department. These three nurses all volunteered at the beginning of the study, but it was initially decided against including them in data collection since they had already left the department. However, data emerging during the early interviews revealed that overcrowding in the A&E department had contributed to the attrition of A&E nurses in other hospitals. Therefore it was decided to include these three participants based on their experience of emergency nursing and to explore if overcrowding was a contributing factor in their decision to leave the A&E department. Evidence of the qualitative

researcher as bricoleur is therefore also evident in the study. According to Weinstein and Weinstein (1991), "...the *bricoleur* is practical and gets the job done" (p.161). Moreover, it is argued that the notion of researcher as a bricoleur may be a way of enlarging the landscape of the researcher's inquiry, offering a deeper and more comprehensive picture (Tobin and Begley 2004).

It was decided to use unstructured interviews, since the research method for this study is in keeping with the views of Heidegger and his position that the method should be uniquely suited to the particular question (Racher 2003). The first author conducted all the interviews and posed the following opening question to the study participants: "Can you tell me how you experience nursing in an overcrowded A&E department?"

With regard to the study's dependability, narrative studies do not have formal methods of reliability (Polkinghorne 1988). Instead, they "rely on the details of their procedures for procuring the best possible information, which evokes a sense of trustworthiness for the validity of the information used for study"

(Eberhart and Pieper 1994 p.46). Credibility was pursued by the first author maintaining a journal of experiences during interviewing and data analysis. Moreover each study participant was asked to confirm the interpreted findings. In addition, an external peer review was obtained from an experienced nurse researcher, based in New Zealand, with extensive emergency nursing experience, who validated the study findings.

Colaizzi's (1978) framework of seven procedural steps was used in the data analysis. Although some authors suggest this framework is usually used in descriptive phenomenology (Cohen and Omery 1994), this framework is also suitable for a study utilising a Heideggerian phenomenological framework (Flemming et al 2003).

FINDINGS

Three themes with sub-themes emerged from the nurses' narratives (table 1). The nurses' narratives revealed that these themes overlapped and impacted reciprocally on each other.

Table 1: Themes and sub themes arising from nurses' narratives

Themes	Lack of space	Elusive care	Powerlessness
Sub themes	Poor service delivery	Lack of respect/dignity	Not feeling valued
	Health and safety	Unmet basic human needs	Moral distress
	Infection control issues	Hovering	Stress/burnout

Theme: Lack of space

All the study participants clearly reflected lack of space in the emergency department, as a major obstacle to service delivery, patient care, health and safety, and infection control. This is clearly articulated in the narrative of Nurse (4) below.

Nurse 4: *"The building wasn't designed when it was planned however many years ago; it wasn't designed to cater for people on trolleys. It was designed as a working Casualty Department with a minor and a majors area, and as it happens all our overnight*

stays, we try and accommodate them in the minor department, which therefore leaves us with reduced space for the doctors to see their patients which in turn causes longer delays for the patients that are waiting... Also we feel when the emergencies come in, sometimes number one their route is blocked, their actual way in to get into the department sometimes can be blocked because trolleys are put in every conceivable space available".

The Emergency Department is not designed nor has the facilities to nurse patients for long periods

of time. The issues of infection control, and health and safety within the emergency department are articulated by Nurse (3).

Nurse 3: *"If you have two or three patients bundled into where there should only be a couple of patients then the facilities are being stretched. That surely is not right. And again you have people in a hurry to get things done and you know hand washing goes out the window in some instances. Health and safety issues, if there was a fire, God forbid and if there was a cardiac arrest and you had to push other patients out of the way to get to that patient who might be, as I said before sharing oxygen and suction".*

Theme: Elusive care

In an overcrowded emergency department, there is an illusion of nursing care being provided to patients, which in reality is not the case. This is reflected in the narratives of the participants below.

Nurse (7) articulates emotionally a situation that highlights the dilemma for nursing staff in trying to ensure respect, dignity, privacy, and care for an elderly patient and her family in her final hours of life in an overcrowded emergency department. The nursing care provided for this patient was of good quality. However it was the environment where the care was carried out that compromised holistic care for the patient and her family.

Nurse 7: *"An incident that comes to mind is of a very elderly lady who came in, who you didn't have to be an Einstein to look at to know that this lady was dying and she was put on a trolley. Now she was given the privacy of taking up one of the cubicles that were to be used for the ordinary everyday patients that would be coming through the A&E. That was about four o'clock in the morning and by nine o'clock we knew that lady was dying and something as basic as a comfortable bed, privacy, her family able to be around her, quietness, just the simple peace and quiet of your family being able to sit comfortably around you with no noises, all that was denied to that woman and her family. She was in cubicle one, the major side, busy department, nine o'clock, public coming through, staff coming on duty and that to me*

is what that woman's last sounds were; racket, public racket coming through. She didn't even have the sort of decency of a quiet peaceful death and her family crying, looking helplessly at us. I felt so helpless that day and I remember thinking to myself I don't think, I don't think things can get much worse or I don't think I have ever felt so helpless you know".

The sense of frustration that nurses feel in failing to provide quality care and their empathy for patients' lack of privacy and dignity is also reflected by the narratives below.

Nurse 1: *"I am sure they [patients] must sometimes look at the staff and say you know, why don't people spend a bit more time with me. Everything is so rushed when your overcrowded, because you are trying to get people through the system as fast as you can...Nursing was always the role, the one that had the time to talk to the patient, the one that spent a lot of time with the patient, And you were there to pick up the pieces and certainly that's not a role we are performing any more".*

Nurse 2: *"You feel a lot of empathy for the patients on trolleys because they have no space, they have no dignity, they have no privacy...The patients on trolleys themselves they can't eat properly and they are not given a choice of their dietary foods or they are not given the opportunity to be free enough to walk around the Department, have visitors come and see them and it is just, it is not an appropriate environment for them. They have no space, no time. They see resuscitation [teams] moving, they see teams running past them, they are hearing children crying and they see a lot of sadness".*

Theme: Powerlessness

The study participants expressed feelings of frustration, anger, not being valued, and stressed, and all felt powerless in their role as nurses in a working environment which they felt has become an accepted norm.

The three participants, who had taken the decision to leave the A&E department, eloquently expressed their frustration at working in this difficult situation.

Nurse 11: *"I have witnessed people sob quietly to themselves when they thought no one was looking. People who withdraw into themselves to protect themselves when from the chaotic environment that has been forced upon them because they became sick... In my own case I just couldn't endure the hardship that patients now have to endure. The feelings I had at the end of my shift that I hadn't done enough, even though I'd be worn out trying... At least now I can give my patients the time and consideration that they need and deserve".*

Nurse 9: *"You were always playing catch up, always dealing with the same problems, no solutions. For me I was always aware of these conditions for both staff and the patient. I did not want to continue working in an environment that was unhealthy."*

Nurse 8: *"You just felt you were sailing the ship alone literally [laughs]. Ah you would feel very demoralised. Because you know you wouldn't have felt that you had done your best for the day or given your best to people. Well I just feel that you, I just would rather not be there at all if I couldn't do the job that I wanted to do, you know".*

The study narratives reveal the difficulties for nurses working in overcrowded emergency departments. However because all the participants were female, the potential of gender bias is strongly evident. The perspective of male A&E nurses on this phenomenon may have resulted in different experiences. Moreover, the methodological weaknesses of studying one particular group of nurses are obvious, since not all nurses will associate with the experiences revealed here.

DISCUSSION

The aim of this study was to highlight nursing issues associated with overcrowding in the A&E department. All the participants revealed lack of space as a significant barrier to the nursing role in the department. Anxiety, stress, fear, frustration, a poor sense of safety and security are just some of the aspects influenced by the physical environment. These factors all play a part in motivating quality and productivity in the functioning of the hospital staff

(Carver 1990). However Carver further contends that hospital staff adapt to their environment, learn to live with the problem and fit their patient care around the problems. This would appear relevant to nurses working in an overcrowded emergency department where nurses are continually moving patients and trolleys in and out of cubicles to enhance the functioning of the department and allowing new patients to be assessed and treated.

Care as context dependent, is evident in Byrne and Heyman's (1997) study which explored A&E nurses' perceptions of their work. They found that understanding how nurses in A&E interpreted their role was fundamental to understanding how they organised their work and interrelated with patients. These nurses saw their work as one that was mainly concerned with providing urgent physical care. Holistic individualised care was seen as being idealistic, and nurses often felt pressurised to complete tasks. When the department was busy, 'popping in' on patients was identified as one way of signifying to patients they had not been forgotten. A central theme was defined as 'keeping the department running smoothly'. The nurses felt it was important to give psychological support to patients, but that moving the patients through the department swiftly was a more pressing aim (Byrne and Heyman 1997).

All of the participants in this current study expressed that 'overnight stay' patients had unmet basic human needs while being nursed in the emergency department. This alludes to lack of privacy, dignity/respect, hygiene facilities, and space. Respecting privacy is a vital part of holistic care and meeting individual needs. Privacy in the hospital setting is considered broadly, to possibly include, the right to enjoy one's property, the right to safeguard the confidentiality of one's medical and personal information, the right to receive treatment with dignity during intimate care, and the right to control one's individual space and territory (Woogara 2001). Back and Wikbald (1998) reported that patients demonstrate a high preference for having access to a locked cupboard to keep their personal belongings

safe. This is very relevant to patients nursed on trolleys in an overcrowded emergency department, where they do not have access to their own space, to lockers, or to the normal ward environment that was their expectation on being admitted to the hospital. The provision of a bed in the health service means more than simply a physical structure. It implies an attempt to meet the total needs of the patient's period of care. Included in this, is a fitting environment where the patient's dignity, privacy, and family needs are safeguarded (Di Biasio and McClelland 2001).

The nurses in this study reveal their experience of moral conflict since they are unable to carry out their role due to factors beyond their control. As most patients are vulnerable, they need protection as well as skilled and appropriate care. Yet nurses may not always be able to protect patients or supply all their care needs, for a multiplicity of reasons. When the professional goals of nurses are hindered, they suffer moral distress (Corley 2002). Moral distress arises when one must act in a way that opposes personal beliefs and values. It is uneasiness about not doing all that one could do to satisfy one's moral obligation (Kelly 1998), and occurs when one knows what to do in a particular situation but is impeded by constraints (Jameton 1993). Moreover, Rodney and Strazomski (1993) contend that unresolved moral conflicts can lead to a reduction in quality of care and create burnout, with caregivers leaving their jobs.

In conclusion, the nurses' narratives reveal a rich, if somewhat, disturbing, interpretation of their experience of nursing in an overcrowded A&E department. The central issues of lack of space, a feeling of powerlessness and the inability to deliver quality care to patients, contribute to moral distress and burnout among nurses.

RECOMMENDATIONS

If the delivery of patient focused quality care in the A&E department is to be achieved, it is imperative that nurses are listened to, their expertise acknowledged and they are involved in the decision-making process. Nurse managers play a central role with regard to supporting A&E nurses performing their role in a

climate created by factors beyond their control. The issues and difficulties associated with overcrowding in the emergency department are complex and multifaceted and it is imperative that A&E nurses, at constant risk of moral and emotional distress, are not forgotten in strategic attempts to manage this issue.

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Evaluating the Family Partnership Model (FPM) program and implementation in practice in New South Wales, Australia

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KEY WORDS

family partnership model, program evaluation, child and family health, relationship

ABSTRACT

Objective

This study investigates participants' experiences of implementing and educating colleagues in the Family Partnership Model (FPM).

Design

Qualitative research approaches using content analysis.

Setting

NSW child and family health services.

Subjects

Seven child and family health professionals.

Intervention

Implementation of the FPM facilitators education program to develop the competence of participants as FPM facilitators.

Main Outcome

Findings from this study identify that the FPM built on and extended existing knowledge and was relevant and useful to clinical practice. Further, the FPM's value is evident in participants' positive comments about it and their ability to successfully implement it in their practice and educate and encourage colleagues to do the same.

Conclusions

The study has identified that the sustainability of FPM program and implementation depends on adequate support for practitioners/facilitators, and the commitment of resources to this process overall.

INTRODUCTION

The importance of promoting positive family and community experiences for young children during the earliest years of childhood has been confirmed by growing evidence from a diverse array of disciplines (Heckman 2006; McCain and Mustard 1999; Karoly et al 1998). In recent years health professionals have recognised that a critical factor underpinning successful interventions with parents of young children is their capacity to promote and support a positive parent-child relationship through a partnership approach (Fowler et al 2002). This shift in approach from the more prescriptive expert model of interaction to a partnership model is well supported by research findings and reflections on clinical practice (Gottlieb and Feeley 2005; Day and Davis 2003; Graybeal 2001).

On the basis of this evidence about the importance of the early childhood years, the New South Wales (NSW) Government introduced its Families First Initiative in 1998, to support parents and enhance their parenting skills before parenting challenges developed into problems resulting in significant family dysfunction (The Office of Children and Young People 1999). The emphasis on nurse home visiting for parents with newborns in this initiative made it timely that education in a model such as the Parent Advisor Model (termed the Family Partnership Model (FPM) in Australia) be made available to the State's health professionals, particularly child and family health nurses. This model emphasises the need to adopt a facilitative role when assisting parents and enabling them to extend their problem solving abilities, self-esteem, self-efficacy and interactions with their children, thereby fostering parental development and well-being (Davis et al 2002a). The NSW Health Department had demonstrated significant commitment to supporting families by allocating funds to the education component of the FPM, in particular for child and family health nurses and midwives.

Issues relating to staff education in the FPM, implementing this model, and evaluating both

processes, were discussed during planning meetings and considered essential to ensuring the translation of the model into the context of NSW Child and Family Health Services. This paper's researchers and authors were members of this committee and obtained a grant to conduct an evaluation study of the first FPM facilitators' education program offered to 16 community child health professionals in NSW to investigate their experiences of implementing the FPM in their practice and educating colleagues in this model. This paper will briefly describe the FPM and report on the qualitative component of this 18 month follow up study of the outcome of the first FPM facilitators' education program within NSW.

LITERATURE REVIEW

Early intervention programs have been identified as a crucial component in assisting to improve the health and life chances of children who are identified as 'at risk' (Heckman 2006). For example McCain and Mustard (1999) and Karoly et al (1998) identified the critical nature of stimulating interaction between adults and children for brain development. Further, McCain and Mustard's (1999) research highlighted the lasting impact of the quality of children's experiences on the shaping of brain cell connections, found to be vital in a child's attainment of developmental milestones. Nevertheless, Wilson (2002) raises concerns that to focus only on the importance of brain development and parenting will alienate many families unless there is a shift from the negative approaches to working with parents and systems change occurs to reduce such risk factors such as poverty and lack of access to services.

As this and other evidence on early intervention has been disseminated, governments have taken notice developing new policies and supporting initiatives. Numerous international programs have sought to provide early intervention for families and their young children who have been identified as 'vulnerable' or at 'high risk'. These programs include the Head Start program (Fish 2002; Karoly et al 1998; Zigler and Muenchow 1992) and Elmira Antenatal/Preschool program (Fish 2002; Olds et al 1997; Olds et al 1986)

in the USA and the English Sure Start (Department for Education and Skills 2004; National Evaluation of Sure Start 2004).

A foundation premise for many of these early intervention parenting programs is the use of a partnership model to identify, recognise, and use parent strengths (Astride-Stirling et al 2001; Graybeal 2001). One such model is the FPM that has been implemented by nurses in the United Kingdom (Bidmead and Cowley 2005) and Australia. Kemp et al (2005) in her review of the competencies required for sustained nurse home visiting found that the nurse needed the ability to sustain long-term relationships with his/her clients. The challenge for these nurses lay in maintaining a belief in the parent's strengths and abilities, and negotiating and problem-solving rather than imposing priorities and solutions (Kemp et al 2005).

THE STUDY

The study was conducted in two stages. Stage 1 was a quantitative survey of participants experience and learning in an FPM facilitators' education program and is not reported here but was used to inform the development of the Stage 2 18-month follow up study. This paper reports on Stage 2.

Aim

The aim of the study was to explore the experience of implementing the FPM facilitators' education program from the perspective of child and family health professionals, the majority being nurses.

METHODOLOGY

This follow up study conducted 18 months following completion of the facilitators' education program had two components. The first was a follow-up survey of participants (n=7 completed surveys). The second component was the completion of reports about participants' experiences of the FPM implementation.

This paper focuses on the qualitative findings from the follow up component of the study at 18 months, while also presenting findings relating to the yes/no options associated with some qualitative questions.

Participants

A committee convened to facilitate the introduction of the FPM in NSW selected a multidisciplinary group to participate in the first facilitators' education program. This process resulted in a multidisciplinary group of 16 participants from NSW Area Health Services committed to implementing the FPM. The participants were required to participate in the facilitators' education program and commit to implementing the model in their workplace.

The 16 participants comprising two social workers, a medical doctor and 13 senior clinical Community Child and Family Health nurses, completed the study's Stage 1 pre and post program surveys in October 2002 prior to the commencement of this study. In order to recruit participants for the follow up study, an information letter and consent form was posted to each of the 16 facilitator program participants. Seven of the original 16 facilitator program participants consented to participate in the follow up study.

Ethical considerations

Ethics clearance for the study was obtained from the appropriate university and health service committees. Participation in the study was voluntary and consent comprised written consent following receipt of an information letter detailing the study methods.

Data collection

A copy of the follow up survey was forwarded to participants prior to the research assistant (RA) administering it by telephone. This enabled participants to review the questions prior to responding to them. One participant completed and returned her survey before it could be administered by telephone.

When posting the follow up survey for participants to review, the RA also included a form titled 'My experience relating to the Family Partnership Model' on which participants were asked to document their experiences of implementing the FPM. The provision of a stamped addressed envelope enabled the return of this form. Responses on completed forms were analysed and are presented in the findings section of this report.

Both the follow up data collection tools allowed the research team to capture data that enabled an overall picture of facilitator program participants' experiences of implementing the FPM in their workplaces.

Data analysis

Qualitative content analysis was used to structure qualitative data emerging from the follow up qualitative questions. This process involved reading and re-reading each open ended question to develop themes which emerged from participants' responses (Brink and Wood 1994). A number of responses to the qualitative questions reflected more than one theme. Frequencies were analysed in yes/no responses associated with some qualitative questions in the

follow up survey. Four 'my experience...' forms were returned and qualitative content analysis was used to analyse data emerging from these responses.

FINDINGS

The study's findings are presented in two parts; findings from the follow up survey, and findings from participants' experiences of implementing the FPM in their workplaces. Findings are identified according to the themes (identified in italics) detected in data, with each theme (where one could be identified) being illustrated by an example of one or more quotations. Frequencies identified in yes/no responses sought in association with some qualitative questions in the follow up survey are identified in figure 1 alongside the questions to which they relate.

Figure 1: Stage 2 survey questions and findings in yes/no responses

Question No.	Questions
Q.1	Has the Family Partnership Model required you to change your preferred communication style which you use with families who have young children? Yes: 4; No: 2; Comment only (Co): 1
Q.2	Does the Family Partnership Model challenge you in any way? Yes: 5; Yes and No*:1; Co: 1
Q.3	Do you think that there have been any changes in your practice or the way you think about your practice (or both) since you attended the FPM facilitator training in October 2002? Yes: 5; No: 1; Co: 1
Q.4	What support (if any) have you received to assist you to implement the FPM into your practice? (see qualitative responses in text below)
Q.5	What other support mechanisms would have assisted you to implement the FPM into your practice? (see qualitative responses in text below)
Q.6	Do you consider that you have implemented the FPM in your practice? Yes: 5; Co: 2
Q.7	Do you think this has impacted on your working relationships with families with whom you work? Yes: 4; Co: 3
Q.8	Have you developed any new professional qualities since you attended the FPM facilitators program in October, 2002? Yes: 1; 'I suppose': 4; Co: 2
Q.9	Are there any additional professional qualities or skills that you need to develop and/or enhance in order to implement or utilise the FPM? Yes: 3; No: 3; Co: 1
Q.10	Has the FPM model enabled you to enhance your communication with colleagues? Yes: 6; No: 1
Q.11	Have you educated any of your colleagues in the FPM since you attended the FPM facilitators program in October 2002? Yes: 7
Q.12	Are there any other comments you would like to make about the FPM or its impact on your practice with the families for whom you provide care? (see qualitative responses in text below)

*On occasions participants adjusted the 'yes/no' choices

Findings from the follow up survey

The follow up telephone survey identified the experiences of the participants since completion of the facilitators program. Survey questions and participants' responses to the findings from the yes/no options associated with these questions are identified in figure 1.

The first of these questions revealed that rather than changing their preferred communication style the experience of implementing the FPM had *Affirmed/reinforced/refreshed existing communication styles*: the title of the first theme emerging from responses. One participant's response that: "As a mental health nurse I already work in partnership with my clients but the course revisited the model for me and re-affirmed the importance of working in this way", illustrates this theme. The second theme: *Changes in communication style*, revealed these changes not only related to communication with parents but also with colleagues. For example one respondent said: "...at times when tension is high or you're dealing with a difficult colleague, you can find yourself being defensive and attacking or undermining so you need to pull back and work in a respectful manner with colleagues".

When asked whether the FPM challenged respondents in any ways, participants generally agreed that the model did challenge them and several described how it: *Challenged attitudes and behaviours*, the theme emerging from responses. For example, one respondent identified how: "It (the FPM) challenges you to work in that model with the clients and requires you to change everything that you do to fit the model. It's also a challenge to apply the model to other parts of my working life, where it's a new concept".

Along with these challenges most participants identified that the FPM had resulted in: *Changes in Practice*. Illustrating this theme one participant responded: "I am much more reflective. I feel I communicate more clearly and get more results". While most participants identified that, in terms of support to implement the FPM, they had experienced: *Supportive management*, some noted this applied only to some managers and not others.

However in responses to the question about what support would have assisted participants in implement the FPM two themes were detectable in responses: *Clinical Supervision and Peer Consultation*. Most participants nevertheless identified that they perceived they had managed to implement the model in their practice since completing the facilitators program although they held diverse views about how the model had impacted on their working relationship with families.

Some participants appeared cautious about whether they had developed new professional qualities since attending the facilitators program, with the theme emerging from participants' responses to the question relating to this topic revealing that this development had largely: *Increased knowledge of 'training'/group skills*. Reflecting this theme one respondent commented: "I've become more skilled as a trainer. I'm much more skilled at running training programs. I've realized that I don't have to come in as the expert ... the groups run more smoothly in this way".

The survey found that all participants had implemented the FPM program for their colleagues since undertaking the facilitators program and concluding comments provided by four survey respondents were all positive, including that: "It's a good model, and I know it works, so I'm quite enthusiastic about it and sharing it with others...".

Findings from 'My experience with the FPM' forms

Four completed forms were returned, one of which largely comprised details of the number of colleagues educated in the FPM. Figure two identifies the key themes that emerged from the responses documented by facilitators' program participants on these forms.

Three of the study's participants suggested that the FPM, both the education program relating to it and the implementation of the model in practice, had been challenging, rewarding, valuable and/or refreshing. Participants' positive comments included that the model had enhanced the skills of colleagues whom they had educated in the FPM since attending the

facilitators program, and impacted positively on these colleagues' practice.

Another participant commented that: "The power and impact of the (FPM) training should not be underestimated and therefore the integrity needs to be upheld", with other participants attributing changes in approaches to staff and colleagues, as well as practice changes, to the FPM program.

On a less positive note, participants identified the significant time commitment required to organise and implement the FPM education program for colleagues. However, participants also noted that many of these colleagues had voiced a dislike for 'homework' relating to the FPM education program,

as well as feelings of being 'deskilled' during the program's initial phases. Some participants highlighted that this commitment related to the lengthy period required for colleagues to be away from their workplace to attend the FPM education programs and the difficulty in ensuring they could be released from their usual workload. Others identified that the "organisational logistics (for conducting the education) were time consuming", especially given this had to be achieved as an extension of participants' existing roles. Some participants also identified that facilitating these education programs was "...draining and required the opportunity to debrief after each day with a co-facilitator".

Figure 2: Themes identified in completed 'My Experience with FPM' forms

- 1: Participants' (in the facilitators program) experiences with the course.
- 2: Comments from study participants' colleagues relating to FPM education courses they subsequently conducted in their work context.
- 3: Changes in staff/practice attributed to FPM.
- 4: Application of the FPM in practice.
- 5: Time consuming element in educating others and in organisation of FPM education programs.
- 6: Negative aspects of the course/providing FPM education programs.

DISCUSSION

Findings from this study indicated that the FPM provides a tool for working with parents in a facilitative role, and more especially, that it provides them with a problem management framework based on a strong conception of partnership, and skills to put such a framework into operation (Barlow et al 2003).

The follow up survey conducted 18 months after the initial facilitators program was completed, yielded responses about affirmation and consolidation of participants' practice with parents. For example, six of the seven participants in the survey identified that the FPM had enhanced their communication style, indicating this had become more open and of a 'listening' nature, reflecting some of the FPM goals. In addition, most participants identified the FPM as challenging to themselves, and their practice. Interestingly in this follow up survey there were 12 mentions of changes in practice or the

way participants think about their practice. These changes included positive changes in relationships with families and/or colleagues and in communication with both. From these findings it appears that while immediate responses to the facilitators program largely revealed that participants perceived this to have built on existing skills, implementation of the FPM, and facilitating the education of others in the FPM, appears, as Davis and Rushton (1991) found, to have resulted in positive changes in practice. Nevertheless, the finding in this study that the FPM had had a positive impact on peer relationships appears not to have been previously identified.

Despite varying levels of support from management, five of the seven respondents to the follow up survey perceived they had implemented the FPM model in their practice, and one 'thought' that she had achieved this. A further feature of the responses was that although support so far received had

enabled participants to educate others in the model, as facilitators of this education they had received little or no support, and hence their emphasis on their need for Clinical Supervision, preferably from someone familiar with the FPM model. Davis and Spurr (1998) also identify the need for regular supervision of those educated in the FPM and working in specialist contexts. It is suggested as a result of the study reported here that findings reveal this need to be so important, that although participants had achieved educating a large number of colleagues in the FPM, this is unlikely to continue if support for these facilitators is not forthcoming.

Participants who completed a 'My experience...' form revealed some difficulties experienced by those who participants had educated in the FPM, including that they found the 'homework' related to this irksome, and that, given difficulties in achieving staff release to attend the program and the extensive distances some had to travel to obtain it, the program needed to be condensed and delivered over a shorter time frame.

The follow up survey and the 'My experience...', descriptions all concluded with several very positive comments about the FPM. These included that this model should be integral to the practice of health professionals working with families and children, and that the FPM is "the only way to go" and that "it's a good model, and I know it works..."

CONCLUSION

Although limitations of this study included that it evaluated only 7 participants' experiences of educating others in the model and implementing the model in practice, the opportunity to survey these participants 18 months following this initial education program enabled an evaluation of its impact in relation to each of these factors over the longer term. Findings from this study identify that participants found the FPM built on and extended their existing knowledge and was relevant and useful to their practice. Further, the FPM's value is evident in participants' positive comments about it and their ability to successfully implement it in their

practice and educate and encourage colleagues to do the same.

Nevertheless, the study also identified that the sustainability of the FPM program and implementation depends on adequate support for practitioners/facilitators, and the commitment of resources to this process overall. Despite this, the study's recommendations include that the FPM be endorsed as a framework for health professionals practice with families and children, and that education about the FPM be made available to all professionals engaged in health care delivery to this group of clients.

Since the study's completion significant progress has been made in implementing its recommendation in that NSW Health has adopted the FPM as a component of the core skills required for child and family health nurses working in this State, and education in the model is ongoing for these nurses.

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Can I do everything? time management in neonatal unit

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ABSTRACT

This paper presents the findings of a study which explored the lived experience of 'managed time' for new graduate nurses working in a neonatal unit in the public health system in Australia. Information was collected through conducting in-depth focused interviews with six nurses. The data generated was analysed using Colaizzi's (1978) method of data analysis. Five themes emerged including: knowing, planning, support, fulfilment, adapting and being flexible. These exhaustive themes were integrated into a fundamental structure of 'managed time'. The findings of this study have revealed detailed insight into the phenomenon of managed time for new graduate nurses working in a neonatal unit.

INTRODUCTION

Interest in the lived experience of 'managed time' by new graduate nurses working in a neonatal unit in a public hospital in Australia was first stimulated through the personal experience of the author while working as a new graduate nurse in this setting. Neonatal units provide care to acutely ill newborn infants and the role of the nurse is to provide expert and complex care to these infants and their families at times of great uncertainty and complexity. Throughout the graduate nurse year the author became aware of many challenges facing new graduates – culture shock manifested by competing value systems; unfulfilled hopeful anticipation; professional socialisation; and discontent (Kramer 1974). Another challenge that appeared to be a recurring theme is that of managed time. For new graduate nurses working in a neonatal unit, managed time can be even more challenging due to factors such as the age and acuity of the patient population.

There is no doubt that the graduate nurse year is highly stressful and also that the neonatal unit is a demanding working environment. The unique stressors encountered in this environment are generally acknowledged, however there is a lack of clear understanding as to how this is experienced by the individual graduate nurse working on a day-to-day basis. It was this area that the research explored, directed by the question: What is the experience of managed time for new graduate nurses working in a neonatal unit?

While discussion of the background to this study is an important element in setting up the framework for the study, it is also important to examine the study's core concept: managed time and graduate nurses working in a neonatal unit. A brief review of these two key concepts is provided as a means of assisting the reader in acquiring a contextual understanding of the phenomenon.

Overview of the phenomena of managed time

When most people think of time, it is usually in the context of 'What time is it?' or 'There is not enough time to do everything'. Philosophers have

argued 'What is time?' for many centuries. Some philosophers talk about physical time and psychological time; the order of time, whether it is circular or linear or whether it is related to events or consciousness or reality. The agreement on time order suggests time is an objective phenomenon not dependent on being consciously experienced.

Time is an abstract finite noun and according to Grohar-Murray and DiCroce (2003) people hold differing concepts of time, hence a specific definition is unachievable for the purpose of this study. However some principles that facilitate the best use of time will be discussed. Claborn and Zerwekh (2000) state that time cannot be altered or created, instead "we can alter the choices we make in how we use time" (p.198).

McLaughlin (1991) defines management as "the effective utilisation of resources (both human and material) to achieve an organisation's objectives" (p.3). For the purpose of this study 'managed time' is defined as "the process of managing the things we need to do in the time that is available" (McLaughlin 1991 p.239).

The phenomenon of 'managed time' has been recognised in a variety of human service professions, including childcare, supervision and nursing. It has been identified as an important element of work for all nurses and "the factor that most affects how nurses' work, how nurses feel about their work and how their work affects patient outcomes" (Bowers et al 2001 p.485).

Consequences related to 'managed time' are potentially serious, not only for those individuals experiencing such a phenomenon, but also their clients, co-workers, families and the institution in which they are employed. Anecdotal evidence of managed time issues include deterioration in the quality of care provided, job dissatisfaction, stress and burnout, role overload and role stress.

Overview of the graduate nurse program

In Australia, graduate nurse programs are conducted in public and private hospitals, since there is

a “perceived need to support new graduates” (Victorian Government Department of Human Services 1997 p.3). It is recognised that the graduate nurse has completed the theoretical and competency requirements of the educational institution and registering authority, however, “it is assumed that a fair proportion of this knowledge remains conceptual and awaits transformation...in direct clinical experience for meaningful learning to occur” (Victorian Government Department of Human Services 1997 p.4).

This period is recognised as the transition process. The transition process refers to the “process of moving from university student to registered nurse” (Claborn and Zerwekh 2000 p.356). The term ‘reality shock’ (Kramer 1974) is a common central concept during the transition process. Although the term ‘reality shock’ (Kramer 1974) is dated, it is a seminal piece of work and is still being referred to in nursing literature, as is the work of Hamilton and Kiefer (1986) and Benner (1984), since they are still considered relevant. Reality shock describes:

“...the specific shock like reactions of new workers when they find themselves in a work situation which they have spent several years preparing for and for which they thought they were going to be prepared, and then suddenly find they are not” (Kramer 1974 p.viii).

According to Kramer (1974), it is the discovery that there is a divergence between school-bred and work-world values, which the new nurse has previously been sheltered from, that causes ‘reality shock’. Twelve years later Hamilton and Kiefer (1986) also recognise Kramer’s (1974) ‘reality shock’ as a major problem for new graduate nurses, suggesting that role problems are experienced such as role conflict, overload or discontinuity.

Benner (1984) describes the development of a new nurse as a process, from novice to expert. She states that during stage one, a novice has had no experience of situations; the behaviour of the novice is dictated by textbook rules, which tend to be limited and inflexible. Then during stage two, as an advanced beginner the new nurse can demonstrate marginally acceptable

performance. However during both stage one and two, the new nurse is unable to absorb what is happening in a situation, which means that assistance is required. Therefore to overcome ‘reality shock’ and assist in the transition process, the aim of the graduate nurse program is “to build on the undergraduate program and facilitate the transition of the graduate into clinical practice” (Victorian Government Department of Human Services 1997 p.4).

Within the program graduate nurses will have access to more experienced nurses and are provided with appropriate induction and orientation activities, peer support and mentoring. This mentoring is provided by preceptors. It is suggested that for preceptorship to be successful there should be an organised program for the preceptors, including education about the roles and responsibilities of the preceptor/preceptee, communication skills, conflict resolution, principles of adult learning, ‘reality shock’, giving and receiving feedback and performance appraisals (Victorian Government Department of Human Services 1997).

Managed time and graduate nurses working in the neonatal unit

The nature of the neonatal unit means that graduate nurses are constantly working in a high stress environment, providing expert and complex care to acutely ill infants and their families at times of great uncertainty and complexity.

Given that managed time in the neonatal unit relies on prioritising and evaluating, the unstable condition of the neonates mean that these priorities will need frequent re-evaluation. As a result graduate nurses are constantly engaged in prioritising. Prioritising firstly involves valuing. However the graduate nurse has difficulty in both valuing and prioritising, therefore graduate nurses working in the neonatal unit are at significant risk of managed time difficulties.

Significance of the proposed study

The significance of this study is as follows:

- The phenomenon of managed time is considered a significant issue of concern for all nurses,

particularly for new graduate nurses who have little or no experience, however there is a paucity of data available describing the occurrence of this phenomenon in the neonatal unit setting.

- The impact of this phenomenon is substantial as it has been identified as an important element of work for all nurses and “the factor that most affects how nurses’ work, how the nurse feels about their work and how their work affects patient outcomes” (Bowers et al 2001 p.485).
- By developing a comprehensive understanding of the individual graduate nurses’ experience of managed time in the neonatal unit, the researcher will be able to uncover new and fresh insight into this phenomenon, and how it affects the individual graduate nurse in this specialised area of professional practice.
- By locating the study within the concept of the lived experience of nurses, there is potential to challenge existing understandings of the phenomenon of managed time as experienced by graduate nurses.
- Given that the research intends to explore the phenomena of managed time, it is appropriate to use a methodology suitable to the topic. In this case the research question was guided by Colaizzi (1978) in order to understand the phenomena in a meaningful way.

RESEARCH METHOD

When considering the approach to be adopted in conducting any research it is important to consider the overall goal of the investigation as well as the motivation behind it. It also must be determined whether the research will generate understandings that will be of value to the nursing profession. For the purpose of this study, which aims to explore the lived experience of managed time for new graduate nurses working in the neonatal unit, a phenomenological approach to inquiry as described by Colaizzi (1978) was considered to be the most appropriate methodology.

Phenomenology and nursing

Phenomenology has found appeal in nursing research because it reflects values and beliefs that are coherent with nursing and allows questions to be explored that are important to nursing (Schneider et al 2003). Holloway and Wheeler (1996) suggest that “holistic perspective, coupled with the study of lived experience, provides the foundation for phenomenological research” (p.123). Furthermore, phenomenology offers a methodology that intrinsically values a holistic perspective of experience and the individual’s ability to make sense of, and reflect on, those experiences (Schneider et al 2003). Phenomenology is currently relevant to the new public health, given its emphasis on the need to both describe and understand people (Liamputtong and Ezzy 2000). In addition, the investigation of phenomena important to nursing requires that the researcher study lived experience as it presents itself in the everyday world of nursing practice, education, and administration (Streubert and Carpenter 1995).

This study involves exploring the experience of managed time for graduate nurses working in a neonatal unit. The research attributed “events, together with personal reactions to events” as a meaning for experience (Crotty 1996 p.14).

Colaizzi’s approach to phenomenology

Colaizzi’s approach to phenomenology was employed for this study (Colaizzi 1978). Colaizzi’s (1978) approach uses Husserl’s precept of “returning to the things themselves” in order to understand the phenomena. Colaizzi’s (1978) approach investigates phenomena in a meaningful way and recognises the importance of the phenomenological concept of being-in-the-world. Colaizzi’s (1978) statement “to believe that my experience doesn’t count amounts to believing that my existence doesn’t count” (p.52) is consistent with the research perspective. Colaizzi (1978) also emphasises that experience is essential to understand human psychology.

Phenomenology uses a purposeful sampling technique to select participants that have

experienced the particular phenomenon. Therefore the researcher must access appropriate participants that are available and willing to be interviewed. It is not the number of participants that is important in phenomenology but rather the wealth of information collected (Schneider et al 2003).

Participants who met the following inclusion criteria were selected for this study:

- a. Registered nurse,
- b. Undertaking a graduate nurse program,
- c. Currently working in a neonatal unit, and
- d. Willing to talk about their experience of the phenomenon under study.

As this study involved collecting data from currently employed registered nurses, ethics approval was sought from both the university and the hospital. Ethical considerations are acknowledged in nursing and also research, as they are “concerned with the protection of human and animal subjects” (Schneider et al 2003 p.129). In Australia, nurses must conform to strict ethical guidelines to ensure “research conducted is of high quality and acceptable to our communities” (Schneider et al 2003 p.130). Human rights have been outlined as follows: the right to self-determination; the right to privacy and dignity; the right to anonymity or confidentiality; the right to fair treatment, and the right to protection from discomfort and harm (Schneider et al 2003 p.130). As this study was considered low risk, the main ethical considerations included gaining informed consent and ensuring strict confidentiality was maintained.

All of Colaizzi's seven phases in the research process were adhered to. The final phase of Colaizzi's (1978) analytical process involves formulating meaning for each significant statement. During this phase, reflection on the essence of each significant statement and becoming engaged in creative insight is vital. When formulating meaning for each significant statement, it is important to be mindful of the philosophical concepts of phenomenology. These concepts were particularly important when making what Colaizzi (1978) describes as the precarious leap from what subjects say to what they mean.

The formulated meanings were then arranged into clusters of themes. This process involved identifying formulated meanings that revealed a shared or common theme. Care was taken not to ignore data or themes which did not ‘fit’.

Following clustering of themes, the research process then required integrating all the resulting ideas into exhaustive descriptions. Five exhaustive descriptions were developed. These exhaustive descriptions provided a comprehensive insight in the phenomenon of managed time as experienced by new graduate nurses working in a neonatal unit. Following are the five exhaustive descriptions developed from this research.

FINDINGS

Managed time requires knowing

When graduate nurses experienced managed time they felt it involved a sense of knowing. When these nurses did not know the clinical condition of different neonates, they felt unable to manage their time because they had to spend more time looking for information as well as learning how to care for the neonates. The nurses felt out of their depth, which caused them to feel anxious about not knowing what to do for that neonate and anxious that something would happen.

When the new graduate nurses gained knowledge, they were able to manage their time more effectively by prioritising what was important, knowing what to expect and knowing routines, which enabled them to predict. Knowing these things decreased stress and the graduate nurse was able to gain confidence and, with this, work was easier.

Managed time involves planning

Planning was essential for managed time as experienced by these new graduate nurses. Planning was used to ‘set out their day’; know ‘when you think you should be doing things’; ‘allocate time’; ‘tick when things are done’; and ‘make sure things are not missed’. Graduate nurses also found that the planning phase was essential for checking charts and equipment and a time for prioritising and evaluating resources required (eg float nurse).

When the planning phase was not available graduate nurses managed time became difficult. Furthermore, if their plan was misplaced during the shift the graduate nurse experienced feelings of distress. These nurses became frustrated when things were due simultaneously because they could not do everything at the same time.

Graduate nurses found it difficult to use their plan when 'things don't do to plan', they 'get distracted', 'patients are unsettled or unstable' or 'the unit is busy'. When the graduate nurse is unable to use their plan or complete everything on their plan, they experienced feeling of distress and felt 'terrible', 'bad' and 'overwhelmed'.

Managed time requires a sense of support

Managed time requires a sense of support to enable the graduate nurse to learn and develop skills to get things done in a safe and timely manner. At first these nurses experienced feelings of guilt and frustration having to ask for and receive support.

When support was unavailable and the graduate nurse had many tasks to complete they described the environment as being 'full on', 'a room full of busyness', 'chaotic', 'messy' and 'flat out'. This caused feelings of stress and frustration; hence these graduate nurses felt their managed time was poor.

When support was available from senior staff, including associate unit managers, clinical nurse specialists, educators and the float nurse, the graduate nurse felt at ease and relaxed, which made a huge difference.

Managed time is associated with a feeling of fulfilment

Graduate nurses described achievement of managed time when 'there is time to do things' and 'completed everything they wanted to'. They felt they 'had given a lot to neonates, their families and the unit', which made them feel fulfilled. When managed time was achieved, graduate nurses felt they were 'doing their job properly', 'were professional' and 'a successful nurse'. This made them proud and generally happier with themselves and they were able to sleep well and relax.

When graduate nurses were unable to achieve managed time they felt 'disorganised', 'frustrated', 'disappointed', 'guilty' and they even 'questioned their ability as a nurse'.

Managed time involves adapting and being flexible

Managed time involves being flexible and adapting. Graduate nurses had to adjust to the busy, stressful neonatal unit by being flexible to accommodate unexpected and unpredictable events, parent's needs and multidisciplinary team involvement. At first this experience of managed time was frustrating and difficult for these nurses.

Graduate nurses also had to develop alternate ways 'to get through the day' when they realised that support was not always readily available. They adapted by learning how to prioritise what was important at that time, as well as coming to the realisation that nursing is a twenty four hour job and they could not always do everything. When graduate nurses adapted, the experience of managed time was less stressful.

THE FUNDAMENTAL STRUCTURE OF THE PHENOMENON OF MANAGED TIME

The next phase of Colaizzi's (1978) method of phenomenology required reducing the exhaustive descriptions of the phenomenon to an essential structure. Colaizzi (1978) recommends that an effort be made to "formulate the exhaustive description of the investigated phenomenon in as unequivocal a statement of identification of its fundamental structure as possible" (p.61).

The fundamental structure of the phenomenon of managed time

Graduate nurses felt that managed time in the neonatal unit involved acquiring knowledge and skills to ensure needs are met in a safe and timely manner. This required intensive support from all staff members of the neonatal unit. The planning phase was essential for graduate nurses to evaluate requirements for their shift. Managed time was difficult due to the busyness and unpredictable nature of the neonatal unit, therefore graduate nurses had to learn to adapt and be flexible. Graduate nurses

had to realise that it was not always possible to do everything in their shift and that nursing is a twenty-four hour profession. When graduate nurses realised this they adapted by learning to prioritise what was important. When graduate nurses achieved managed time they felt they were giving a lot to the patients, families and the neonatal unit and they were fulfilled and a successful nurse.

In the final step of Colaizzi's (1978) method of phenomenology the findings were returned to the participants for validation, to elicit participant views on the findings and seek validation that the exhaustive descriptions and fundamental structure accurately portrayed their lived experience of managed time whilst working in a neonatal unit. All participants agreed that the results represented their experience.

DISCUSSION OF THE FINDINGS IN RELATION TO CONTEMPORARY RESEARCH LITERATURE

Again, in keeping with Colaizzi's methodology, a substantial literature review was carried out after the findings on the fundamental structure of managed time. What follows is the review to support the research findings.

Knowing

When graduate nurses experienced managed time they felt it involved a sense of knowing. Studies carried out by Casey et al (2004); Mallory et al (2003); Gerrish (2000) and Charnley (1999) all found that graduate nurses experienced difficulties with organization and prioritizing associated with not knowing. Gerrish (2000) recognised that "...responsibility associated with managing the care of a group of patients was anxiety provoking..." (p.476); and that graduate nurses had difficulties in prioritising due to not knowing in what order to do things. Similarly, Duchscher (2001) found that graduate nurses had "a desire to deliver quality nursing care, but participants had neither the knowledge, focus, time, nor energy to do so" (p.429).

Knowing what was important and what to expect was a significant theme in this study. Duchscher (2001) presented a good example of how knowing what

was important impacted on graduate nurses. "That time I did not worry about time restrictions or all the other work I had to do. I knew my focus and priority was this one patient in particular who needed me" (Duchscher 2001 p.432).

Participants felt that knowing the routine helped and made work easier; this is supported by Duchscher (2001). Their study mentioned that once graduate nurses knew the general routine they became "a little familiar with getting back into practice" and "felt a lot better about being up there, but at first it's everything's coming at you at once and I just felt overwhelmed" (Duchscher 2001 p.431).

Casey et al (2004) and Charnley (1999) both reported that graduate nurses were aware that not knowing how to do things or where to find things made them slower; they were rushing around all day and they had difficulty leaving work on time. This also was the experience of this study.

In this study participants did not feel prepared by the university and this impacted on their ability to manage time. Gerrish (2000) was the only study that made the connection between university training and managing time. Gerrish (2000) stressed that "in order to ease the transition process, consideration needs to be given as to how pre-registration courses can provide more appropriate opportunities for student nurses to develop the clinical, organisational and managerial skills necessary to their future role" (p.477).

Planning

Planning was a significant theme in this study. Participants described it as a time for essential checking and prioritising. Although studies examined acknowledged the need for organisation and prioritising, none of them mentioned any type of planning. Delaney (2003) emphasised that time management was the hardest part of transition and was spoken about most. Even though Delaney (2003) did not describe types of plans, she recognised that graduate nurses learned that things don't always go according to plan. Some of the nursing management literature mentioned planning under the topic of time management. One source noted that "planning is

the essential ingredient for effective use of time” (Grohar-Murray and DiCroce 2003 p.291).

Graduate nurses interviewed for this study named a few reasons why using a plan became difficult at times. Only one study mentioned that graduate nurses were easily distracted and dealing with families and with their questions distracted them from “their overall goal of completing tasks and performing daily routines” (Duchscher 2001 p.434). Since none of the studies were set in the neonatal unit, other distractions such as, patients being unsettled and the busy unit were not examined.

Graduate nurses felt guilty handing things over to the next shift and didn’t like leaving things unfinished. This was similar to the findings of Gerrish (2000) who quoted that “nurses also felt pressurised to complete the ward routine... to finish the tasks routinely undertaken by one shift before the next shift came on duty” (p.478). Furthermore, Duchscher (2001) also reported the ‘need to uphold the time-honoured traditions of the nursing unit... completing tasks on time allowed the nurse to blend into the fabric of the nursing unit” (p.230).

Support

It has been emphasised that graduate nurses’ managed time requires knowledge. This study found that to gain this knowledge graduate nurses also require support. This finding was congruent with other sources (Casey et al 2004; Mallory et al 2003; Duchscher 2001; Gerrish 2000; Charnley 1999). A common complaint of graduate nurses interviewed for this study was that finding information was time consuming. This was also found by Casey et al (2004), who reported that “having to use multiple references and resources made tasks and care delivery “take three times as long as it should” ”(p.308).

Graduate nurses found it difficult to ask for and receive support. This study revealed they felt guilty asking for support. Casey et al (2004) also reported that graduate nurses felt frustrated and guilty asking for help. However Casey et al (2004) identified “that a consistent preceptor would have been helpful...especially surrounding issues of time

management” (p.308). Other studies (Duchscher 2001; Charnley 1999), as well as this one, also found that graduate nurses would benefit from a consistent preceptor. Hom (2002) recognised that graduate nurses perform better if they have a consistent preceptor. Staff shortages and pressure of time were found to be contributors of lack of available support (Charnley 1999).

Graduate nurses found that some nurses were more helpful than others. Duchscher (2001) also observed similar findings and Casey et al (2004) reported that graduate nurses “verbalised frustration, perceiving that preceptors were not ‘in tune with’ what it was like to be a new graduate and therefore were not sensitive to their needs for continued development in time management skills” (p.307). Like this study, Casey et al (2004) also identified talking to other graduate nurses was a good source of support.

Fulfilment

This study found that when graduate nurses achieved managed time they felt a sense of fulfilment. Delaney (2003) also recognised that when graduate nurses gained organisational skills, it gave them a sense of accomplishment. Gerrish (2000) noted that graduate nurses “judged their performance on their ability to complete the ward routine” (p.477). Bowers et al (2001), who studied how nurses manage time and work in long-term care, found that time was an important element of work for all nurses. Furthermore, Bowers et al (2001) described time as the factor that most affected how nurses worked; how they felt about their work; and how their work affected patient outcomes.

On the other hand, when managed time was not achieved, graduate nurses felt disappointed. Brighid (1996) found that graduate nurses felt a sense of frustration when there was a lack of time to do what you want to do.

Adapting and being flexible

A major component of adapting involved the graduate nurses coming to a realisation that the workplace was not what they expected. This situation can be related to what Kramer (1974) termed “reality

shock". Graduate nurses had to adapt to the busy environment of the neonatal unit, not being able to do everything they planned to do in a shift and not having support always readily available. Brown (1999) found that graduate nurses came to the realisation that they had high expectations of themselves and they realised that proficiency in management of time and skills would require practice and time. Casey et al (2004) found that graduate nurses had high expectations of what could be accomplished in a shift. Whereas, Gerrish (2000) found that graduate nurses would rather leave some work for the next shift than compromising care by rushing through their work, even if this meant that they might be criticised by their colleagues.

Mallory et al (2003) found that after organisation and prioritisation skills, the ability to adapt to change was also an important characteristic. On the other hand, Delaney (2003) found that graduate nurses learned to be flexible by going with the flow and that was where prioritising came in. These were all similar ways of adapting and being flexible, which were congruent with this research.

CONCLUSION

This study, which explored the phenomenon of managed time, as described by graduate nurses working in a neonatal unit has revealed new insights. Using Colaizzi's method of phenomenology has allowed the phenomenon to emerge as it presents itself in the everyday world of nursing practice. Thus the research has identified implications for both contemporary nursing practice, and further nursing research.

Nursing practice implications:

Graduate nurses in this study found they lacked the knowledge and skills to manage time, making them feel out of their depth, anxious and scared. Not knowing what was important also made prioritising difficult. They felt unprepared by their university training and this impacted on their ability to manage time in many ways.

The participants also felt they required support in order to manage time. They also felt that the support

they received was insufficient. Graduate nurses mentioned that working with senior staff and other graduate nurses provided benefits. They found that looking for information, to gain knowledge in order to provide quality and safe care to neonates, was difficult at times.

Graduate nurses used plans to get through the day. However they found that things did not always go to plan and this caused feelings of distress. The participants often felt guilty they had not achieved everything on their plan and they did not like handing things over to the next shift. Graduate nurses also felt immensely overwhelmed having multiple tasks due simultaneously. Especially in the beginning, these nurses often became distracted and would fall behind on their plan.

RECOMMENDATIONS:

- Improved undergraduate university education on specialised clinical areas, including paediatrics and neonates.
- Improved university education on managing time, including organisational and prioritisation skills.
- Increased clinical exposure with more emphasis on managing a group of patients, focusing on prioritisation.
- Provide graduate nurses with easily accessible information about clinical conditions, priorities of care and procedures.
- Provide experienced preceptors that work in the special care section of neonatal units, who are approachable, understanding and have good teaching skills.
- Provide graduate nurses time to reflect on their experiences with other graduate nurses in order to gain peer support and stress relief.
- Provide extra support during handover times so that essential checking and prioritising can be carried out and the shift is commenced in a safe and stress-free environment.
- Provide guidance to graduate nurses for

prioritising the important things to be completed on their plan and follow them through during early phases of the graduate nurse year to ensure they don't become distracted.

- Assist graduate nurses overcome the stress of having multiple tasks due simultaneously by planning ahead, ensuring support and provide a 'float nurse' specifically for special care nursery.
- Conduct further research into the use of plans to determine their usefulness, practicalities and possible improvements required.

Future nursing research

This study has revealed that managed time is indeed difficult for graduate nurses working in a neonatal unit. However literature demonstrates that many of these difficulties are universal for graduate nurses. Therefore, further nursing research into the experience of managed time would benefit many clinical areas of nursing, especially paediatrics and critical care areas.

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An exploration of the education and training experiences of ICU nurses in using computerised equipment

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KEY WORDS

ICU, computerised equipment, nursing education

ABSTRACT

Objective

To explore the education and training experiences of intensive care unit (ICU) registered nurses in using computerised technologies and to assess the relationship it has with role performance and level of clinical experience.

Design

A qualitative study using semi-structured in-depth interviews.

Setting

Two general ICUs, one of which was fully computerised with a Clinical Information System (CIS) and the other partially computerised with a Central Monitoring System (CMS).

Subjects

In each setting a clinical nurse consultant (CNC), a clinical nurse specialist (CNS) and a registered nurse (RN) with less than twelve months experience in ICU were interviewed; six nursing staff in total.

Main Outcome measure

Identification of the main themes underpinning ICU nurses' perceptions and experiences of education and training in using computerised equipment with regard to their perceived roles and clinical experience.

Results

Participants identified a range of formal and informal education and training sources available to them within their ICU setting and articulated both positive and negative experiences associated with using computerised technologies. Their level of confidence in using computerised technologies was clearly related to their years of experience and differentiated clinical nursing roles and reflected whether they worked in a fully or partially computerised unit.

Conclusion

Further research needs to be undertaken to investigate the training needs of ICU nurses to use computerised equipment.

INTRODUCTION

Computerised equipment is increasingly used in fast-paced health care environments such as ICUs where core decisions must be made quickly. Registered nurses working in these environments are expected to be knowledgeable and capable of using a variety of computerised equipment in their everyday clinical practice. Previous studies have examined the range of computerised equipment used (O'Connell and Craig 2008); how these computerised technologies contribute to improving patient care (Zytkowski 2003); and the manner in which ICU nurses practice and document their care, all of which are directly related to computerised technological advances (Rivers et al 2003). Previous research identified nursing education as the major factor for the safe and effective use of computerised technologies in health care to ensure positive patient outcomes (McConnell 1998; Neighbours et al 1991).

There are no general computerised equipment courses for ICU nurses in the Sydney (NSW Australia) metropolitan area; the responsibility for the training and education in these technologies lies with the employing hospital. The expected standard for the handling of computerised equipment is a combination of skills, behaviour and knowledge that are necessary for demonstrating competence (McConnell and Murphy 1990). To achieve this standard, education and in-service training are necessary to provide the knowledge and skills to understand how computerised equipment functions, what it measures, and the interpretation of the data (Pelletier et al 1998). The Dreyfus model purports there are different skill levels that are required for different clinical nursing roles. Skill acquisition in the practice of ICU nursing has been investigated with this model indicating differentiated clinical nursing roles (Benner et al 1992).

For this study, computerised equipment used in the ICU was defined as computerised equipment producing patient data. This comprised all the monitoring systems and individual stand alone computerised equipment that was externally attached or inserted into the patient. The data readout was either manually recorded as occurs in partially

computerised ICUs with CMS, or a computerised readout was generated in fully computerised ICUs with CIS. It was assumed there would be differences in the training needs of registered nurses in these ICUs therefore both types of ICU were included.

The in-depth interviews were conducted as the first stage of a two-stage research project. The themes identified will be used in a survey of ICU nurses during stage two.

AIM OF THE RESEARCH

To explore ICU nurses' training and education experiences with computerised equipment and the relationship between these experiences and their clinical nursing roles.

METHODOLOGY

A qualitative methodology using semi structured, in-depth interviews was used. A phenomenological approach was used because the person's individual experience is at the centre of the study and an honest account of the experience is more likely to be elicited with a close participant relationship with the researcher (Appleton 1995). The interviewer, an ICU nurse with many years experience, was able to facilitate a closer relationship in exploring the participants' experience.

The research was undertaken in two public hospital ICUs in the Sydney (NSW Australia) metropolitan area. The hospitals chosen were representative of the computerised environment and range of equipment used in ICUs in Australia. Additionally, the bed capacity of these units meant that nurse staffing levels were representative of a cross-section of experience, training and education in this population.

From one fully and one partially computerised ICU, three members of nursing staff were asked to volunteer. The first was a CNC, the second a CNS who was a senior member of nursing staff with a minimum of two years experience in ICU and the third a more junior registered nurse with up to twelve months ICU experience. It was anticipated their responses would differ depending on their differentiated clinical role and level of expertise and training.

Table 1: Framework of themes and categories that emerged from the interview data

Themes
Sources of computerised equipment education/training - On-the-job experiences - Clinical nurse educator as the main educator - Company representatives - Data manager - Buddying - Formal ICU courses
Positive clinical experiences of using computerised equipment - Availability of information - Accuracy - Legibility - One log on - Incident reporting/auditing procedures - Education opportunities
Negative clinical experiences of using computerised equipment - Frustration with computerised equipment - Checking of data and equipment - Fear factor - Time consuming
Key themes by differentiated clinical nursing role RN: - Focus on patient - Limited situational response - Not at ease in situations CNS: - Adaptability to situational change - Heightened perceptions giving a broader view CNC: - Broad overview - Better grasp of a situation with precedent/pattern recognition

The Nurse Unit Manager from each unit was contacted and verbal approval sought for staff to participate in interviews. All interviewees agreed to have their interviews taped. These tapes were transcribed and scrutinised to identify themes and categories (table 1).

Ethics approval was obtained from the Human Ethics Research Committee in the relevant area health services and the University of Sydney.

FINDINGS OF THE STUDY

Individual members of staff articulated different perspectives and experiences and these were directly related to their differentiated clinical roles and level of expertise and training. Four main themes emerged and are discussed below. The comments quoted are those that typified the general responses of the participating ICU nurses.

The six interviews revealed common experiences and perceptions regardless of differentiated clinical nursing role. However there were also differences in the responses related to the nursing role. Only two of the participants considered themselves computer literate, one fairly proficient and the other reasonably computer literate. The other four participants considered their computer literacy as poor to average. The level of computer literacy however is not a barrier to computerised equipment competency.

DISCUSSION

Experiences of critical care computerised equipment education/training

The nurses' education and training to use computerised equipment was mainly through on-the-job experiences. In general, the more experienced nursing staff reported feeling comfortable with their training with computerised equipment.

The Clinical Nurse Educator (CNE) was the main trainer in both types of units, but other members of staff also could be involved. In the fully computerised unit there was a data manager who, even though holding a non-clinical position, could be called on to give in-service lectures and troubleshoot technical difficulties with equipment. The other person in both types of units was the preceptor or buddy, who was the key resource person for new staff members. Orientation to the ICU normally involved having a preceptor working along side the junior registered nurse for the first four weeks.

Only limited orientation and restricted buddying occurred in the partially computerised unit due to staffing issues.

The junior registered nurse felt that: *“only a basic level of computerised equipment knowledge was received in [her] orientation... [and]... there was a need for more education as computerised equipment is so complex and so complicated.”*

Staffing problems identified included decreased staffing levels and a busy unit. Trying to accommodate new 12 hour day/night shift patterns to relieve staffing shortages also created problems with buddying new staff, who only worked day shifts.

Representatives from the company installing the equipment were also a source of training. Both CNCs acknowledged they had received good training and had positive experiences with company representatives demonstrating and troubleshooting computerised equipment. One commented: *“You could ask them all the hard things and they would either find out or they would know.”*

Formal ICU courses did not provide training in using computerised equipment. This is understandable with the diversity and non-standardisation of computerised technologies used in ICUs. The four senior members of nursing staff had all completed critical care courses, either through the hospital or tertiary system. When asked if their ICU courses introduced them to computerised equipment the consensus was they had not: *“We all had different equipment in our hospitals and it really depended on what equipment your hospital had, as to what you were using and got to know about.”*

Positive clinical experiences of using computerised equipment in the ICU

The most positive aspect of full computerisation was the ready access to patient data. As the CNS commented: *“the availability of information at your fingertips... saves time” [and therefore] “you are more likely to follow things through.”*

The creation of a more user-friendly system with only one log on, which permitted access to all data, was the major advantage of a fully computerised

system over a partially computerised system that required multiple user passwords. This gave a more comprehensive picture of the patient's progress at any given time.

On a fully computerised system the legibility of typed documentation eliminated any possibility of misinterpretation of medication orders or patient's progress notes. Data capture accuracy was also a major advantage in a fully computerised unit giving a time specific picture of the patient's physiological condition from the bedside monitor.

“The computerised system... downloads exactly what it sees on the monitor... [and] tells you exactly what the observation was...”

The junior registered nurse preferred the fully computerised equipment because: *“Having a fully monitored patient gives predictive information of future problems which can then be treated...”*

Fully computerised systems allow for continual monitoring and auditing of data. Further education is required where there are blanks or spaces on fully computerised 24 hour care charts, thus the nurse unit manager can regularly audit the data and address any problems. Auditing practices, such as incident reporting, were viewed positively by staff from both units because they contributed to the nurses' continuing professional education. All participants were familiar with how to complete incident forms. The use of such forms highlighted problems and gave some information as to what factors may have had an impact on the situation, such as staffing levels or time of day.

“... one of the contributing factors may be that there was not enough staff for all of those patients, [or]... it was tea-time so there was only half the staff around and... no one was there to watch someone....”

Another positive experience of using computerised equipment was the opportunity to have extra education in an effort to overcome any fear of the new technology. As a CNS commented: *“...extra training days... helped overcome computer literacy problems.”*

Negative clinical experiences of using computerised equipment in the ICU

Frustration with computerised technologies was a common complaint but differed in the type of unit. In the fully computerised unit, staff expressed irritation with their dependency on external technical support staff and the time consuming problem it created.

"Before you had full manipulation and you could see how things worked... [now] you have to tell the company, wait for them to fix it and you are left without anything to fix yourself..."

In the partially computerised unit a different type of problem presented, with the CNC stating: *"... we currently have manual data entry onto the database which is time consuming....it just puts someone else in between the people who want to use the information [the clinicians] and the actual information..."*

All participants felt that computerised systems were generally accurate, however inaccuracies do occur. ICU nurses use their experience and training and do not just rely on the equipment. In fully computerised units, staff attentiveness to the correct positioning of computerised equipment for an accurate data measurement was vital. In partially computerised units, computerised equipment was checked for accuracy of measurement with comparisons made against non-invasive methods. Sometimes computerised equipment could supply inaccurate information as it did for the junior registered nurse: *"I have just had to do a non invasive blood pressure because my arterial line is not giving me the correct blood pressure so...you are still making sure that your computerised equipment is working properly..."*

The clinical nurse specialists and the registered nurses acknowledged that both types of computerised system had aspects that could be overwhelming or daunting. The lack of familiarity with individual pieces of computerised equipment could create a fear factor initially.

"I found it quite daunting...even my typing is atrocious...it took me a long time to get over the whole computerised thing..."

This fear factor did decrease with time and practice. The junior registered nurse also said: *"...once you know how to use it, it is quite simple..."*

Participants from both units complained that computerised equipment could be time consuming and thereby take the focus away from patient care.

The same junior RN noted, *"seeing all the monitors and the computer and everything and wondering if there actually was a patient under there..."*

Perceived Nursing Roles in the Intensive Care Unit

It was clear from participants' responses that their different levels of skill in using computerised equipment impacted on their reactions to it and their confidence level.

RNs:

The narratives of the junior registered nurses focused on what had to be done for the patient during their shift. The multiple and competing tasks that needed to be performed caused concern and anxiety as to how to organise and prioritise these tasks:

".. we had been told you will be focusing on your patient... but every time they described how to use everything I just kept looking at it going, I am never going to remember this..."

Junior registered nurses assessed situations in terms of how it affected them, not in terms of the situation or how the patient responded.

"Not working out what the problem was... like the alarm went off... what is it and then you... calm yourself down; look it might be something just simple, but you always think the worst..."

The junior registered nurses also acknowledged it take time to familiarise themselves with the equipment and they are not at ease with situations as were more experienced nurses.

"I still have to go and ask someone how to put in the different data into the Percutaneous Insertion Continuous Cardiac Output machine..."

CNSs:

The more experienced CNSs showed greater proficiency by recognising that situational change

requires actions other than those they may have envisioned.

"..If there is an issue at the time...like someone might point it out... and give a little in-service on it at that time. Often the person in-charge... sees what has been done and what hasn't been done and something might have been missed that can [be rectified] at that time. Instead of waiting for something to happen..."

The transition from analysis and interpretation to direct understanding by the CNSs captures their heightened perception of a situation.

"... because it is...not really familiar...When I am there I think it is easy, it is...just that you've got to apply it to the patient, you've got to act when something happens..."

CNCs:

As an expert practitioner, the CNC is expected to grasp a situation immediately and act accordingly. They have a broad overview of the situation that is informed by formal and informal knowledge and years of clinical experience.

"I think on that first day they [orientating RNs] get a bit of information overload... not until they actually work with the patient and see why they are doing something can they say OK I need to do that; I need to press these keys and... go through these screens, to get some meaning behind why they do it"

[Problems with software?] *"Usually the company people do that. Every so often if it is a mechanical thing our local people do it. But usually it always ends up going back to the company- like if we have trouble with our modules, they can go downstairs to our biomedes".*

The capacity for pattern recognition is another attribute of the expert practitioner.

"... We orientate a lot of people... they obviously come from a variety of ages. I do perceive... that the younger graduates... take on the computerized system with a lot more ease than senior nurses that come from another area. They may be well experienced... but they certainly do find it a challenge working with

the computerised system if they have worked their whole lives on paper."

CONCLUSION

The diversity of participant's responses indicated there were a range of issues requiring consideration. The overall impression gained from interviewing the ICU nursing staff was that the education given in the fully computerised unit gave staff a more confident user approach. Perhaps the fact there was no paper used in this unit allowed the focus to be on the computerised equipment. This creates a different mind set. There were both positive and negative experiences in both types of unit. However the better relationship with education and training is reflected by staff working in the fully computerised unit who all commented on more positive experiences. The negative clinical experiences using computerised equipment, the frustration, the fear factor, the numerous user passwords and the time consuming nature of managing computerised equipment remain indicative of problems with complex technologies that continue to impact on clinical nursing practice in the ICU. Different clinical nursing roles in the ICU demonstrated different degrees of confidence that could also be related to their years of experience.

Further research should be undertaken to investigate ICU nurses' education and training experiences including what methods ICU nurses would like to see employed for future computerised equipment education.

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What do we know about the long term medication adherence in patients following percutaneous coronary intervention?

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KEY WORDS

medications, percutaneous coronary intervention, adherence

ABSTRACT

Background

Percutaneous coronary intervention (PCI) is a revascularisation intervention for patients with acute coronary syndrome. It is a common procedure, increasingly used over the past decade. Along with PCI, patients are also prescribed a number of medications and adherence to the pharmacological therapies is vital to improved morbidity and mortality.

Objective

This cross-sectional study sought to evaluate the long term adherence to medications in patients following PCI.

Subjects

270 participants who underwent PCI between April 2003 and March 2004 and who met the inclusion criteria were followed up 12-24 months following the PCI.

Methods

Following obtaining informed consent, a self administered questionnaire was mailed to participants. Information was collected relating to the types of medications taken, medication taking behaviours and storage of medications.

Results

Overall high rates of self-reported medication adherence were reported. In spite of this, patients continued to miss medications or reported stopping medications if they felt better or worse. Knowledge of storage of medication in particular nitro-glycerine medications was poor.

Conclusions

Findings suggested that following PCI medication adherence is high, however knowledge about medication storage is limited and patients report cessation of medications which they consider to be deleterious or unnecessary. These findings are useful for informing development of nursing interventions.

BACKGROUND

Percutaneous coronary intervention (PCI) is a widely used revascularisation strategy for patients with acute coronary syndrome (ACS). Over the past decade, refinement in the technology has seen an increased use of this method for revascularization (Davies 2003). Although PCI is effective in treating the culprit lesion, modification of the physiologic risk factors is essential to prevent progress of coronary artery disease (Lisspers et al 2005; Yusuf et al 2004; Haddock et al 2003; Johansen et al 2001).

Following PCI the majority of the patients receive several pharmacological therapies that have been demonstrated in randomised controlled trials to be effective in the secondary prevention of coronary artery disease (Fonarow et al 2001; Rogers et al 2000; Alexander et al 1998; Krumholz et al 1998; Krumholz et al 1997) as well as to prevent restenosis of the treated vessel (Spertus et al 2005; Rana et al 2005).

Adherence to medication regimes, described as the extent to which patients take medications as prescribed (Mihalko et al 2004), is imperative to prevent coronary artery disease progression. For example, adherence to lipid lowering treatment is associated with lower risk of recurrent coronary events (Wei et al 2002), while poor compliance with hypertension medications is associated with adverse health outcomes such as stroke and left ventricular hypertrophy (Schroeder et al 2006).

Despite compelling evidence about the effectiveness of medications, adherence to treatment has been recognised to be a major problem in patients with chronic illness (Osterberg et al 2005; Vermeire et al 2001) and a large proportion of patients become non-adherent at six months (Osterberg et al 2005; Chapman et al 2005). Rates of non-adherence with any long term medication treatment vary from 17% to 60%, depending on the characteristics of the condition, the treatment, the patient, and the setting (Sud et al 2005; Gottlieb 2000). Of significance, non-adherence is the highest when the patients are symptom-free (Gottlieb 2000). This observation is of particular significance in implementation of secondary prevention interventions.

Long term adherence has been estimated to be between 40% (Esposti et al 2004) to 70% (Gislason et al 2006; Halpern et al 2006) for hypertensive medications and 37-80% for lipid lowering medications (Gislason et al 2006; Kulkarni et al 2006; Newby et al 2006; Tsuyuki et al 2001). Among elderly patients with ACS adherence to long term lipid therapy was significantly higher (40.1%) compared to patients with chronic coronary artery disease (36.1%) (Jackevicius et al 2002). Adherence rates at 1-2 year follow up for aspirin was 83-88% (Newby et al 2006; Kulkarni et al 2006; Sud et al 2005), betablockers 61-78% (Newby et al 2006; Kulkarni et al 2006) and 66-72% for ACE inhibitors (Sud et al 2005; Kulkarni et al 2006).

Lack of adherence to medication results in suboptimal control of risk factors leading to risk for further cardiovascular events and increased hospital admissions (Sokol et al 2005; Aday et al 2004; Kennedy et al 2002), consequently resulting in increased financial burden on the health care system (Vermeire et al 2005; Aday et al 2004).

Numerous studies have identified factors associated with poor adherence. These factors include lack of knowledge, denial, adverse effects, poor memory (Moser et al 1999) and adverse attitudes to treatment (Vermeire et al 2005). Other factors influencing patients' adherence to medications include patients characteristics such as: the cost of medications, the number of medications taken by the patient, the type of medical intervention and the nature of the medical condition (Krueger et al 2005). In addition the longer the duration of therapy, the complexity of the regimen, and a low perception of need such as in asymptomatic conditions influence adherence to medications. Further the occurrence of side effects and low tolerance to effects impact upon adherence (Krueger et al 2005; Gregoire et al 2001).

Strategies to improve medication adherence include multidisciplinary educational and behavioural interventions (World Health Organization 2003) such as reminders and reinforcement of the importance of medication adherence. Three systematic reviews published in the Cochrane library have investigated

the effectiveness of various interventions to promote adherence to medications. The interventions demonstrated to be effective were multifaceted and included: education, reminders, counselling, self monitoring, reinforcement, simplifying dosing regimens, and using adherence aids (Haynes et al 2000; World Health Organization 2003).

A recent systematic review of the effects of interventions for adherence to antihypertensive medications reported that reducing the number of daily doses, motivational strategies and other complex strategies were effective in maintaining adherence and improving patient outcomes (Schroeder et al 2006; Fahey et al 2005b). Interventions used to increase medication adherence include: educational interventions, patient behavioral interventions, and provider interventions (Krousel-Wood et al 2005; Fahey et al 2005a; Fahey et al 2005b; Schedlbauer et al 2004).

Patients who have had PCI generally underestimate the severity of their cardiovascular disease and have a misconception they are cured due to the short hospital stay, rapid procedural technique, and immediate potential success of PCI without requiring open-heart surgery (Higgins et al 2001), reducing the amount of pain experienced, and facilitating an early return to work (Gulanick et al 1998). Given that the perception of risk may be lower it is important to investigate the medication adherence behaviour in people following PCI.

This study aimed to assess long term medication adherence in patients following PCI.

METHODS

Recruitment

All patients who underwent elective, primary or rescue PCI, between April 1st 2003 and March 31st 2004 at a major metropolitan teaching hospital in NSW Australia were identified from the cardiology database and a list was compiled. Attempts were made to identify deceased patients. A total of 541 participants underwent PCI during the study period of whom 518 were considered to be potentially eligible and who were sent an invitation to participate in

the study along with a subject information sheet. A detailed description of the recruitment method has been presented elsewhere (Fernandez et al 2006). In brief, participants who had undergone elective, primary or rescue PCI, were eligible for the study if they were aged between 18-80 years, had no cognitive impairment (telephone mini mental score of more than 30) and had a reliable and verifiable telephone contact number. Participants were excluded from the study if they had: a failed PCI procedure requiring surgical intervention; significant co-morbidities such as cerebrovascular accident with significant neurological deficit; malignant disease and were undergoing active therapy; any condition of sufficient severity to impair co-operation in the study eg chronic alcoholism; a length of hospital stay of more than 30 days following the PCI; been transferred to a nursing home following the procedure; or unable to be contacted. Data were collected from December 2004 to March 2005. Approval to undertake the project was obtained from the facility and university ethics committee. Numerical unique identifiers and password-protected files were used to maintain patient privacy and confidentiality.

Data collection

A 20 item investigator developed questionnaire consisting of items relating to demographic details (age, gender, level of education, marital status), past medical history, medications currently taken and a test battery using validated medication adherence questionnaires was administered. Participants meeting eligibility criteria were mailed a questionnaire, consent form and a reply paid envelope. Methods to increase response to postal questionnaires, such as telephone reminders were used (Edwards et al 2002). In order to obtain a representative sample, participants from non-English speaking background were encouraged to complete the questionnaire with assistance.

OUTCOMES ASSESSMENT

Cognitive status

As impaired cognitive status was an exclusion criterion, potential participants completed a telephone interview to assess their cognitive status to

determine their eligibility for the study. The Telephone Interview of Cognitive Status (TICS) which is a 11-item screening test modelled on the Mini Mental State Examination (MMSE) questionnaire was adapted for this purpose (Brandt et al 1988). The maximum score obtainable is 41 points and participants with a score of less than 30 are considered to be cognitively impaired. The TICS correlates very highly (0.94) with the MMSE. Test-retest reliability of the TICS has also been estimated to be high ($r = 0.97$) (Brandt et al 1988). A score of 30 was identified as the minimum for inclusion in the study, however all patients assessed had a TICS score more than 30 and were eligible for inclusion.

Current medications

Participants were asked if they were taking medications for control of high blood pressure, cholesterol, depression, diabetes, body weight, breathing difficulties, depression or pain. A chart audit was undertaken, to confirm participant's responses. In addition participants were also asked if they were receiving medications for quitting smoking and preventing blood clots and if they found it bothersome to take their medications.

Adherence to medications

Adherence to medication was assessed by self report using the Haynes validated questions (Haynes et al 1980) and the Morisky Medication Adherence Scale (MAS) (Morisky et al 1986). Pooled data from methodologically strong studies demonstrates that when compared to pill counts, self reports have a sensitivity of 55%, specificity averaging 87% and a likelihood ratio for a positive test of 4.4 (Stephenson et al 1993).

The Haynes Questions

This instrument consists of two items. The first item was a previously validated question: "Do you regularly miss taking any of your medications" (Haynes et al 1980). As the method of questioning has been reported to affect the accuracy of responses (Stephenson et al 1993) non threatening, non judgemental approaches as described in the literature were used (Haynes et al 1980). The question

was therefore prefaced with the following statement: "People often have difficulty taking their pills for one reason or another". We are trying to learn more about that experience. If the response was affirmative, participants were asked to report the numbers of pills missed in the previous day and week (Haynes et al 1980). When compared to pill counts, these questions have been reported to have a correlation coefficient of 0.74 ($p < 0.0001$), sensitivity of 96%, specificity 50% and a positive predictive value of 70 % (Haynes et al 1980).

Morisky Medication Adherence Scale (MAS)

The Morisky Medication Adherence Scale (MAS) (Morisky et al 1986) comprises of three questions which include:

- Do you ever forget to take your medicine?
- When you feel better do you sometimes stop taking your medicine?
- Sometimes if you feel worse when you take the medicine do you stop taking it?

Reliability of these items (item to total correlation coefficients of 0.48 to 0.56) and the total scale has been reported and is modest ($\alpha = 0.64$) (Morisky et al 1986).

Storage of medications was assessed using questions adapted from Gray's recommended items (Gray 1990). Medication management systems, such as any unit dose system (Dosett® systems, blister packs), were referred to as compliance aids in the Medication Management Ability section of the questionnaire. Patients were asked particularly about the storage of sublingual nitro-glycerine medications.

Statistical analysis

All analyses were undertaken using SPSS Version 13. Categorical data have been presented as percentages and continuous data are presented as means (SD). Differences between continuous variables were assessed using t-tests and the Chi-square test was used for categorical variables. Comparisons were considered to significant at $p < 0.05$.

RESULTS

Questionnaires were sent to 270 participants of which 202 (males $n=148$, females $n=54$) were returned demonstrating a response rate of 75%. The age of the participants ranged from 35-87 years with a mean age of 64 years (SD 11.7). Overall female participants were significantly older than males ($p<0.0001$). More than half the patients (60%) were retired and nearly three quarters of the participants were married or living with a partner.

Table 1: Demographics

	Frequency (%)
Marital status	
Married/de-facto	146 (72.3)
Single/divorced	25 (12.4)
Widowed	31 (15.3)
Educational level	
< 10 years	78 (38.6%)
≥ 10 years	123(60.8%)
Occupation (n=193)	
Retired	115 (59.5)
Unemployed	17 (8.8)
Working	60 (31)
Student	1 (0.5)

Use of Medications

All except three patients reported taking medications, most commonly to control high cholesterol, high blood pressure and to prevent blood clots. Approximately 50% of the patients were taking 3-4 types of medications each day. The use of nitro-glycerine medications for the relief of angina was minimal, with the majority (84%) reporting not taking the medication in the previous four weeks. The remaining patients indicated they used nitro-glycerine medications less than once a week (9%), 1-2 times each week (3.7%), 3 or more times each week (2.7%) and 1-3 times each day (0.5%).

Medication adherence

A large proportion of the participants (94.6%) reported they did not regularly miss taking their

medications, however approximately 11% indicated they had missed some of their medications in the previous week. Of those participants who reported they missed taking some of their medication four had missed more than three tablets. A small proportion of the participants reported they intentionally missed tablets if they felt better, worse or were going out.

Figure 1: Medications taken by participants

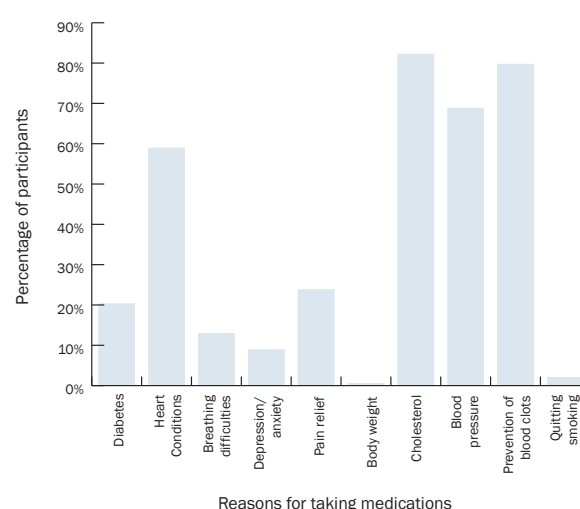


Table 2: Medication adherence rates of participants

	Frequency (%)
Regularly miss taking medications	7/198 (3.5%)*
Missed tablets in the last week	22/198 (10.9%)*
Number of tablets usually missed in a week	
None	183/202 (90.6%)
1-3 tablets	15/202 (7.5%)
4 or more	4/202 (2%)
Could not remember	8/202 (4%)
Stops taking medications if feeling better	4/196 (2%)*
Stops taking medications if feeling worse	9/195 (4.5%)*
Stops taking medications if going out	10/197 (5%)*

*Missing data

Medication Storage

One hundred and sixty eight participants (83%) indicated they stored their medications in their original containers and a third used some form of compliance aids to organise their medications, while

35% kept all their medications in one container. Of those who used compliance aids, more than half (59.6%) indicated they used an approved compliance aid which included Webster packs, weekly dosette boxes, and daily pill boxes to organise their medications. The remaining used plastic cups, containers or bags, checklists, palm cards, aluminium foil and boxes to organise their medications. Some participants indicated they relied on their partner to organise the medications.

A fifth of the participants reported using special systems to remind them to take their medications. These methods included use of an approved system, reminder by spouse, keeping the medications in a prominent location in the house and according to the meal or sleep schedule. Approximately half the patients stated it was not bothersome to take medications. Participants had excellent knowledge of recommended actions when they felt side effects of medications, with the majority (87.8%) reporting they would notify their doctor before making any changes to their medications. The remaining participants indicated they would stop taking their medications until the next time they visited their doctor (10.2%) or did not know what to do (2%).

Table 3: Storage of medications

	Frequency (%)
Keeps medications in original containers	168/199 (83.2%)
Keeps medications in one container	75/192 (35.1%)
Currently using a compliance aid to organise medications	60/195 (29.7%)
Using an approved compliance system	34/57 (16.8%)
Currently using a system as a reminder to take medications	41/200 (20.3%)
Using an approved reminder system (n=44)	15/44 (34.1%)

Specific questions were asked relating to the incidence of chest pain, the use and storage of medications for the relief of chest pain. Nearly a third (29%) of the participants indicated they were not

prescribed any medications for relief of chest pain. The majority of the patients (84%) did not have any chest pain in the four weeks prior to the survey and therefore did not require any nitro-glycerine tablets or sprays.

Less than three quarters (68.1%) of the participants reported the correct method for storage of nitroglycerine medications and 25% indicated they were not aware of the correct method for storage. The remaining 6% stated these medications could be stored in tissues, refrigerator or along with other medications.

DISCUSSION

There is overwhelming clinical evidence that supports the use of medications for patients following acute coronary syndrome to prevent morbidity and mortality. Therefore adherence to medication recommendations is crucial for the reduction of risk factors and the prevention of the progress of coronary artery disease. The evidence also indicates that a substantial proportion of people have diminished adherence to long term therapy. Pharmacological management is most likely to be effective when people adhere to their prescribed medication regimes on an ongoing basis. Non-adherence has important economic implications, because patients who fail to adhere to medication regimens cannot realise the cardio protective benefits that are associated with continuous treatment.

A large proportion of the participants reported taking medications for lowering cholesterol, blood pressure and prevention of blood clots which is consistent with the general literature (Newby et al 2006; Kulkarni et al 2006). However due to the method of data collection it is difficult to differentiate between patient non-adherence and physician non-prescription for the remaining patients.

In spite of the lower perception of risk attributed to people undergoing PCI, very few patients in this study reported they missed taking their medications. However the study highlights the fact that a limited number of participants reported the correct method for the storage of nitro-glycerine medications, which is

of concern as improper storage of these medications can render them ineffective leading to increased morbidity and hospitalisations.

Implications for nursing practice

In light of the importance of medication adherence in modulating patient outcomes, nurses need to recommend strategies to integrate medication adherence. The findings from this study confirm that patients need the knowledge, attitude, and skills to follow an appropriately prescribed regimen. In addition, patients also require knowledge for the proper storage of medication which is vital as improper storage can render the medication ineffective and thus all attempts made to enhance adherence are futile. Multidisciplinary efforts to enhance adherence to medication may improve adherence to medications. Many patients are unaware of the importance of adhering to the medication regime which is reflected in their reports of not taking medication when they feel better, their condition worsened, or if they were going out. Another reason for non-adherence could be the fact that the majority of these patients had multiple co-morbidities and the evidence supports poor adherence among persons with three or more co-morbid conditions. This finding is important for nursing practice as nurses can play an important role in raising their awareness of non-adherent behaviours.

Once adherence problems have been identified, effective communication between patients and nurses or other health care providers is essential and forms the basis for actions and strategies. In addition, nurses can provide detailed and specific information in a manner that is easy to understand to increase knowledge and thereby increase adherence to medications. Nurses can also assist patients to identify mechanisms that promote adherence to a prescribed regimen.

Providing patients with skills such as problem solving, self-monitoring, and developing self-prompting and reminder systems, can also empower patients and increase adherence. Nurses are in a unique position to educate patients about the importance of medication adherence in reducing overall health

care costs and improving health outcomes. Thus, a multidisciplinary approach led by nurses could be an effective strategy to improve medication adherence rates in patients with chronic disease.

Strengths and Limitations

The major strength of this cross-sectional study was the high response rate obtained from a well defined cohort, free of cognitive impairment, as judged by TICS criteria. In addition, this study provides data relating to medication adherent behaviours of patients following PCI in a usual care setting.

A limitation of the self report method used to measure adherence in this study is that it can overestimate adherence when compared to chemical markers and electronic monitoring of pill use, and its accuracy depends on the patient's cognitive abilities and the honesty of replies (Fisher 1993). Currently various methods are used to measure medication adherence and until a gold standard that is cost effective is available, measurement of medication adherence will continue to have limitations. The high adherence rates could be due to a Hawthorne effect. Another limitation was that adherence to blood pressure or cholesterol lowering medications could not be compared against actual blood pressure and cholesterol values to assist with examining the effect of adherence and blood pressure or cholesterol control. The findings should be considered in light of the fact that this study was undertaken in patients who had PCI at a single centre and the socio demographic patterns of the participants could influence their adherence to medications. In addition, despite extensive efforts to increase response rates, patients who were non-adherent to medications would be less likely to respond to questionnaires resulting in a significant participant bias.

Further studies need to be undertaken to accurately measure adherence and the factors that influence adherence in this group of patients. To improve the medication taking behaviour in this cohort of patients it is vital to explore the characteristics of patients who do not adhere to long term treatment; the results can then be used to develop new strategies to improve medication adherence in this cohort. In addition

studies linking medication compliance with improved patient risk factors need to be undertaken.

In spite of these limitations, through the exploration of medication adherence behaviours, interventions to increase the effectiveness of medication adherence may extend the benefits of PCI and reduce the need for subsequent revascularisation.

CONCLUSION

Adherence to medications remains imperative to prevent the progress of coronary artery disease and restenosis of the revascularised artery. Multidisciplinary efforts with increased patient-centeredness, emphasis on the patient's perspective and shared-decision-making might lead to improved adherence to medications.

Summary of key points

Non-adherence to medications can result in progress of coronary artery disease, further need for revascularisation and poor outcomes.

The majority of the participants were receiving pharmacological therapy according to guidelines.

Adherence to medications in these participants was similar to those with chronic illness.

Participants had a decreased knowledge of the storage of nitro-glycerine medications.

Strategies to enhance medication adherence need to be incorporated into patient care.

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Evaluation of a generic integrated care pathway for rehabilitation

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KEY WORDS

integrated care pathway, rehabilitation, aged care, multidisciplinary care plan

ABSTRACT

Objective

The aim of this study was to determine if a process-oriented integrated care pathway (ICP) was effective in a rehabilitation setting and whether the improvement gained through the rehabilitation process was sustained post discharge.

Design

This study incorporated a quantitative analysis of the Barthel Index Score (BIS) for a retrospective convenience sample of patients who had been discharged from the rehabilitation unit. A longitudinal examination of this sample group was conducted and BIS results were compared between admission, upon discharge, and three months post discharge.

Setting

The study was conducted at a rehabilitation unit (the Unit) at a medium-sized general hospital in a rural centre northwest of Melbourne, Victoria

Subjects

The sample consisted of a convenience sample of thirty participants who were discharged from the Unit between December 2003 and January 2004. The mean age of participants was 75 years.

Main outcome measures

Health outcomes and improvements in functional and dependency status were determined using the Barthel Index Score (BIS).

Results

The introduction of the generic clinical pathway yielded positive results with the sample group maintaining functional status and independence post discharge.

Conclusions

Although this study is limited by sample size and homogeneity of sample; nevertheless it demonstrates that process-oriented integrated care pathways may be useful to effectively manage rehabilitation and aged-care units that contain patients with a wide range of complex presentations and diagnosis-related groups.

INTRODUCTION

Integrated care pathways (ICP) aim to improve the effectiveness of clinical practice and patient care. They are designed to co-ordinate essential tasks in patient management and outline patients' expected clinical course (De Bleser et al 2006; Campbell et al 1998). Proponents for their use argue they improve multi-disciplinary co-operation, co-ordination, and communication (Kinsman et al 2004; Campbell et al 1998); ensure quality standards are met (Calligaro et al 2004; Roberts et al 2004); decrease undesirable practice variation (Panella et al 2003; Campbell et al 1998); improve patient-clinician communication and patient involvement (Kinsman 2004; Campbell et al 1998); improve patient outcomes including a decrease in complications (Walter et al 2007; Hauck et al 2004; Roberts et al 2004; Joh et al 2003); are cost effective (Calligaro et al 2004; Joh et al 2003), and reduce patients' length of stay in hospital (Chang et al 2005; Gholve et al 2005; Delaney et al 2003; Cardozo and Aherns 1999).

Not all of the research into the evaluation of ICP has been positive. For example, recent studies, including a Cochrane review, have found that the introduction of ICP for acute stroke management to be of little effect (Taylor et al 2006; Kwan et al 2004). Apart from yielding small or no cost or labour benefits (Atwal and Caldwell 2002), one of the other main arguments against the use of ICP is they are difficult to apply to circumstances where clinical practice is variable or patients present with multiple and different pathologies (Campbell et al 1998). In the Australian health care system, patients are grouped into diagnosis related groups (DRGs), which is a finance classification system that provides a means of relating the number and type of patients treated in hospital with the resources required for that treatment. Many units are specialised, such as neurology and cardiology, and as such treat only a narrow range of DRGs. In these instances ICP are often easier to establish and streamline because of the similarities of the patient mix. In the rehabilitation and aged care settings however, units are often required to treat patients with a wider range of DRGs making the use of ICP more complex.

This study reports the evaluation of a less common approach to ICP for the rehabilitation, and potentially, the aged care setting. The ICP used is generic and process-oriented rather than disease-oriented and therefore represents an alternate approach to the use of ICP in units where patients present with a wide range of DRGs. While the use of process-oriented ICP is not novel (Edwards et al 2004), there is a paucity of information on the potential of this approach in diverse contexts and settings.

The ICP evaluated in this study is used as an interdisciplinary care plan for the entire rehabilitation team. It describes the patients' rehabilitation goals and physical profile which includes mobility and dependency levels, continence management, and observation of vital signs. The ICP covers baseline assessment, goals, the care plan, the record of care, and ongoing assessments and evaluation of the care plan. Baseline assessment on admission incorporates nursing care needs, referrals, additional assessments, depression screening, delirium assessment and continence assessment. The discharge assessment identifies discharge risk and discharge planning needs. The Braden pressure risk score (Pancorbo-Hidalgo et al 2006) which is a risk assessment scale for pressure ulcer prevention, falls risk score, and physiotherapy and occupational therapy initial assessments are all included in the patients' baseline assessment on admission. Patients' needs are identified and goals are recorded after discussion with team members and with the patient and/or their carer. Care plans are then developed and monitored. The ICP includes the medication chart, wound care plans, falls prevention plans, pressure ulcer prevention plan, allied health and medical plan, and a record of planned care actually given. Ongoing assessments are the basis for evaluating the care plans and these are included in the ICP as continence, observation and bowel function chart, routine nursing observations (vital signs, blood sugar levels and weight), wound care chart, physiotherapy assessment and progress, domestic activities of daily living and personal activities of daily living assessments. Ongoing assessments are used to give reports of each

patient's progress and the patients' goals are scored to see if the patients are progressing. The plan is constantly reviewed and updated by the rehabilitation team.

This ICP was applied in a rehabilitation unit (the Unit) which is a modern twenty four bed unit which provides focused rehabilitation using a wide range of therapies. The multidisciplinary team consists of a medical officer, nursing staff, a physiotherapist, occupational therapists, continence advisor, speech therapists, podiatrist, dieticians, pharmacists and welfare staff. The purpose of the Unit is to restore, improve and maintain the functional ability of the patients.

There are a range of complex case presentations and DRGs cared for within the Unit. At any given time the mix of patients within the Unit could range from those who have experienced a cerebro-vascular accident (CVA), traumatic or idiopathic fractures, patients recovering from major surgery such as coronary artery bypass grafts, those suffering from post-operative complications such as wound dehiscence and deep vein thrombosis and frail elderly patients requiring evaluation and management. The unique feature of the ICP is its ability to adapt to this wide range of DRGs. Sulch and colleagues (2002) identified that the success of rehabilitation (beyond restoring basic independence) depends on the ability to tailor therapy to individual needs which are dictated by the nature and severity of deficits, patient expectations and care giver support.

The ICP used in the Unit was evaluated by comparison of Barthel Index Scores (BIS) at admission, discharge and at a three-month post-discharge review. The BIS is a validated instrument for measuring the functional gains made by patients. These gains refer to the patients' performance on ten of the activities of daily living namely: personal hygiene, self-bathing, feeding, toileting, stair climbing, dressing, bowel and bladder control, ambulation, chair and bed transfer, and walking or wheelchair use. Stone and colleagues (1994) identified that the routine clinical use of the BIS is feasible and responds to clinically important change. This group further identified that a significant

rise in BIS between admission and discharge existed. Cognitive functioning also needs to be considered in the evaluation process as cognitively impaired clients are generally unable to accurately report their current abilities and deficits and care givers may over or under estimate function, leading to inaccuracies in BIS measurements (Agostinelli et al 1994; Stone et al 1994). The ICP in this study was evaluated using BIS to determine the effectiveness of a process-oriented generic ICP in the rehabilitation setting.

METHOD

A quantitative design was used for this study which compared BIS at three time-points: admission, discharge and at a three month post-discharge review.

Sample: A retrospective convenience sampling process was used to select participants. Thirty participants were recruited from patients discharged from the Unit between December 2003 and January 2004. To be included in the study the participants had to have been discharged from the Unit three months prior to the measurement of the three month post-discharge BIS scores. The three month time-point was chosen for practical reasons in that it was long enough to show the effect of loss or maintenance of independence post-discharge and not too long that difficulties in retrospective recruitment would be encountered due to changes in care arrangements. Participants were only included if they were mentally alert enough to give informed consent and prevent inaccuracy with BIS measurements as determined by Standard Mini Mental Status Examination (SMMSE) and were over eighteen years of age. Participants who scored less than 23 on the SMMSE at three month review or who declined to participate were excluded from the study.

Data Collection: The demographic profile and BIS scores of the sample for the admission and discharge time-points were accessed retrospectively from medical records. Recruited participants were then visited by staff from the Unit and the SMMSE and BIS measurements were recorded. Changes to medications, services, and social situation were also noted at the three month post-discharge review.

Data Analysis: Comparison of BIS results and the Mobility and Self Care sub-indexes of the BIS were conducted using the statistical program SPSS version 14.

Ethics: Ethics approval for this study was granted by the hospital ethics committee.

FINDINGS

Sample Characteristics

Of the thirty participants in this study, thirty-eight percent were males (12) and sixty-two percent (18) females. This gender proportion is representative of the Unit as a whole. The ages of the participants ranged from 28 to 98. For the purposes of determining age-related correlations, the sample was divided into four groups according to age: Group 1 (5 participants) was aged less than 70 years; Group 2 (11 participants) was aged 70-79 years; Group 3 (9 participants) was aged 80-89 years; and Group 4 (5 participants) was aged 90-99 years.

There was a variation of case presentations within the sample which represented a wide range of DRGs from patients who had experienced stroke, idiopathic fractures, major surgery, post-operative complications, deep vein thrombosis; or who were frail and elderly and requiring assessment and evaluation. As a result, the length of stay for each participant was different. The total bed days for the sample was 506; the longest length of stay was 40 days, the shortest length of stay 5 days, and the average length of stay 16.6 days. Corresponding to the variation of DRGs there were also differing discharge destinations for the sample. For this group, seventy-six percent were discharged back to their own homes. As determined at the three monthly review, five of the patients discharged were supported by Community Aged Care Packages (CACPs) that involved case-management, and fifteen received Home and Community Care Services (HACC) on discharge.

Each of the participants were assessed for cognitive function using Folstein's Standard Mini Mental Status Examination (SMMSE) to determine that mental capability did not impair the participants' capacity

to perform and report self care and give inaccurate BIS scores (Agostinelli et al 1994). The SMMSE for the sample ranged from 23 to 26 which was within normal range.

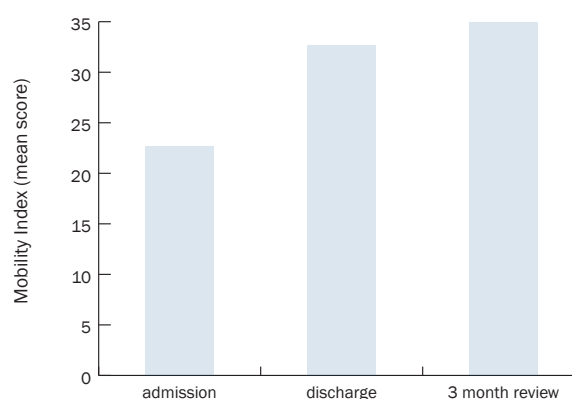
Comparison of Barthel Index Score (BIS) results

The BIS consists of two separate sub indexes: the Mobility index and the Self-Care index, each scored out of 50. The values assigned to each of the items in both of the sub-indexes of the BIS are based on the amount of physical assistance required to perform the task. All the items from both sub-indexes are totalled to give a BIS score out of 100. These scores range from total dependence (0-20), to slight dependence (91-99). When evaluating sub-indexes individually, total dependence would be represented by a score of (0-10) and slight dependence a score of (41-49). The two sub-scores and the total BIS were compared over the three intervals to test for significant change. The results of the scores were also compared against the dependent variables of age and gender. All statistics were calculated using the computer statistical package SPSS version 14 using analysis of variances.

Mobility Index

The mean score for the Mobility Index over the three testing times, admission, discharge, and three months post discharge, are shown in figure 1.

Figure 1: The mean score of the sample for the BIS Mobility Index



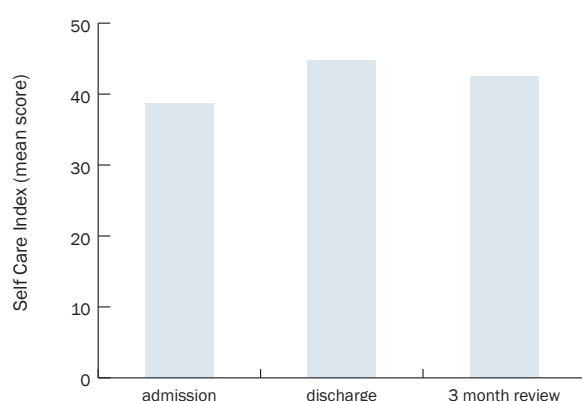
A one-way ANOVA found that the means were significantly different $F(2,28)=6.073$, $p<0.01$. Differences were found to be significant between admission and discharge, $t(58)=-2.925$, $p<0.001$,

and admission and review, $t(58)=-3.381$, $p<0.05$). No significant difference was found between the discharge and the three-month review score.

Self-Care Index

The Self-Care Index looks at the patients' ability to care for themselves independently. As shown in figure 2 there was improvement in the mean score of the patients from admission (38.7) to discharge (44.8) and a slight decrease from discharge to the three-month review (42.5).

Figure 2: The mean score of the sample for the BIS Self-Care Index



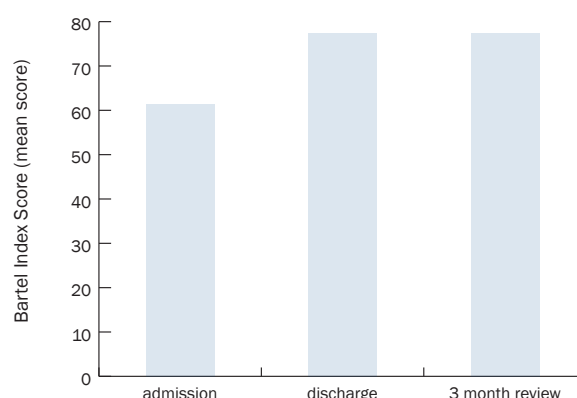
A t-test analysis showed a significant difference between the patients' scores at admission and discharge, $t(58)=-1.988(58)$, $p=0.05$. No significant differences were found between the discharge and review scores or the scores from admission and review.

The Barthel Index Score (BIS)

The total mean score for the 30 patients for the BIS over the three time-points showed an increase of 16.1 from admission to discharge. However from discharge to review there was exactly the same mean, showing no further change over the subsequent three months (figure 3).

A one-way ANOVA was performed on the total score and a significant difference was found: $F(2,28)=4.208$, $p<0.05$). As can already be concluded visually, the difference occurred in the initial change from admission to discharge, $t(58)=2.653$, $p<0.001$, and from admission to review, $t(58)=2.475$, $p<0.005$.

Figure 3: The mean score of the sample for the Barthel Index



Demographic Correlates

Participants were categorised into four groups according to age: <70; 70-79; 80-89; and 90-99. These four groups were then compared against each other for differences in their means over the three testing times for the total BIS score as well as the Mobility and Self-Care Index sub-sections. One-way ANOVA showed no significant differences between any of the four groups at each testing time-point. A one-way ANOVA was also performed to determine the relationship of gender on the mean scores. No significant difference was found for gender in the Self-Care Index, Mobility Index, or total BIS at each of the testing times.

Limitations

This study contained a number of limitations which influence the general applicability of the results. Firstly, the sample size is small and may not be representative of the Unit as a whole, or the wider population. Secondly, the sample is homogenous in terms of culture and the results obtained in this study may not be representative of more diverse groups. Thirdly, the sample selected participants with a high SMMSE score to ensure accuracy of BIS measurements. Such a selection process may result in a group that is not representative of rehabilitation or geriatric units where the majority of patients are elderly.

DISCUSSION

It would appear from the evaluation of the ICP that independence is strongly reinforced in the Unit. This

is evidenced by the maintenance of self-care, as measured by BIS, up to three months post discharge. The sub-indexes of the BIS: the Self-Care and Mobility Indexes also showed positive patient outcomes with a mean gain in independence post discharge. Following discharge, the mean for the Self-Care index was seen to reduce slightly; however this was not significantly different for this sample. It is possible that a real decrease in the Self-Care index occurred but because of the small sample size, a significant difference was not measurable. A decrease in Self-care Index may be a result of environmental factors. The home environment may be less than optimal or may not lend itself to appropriate modification. Furthermore, without continuing supervision and encouragement from staff, patients' self-care activity levels might diminish. This concept is reinforced in the study by Forrest and colleagues on patients discharged from a rehabilitation unit where it was identified that "much of the help reported was companionship and reassurance rather than physical assistance" (Forrest et al 2002 p.61). The social environment may also play a role when returning home. Formal or informal carers may undertake the task of assisting unnecessarily with self-care, resulting in reduced independence. Conversely well-meaning family members may underestimate the patient's capacity for independence.

The evaluation using the Mobility Index showed that gains made from admission to discharge were maintained at the three-month post discharge review. A slight, but not statistically significant, increase was made between the discharge and review time-points. It is possible that a significant improvement could be seen with a larger sample size. An increase in mobility may occur as a result of adaptation to the home environment. This improvement could reflect the need of patients to mobilise more in their own home due to geographical layout or necessity. The environmental setting in which the patient is assessed may be a factor which influences how they perform and should therefore be considered (Gosman-Hedstrom and Svensson 2000). Gosman-Hedstrom and Svensson describe this as "the gap between the person's ability and

the environmental demand" (Gosman-Hedstrom and Svensson 2000 p.712). Ongoing outpatient attendance at physiotherapy and/or occupational therapy may also be a contributing factor to continued improvement.

Overall the application of the ICP during the rehabilitation process resulted in total BIS scores that were maintained for at least three months after being discharged from the Unit. This indicates that the emphasis on education, self-care and independence that is such an important part of the rehabilitation process, and is built into the ICP, yielded positive patient outcomes. Identification of cognitive status using the SMMSE assisted the assessment function and is a feature of the ICP. The SMMSE ensures that treatments and interventions target specific behavioural and environmental aspects to compensate for deficits and reinforce strengths (Agostinelli et al 1994). The positive gains made using the ICP were independent of age and gender.

The use of ICP in general is still contentious. Depending on the clinical setting and DRG there are mixed views. While there has been much research to support their use, some recent reviews in certain settings have yielded ambivalent findings (Taylor et al 2006; Kwan et al 2004). Concerns have been raised that ICP are labour intensive; discourage individual clinical judgment; can potentially be misused to reduce patient care costs, and may be of little actual benefit (Atwal and Caldwell 2002; Campbell et al 1998). Much of this research investigates disease-oriented ICP rather than process-oriented ICP; however one paper in the neuro-rehabilitation setting also showed the effective use of a process-oriented ICP (Edwards et al 2004). The results of this study support the use of ICP for rehabilitation. It was however beyond the scope of this study to evaluate the cost analysis of this approach.

CONCLUSIONS

This research project sought to evaluate the effectiveness of a generic process-oriented ICP for the rehabilitation setting. The ICP underpins the whole rehabilitation process and is used as an

interdisciplinary care plan for the entire rehabilitation team. This pathway has contributed to the patients gaining and maintaining their independence following the rehabilitation program. The study has also demonstrated to staff the positive outcomes achieved by using a process-oriented ICP to guide and assist the process of rehabilitation. It has been found to be a valuable tool that monitors and guides the patients' rehabilitation goals and physical profiles including functional and dependency levels. Because of the process-orientation of the ICP, it was able to be effective in the management of the Unit where care involves multiple DRGs. This success may be attributed to the planned approach to rehabilitation using the ICP including the incorporation of effective discharge planning.

RECOMMENDATIONS

Three general recommendations arise from the results of this study:

1. Further research with a larger, more diverse sample is required to more rigorously test the effectiveness of the ICP.
2. Longitudinal tracking of patients would enable studies to be conducted to determine the length of time independence is maintained after cessation of outpatient appointments.
3. Further research into the application and evaluation of process-oriented ICP for other hospital settings such as aged care where multiple DRG are common would be useful.

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Practice development: a critique of the process to redesign an assessment

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KEY WORDS

practice development, assessment, acute care, facilitation, process

ABSTRACT

Objective

This paper presents a brief description of an activity to redesign a nursing assessment followed by a critique of the practice development process used.

Setting

Adult acute care general hospital wards.

Primary argument

Practice development can address shortfalls in clinical practice by using a systematic process to change practice so improving health care. Through the application of a professional development activity addressing assessment the described process provides the basis for a critique that gives directions for ongoing similar activities.

Conclusions

Directions identified for ongoing practice development activities are: engage all staff in the change process who own the practice; appoint alternative persons with delegated authority for key facilitators; build professional development into the practice change; provide service users (eg patient representatives) with mentoring; develop transformational strategies that address not only the dominant organisational culture but also existing subcultures; and employ an emancipatory practice development process. The main recommendation for practice development in bureaucratic organisations is to develop and establish the evidence base necessary to ensure the process is effective.

INTRODUCTION

Development of nursing practice, a critical professional activity, can improve clinical outcomes, increase patient satisfaction and contribute to quality health care provision by changing practice. These outcomes indicate practice development activities should target key components of nursing care where the process of practice development can achieve the most gain. Through critique, directions can be identified for refining the process employed in practice development. This paper presents an overview of practice development and its accompanying process; an outline of an application in an acute care setting; followed by a constructive critique highlighting how the process could be more effective.

Practice development

From a concept analysis of practice development Unsworth (2002) described the critical attributes to be: “new ways of working which lead to direct measurable improvement in care or service to the client; changes which occur as a response to a specific client need or problem; changes which lead to the development of effective services; and the maintenance or expansion of work” (p.323). Others confirm these attributes (eg Hanrahan 2004; Garbett and McCormack 2002) with Garbett and McCormack (2002) also indicating the process is systematic and requires various types of facilitation.

Practice development and the context

As the process of practice development always occurs within a context that can influence the process, attention to this aspect is mandatory, particularly as clinical settings have been described as complex and ever-changing (Bell and Proctor 1998) with many stakeholders to consider (Iles and Sutherland 2001). Organisational support (Barrett et al 2005) and a shared vision are essential (Stokes 2004; Iles and Sutherland 2001). The support needs to include time and resources (Garbett 2004).

Practice development process

Though a systematic process is valued by practice developers the process has mostly been described fragmentally. The beginning of the process has been

identified as an opportunity for practice change that is engendered from a specific client need or problem (Unsworth 2002). This suggests the client-centred practice that needs to change would require clarification and refinement at the commencement of the process. Therefore the first step incorporates clarification of beliefs and values and assessment of the needs and perspectives of stakeholders, followed by planning, action and evaluation (McCormack et al 2004). A strategy often used within this process is facilitation. The use of facilitation is somewhat controversial as some (eg McCormack et al 2004; Kitson et al 1998) consider it necessary with others (eg Unsworth 2002) considering an identified facilitator it is not always required.

According to Harvey et al (2001) the defining characteristics of facilitation can be either an internal or external role in relation to the organization and involve helping and enabling that can range from support for a specific task to assistance with a review. The enabling characteristic is likely to be developmental (Harvey et al 2001) and can provide a pathway for individuals to empower themselves. This analysis of facilitation however, was in relation to its role and function in evidence-based practice. A more recent analysis pertinent to practice development by Simmons (2004) identifies facilitation as a non-specific general strategy of operation that necessitates critical thinking, shared decision-making, leadership, equity and helping. The apparent multiple dimensions of facilitation and the levels and intensity of the facilitative process preclude evaluation of the specific dimensions that are more or less effective. All that can be concluded is its usefulness at a generic level with the specific effectiveness of different attributes as yet to be determined.

In summary, the hallmarks of the process of practice development are a systematic approach perhaps with facilitation; and the phases of identification and refinement of the practice to be changed, planning, implementation and evaluation. These phases give the process of practice development a structure that presents as being unidirectional.

Practice development process – an application

In general medical and surgical wards, a practice shortfall in the admission assessment of adult patients was identified. Findings showed patient assessments were not providing adequate information from which to plan care (Cioffi 2005). Nursing management responded to this shortfall by resourcing a practice development activity. The activity was facilitated by a collaborative partnership between two health service managers, one the Director of Nursing of the hospital and the other from The Diversity Health Institute in the area health service and a university lecturer. The approach to this practice development activity was technical as knowledge was applied in practice with staff development arising as a consequence (Manley and McCormack 2003). Two groups, 'Steering' and 'Implementation', were formed to guide the activity. Membership of the Steering group included patient representatives, a bilingual liaison officer, nurse managers, key clinical nurse consultants and specialists, with some common members across both groups being the nurse educator, the discharge planner, experienced clinicians from the pre-admission clinic, medical and surgical wards; and two facilitators. The process this practice development activity followed is outlined below using the phases: identification and refinement of the practice issue; planning; implementation; and evaluation.

Identification and refinement of practice issue

The activity commenced with the scope of the current adult assessment being more comprehensively understood through focus group discussion with patients from diverse backgrounds and staff, including nurses, physiotherapist, medical officer, bilingual liaison officer and social worker. From the focus group findings the complexity of the diversity of the patient population was identified as the main issue contributing to the assessment shortfall. In response to this the Steering group critically appraised the current assessment, highlighting discrepancies between assessment information actually obtained and the assessment information

considered to be required to care for patients from diverse backgrounds. The facilitators stimulated critical reflection within group discussions using challenging, provocative, nonjudgmental probes. This led to the practice development activity being refined to focus on a redesign of the existing assessment.

Planning, implementation and evaluation

The Steering group redesigned the assessment through a series of regular meetings using information gathering, exploration of literature, concept mapping (Sutherland and Katz 2005; Trochim 1989), discussion, critical reflection (Williams 2001) and consultation with other health professionals, for example the social worker. During this process group cohesiveness and morale increased as did ownership of the practice development activity, as noted to have occurred in such processes by others (Kathol et al 1998; All and Havens 1997). The facilitators supported the process by scheduling and preparing resources for meetings according to the agreed agenda; encouraging and stimulating involvement of the members of the group; assisting with pacing discussion to increase depth; and recording and distributing meeting notes.

During the process, findings from the focus groups and information from the literature review were accessed to resource the decision-making of both groups. Specific findings from the focus groups showed the information was incomplete for planning care as key aspects of diversity of patients and their families were not obtained, for example the family's desired involvement in care. Recognition of this weakness was further appreciated as previous studies (eg Callen and Pinelli 2004; Walsh et al 2002; Hyndman et al 2000) had shown the importance of the influence of diversity on understanding health behaviour and the outcomes of people from diverse backgrounds. Using literature of this nature resulted in the following aspects being integrated into the assessment by the Steering group: health literacy; understanding of present situation and expectations; values and beliefs; family involvement; language literacy; and financial circumstances, with some compacting, reordering and formatting of the items

on the form. The Implementation group with key clinicians from each of the proposed trial areas piloted the redesigned assessment, reviewed its utilisation and made recommendations to the Steering group that led to further modifications based on comments from some staff in each trial area.

Using Bausell's (1986) criteria, the redesigned assessment was then confirmed to have content validity by a panel of international and local experts who were clinicians and academics. Written comments received from this panel also indicated a number of policies would be required to support patient care planned from the redesigned assessment, for example arrangements for visiting outside visiting hours and access of families over 24 hour periods. As Steering and Implementation groups were both in agreement that recommendations for policies were necessary, they were referred to the hospital executive.

With approval from the Forms Committee of the area health service a trial of the redesigned assessment was held. Each trial area was prepared by the key clinical nurse of the area in the Implementation group. Preparation involved consulting with the ward staff to arrange the eight week trial; providing the education program of three sessions designed by the Implementation group; supporting ward staff; and setting up ward-based resources including an information folder with assessment examples and support material. During the eight weeks all adult patients in the trial areas were assessed using the new assessment form. The trial was evaluated by the Steering and Implementation groups using a multi-method approach as recommended by Patton (1997). This consisted of a quantitative evaluation executed through an audit of medical records; and a qualitative evaluation involving a series of focus groups with nurses and managers from the trial areas. The main finding from the quantitative evaluation was completion of the nursing assessment needed to be more comprehensive with the qualitative evaluation showing nurses had an overall preference for continuing to use the new form based on the information available for planning care. However

nurses described difficulty and discomfort with asking questions about some aspects, for example the financial situation of the patient.

The findings from the trial evaluation were presented to the Steering Group with areas of concern being flagged. Specific group members were allocated responsibility for operationalising the recommendations. These recommendations involved: modification of the nursing assessment form; provision of assessment and documentation skills workshops for nurses; obtaining permission to continue using the redesigned assessment; and introducing it into all the other relevant clinical areas.

Critique of practice development process

By reflecting on the practice development process used in this activity it is possible to gain insight into areas that could be managed more effectively. These areas are the nursing practice selected for development, that is the assessment; the process of facilitation to enable the change; and the culture and context within which the process took place.

The practice for development - assessment

The decision to address the assessment of medical and surgical patients was based on the findings from focus groups with patients, their family members and staff, and from a study that showed assessments of patients from diverse backgrounds were often incomplete (Cioffi 2005). Hence, the practice development activity emerged from both the user and provider perspectives, which is a strength, as service users' experiences have previously been recognised as an essential element of practice development (Dewing and Pritchard 2004; Weir and Kendrick 1994) to ensure a patient-centred focus. Though the members of the Steering and Implementation groups had these findings from which to work, the staff in the clinical areas did not. In hindsight the practice development activity could have been communicated more effectively if these findings had been presented overtly and their implications identified with staff in the clinical areas to establish a strong *raison d'être* for practice development. From the perspective of change theory (Duffield and Lewis

2000), the staff in the trial areas were not given the appropriate preparation to enable them to appreciate the inadequacy of the existing assessment format and process. It is therefore essential in all practice development that staff can clearly identify the need for practice change and place value on it so cohesion can be built to support the activity.

The facilitative process

The challenge for the three facilitators was to enable the change. Facilitation did foster reflective discussion within the groups developing an awareness of the shortfall in practice. This led to the groups working collaboratively to achieve a common goal. The Director of Nursing, a facilitator, expedited many of the organisational hurdles particularly in the early stages of the process by: prioritising the practice development; freeing up nurses to take part; and providing advice regarding procedures to follow, for example approval of form for trial. Several months into the activity other organisational demands deflected the Director of Nursing's time away from the activity. However, the activity ended with strong support and all the recommendations have now been implemented. In ongoing practice development it maybe useful to consider the appointment of an alternative person with delegated authority to support the activity when an organisational facilitator has a demanding role.

The other two facilitators worked in partnership with both the Steering and Implementation groups to facilitate the change. They accepted responsibility for supporting the groups by collaboratively structuring meetings, obtaining resource materials and encouraging a process of engagement with the practice development activity by promoting members of groups to coordinate various tasks, for example designing the new form and developing the case studies. The enthusiastic involvement of nurses through these two groups brought specific contextual information to the practice development activity increasing its ecological validity. However a limitation was the facilitator partnership did not go beyond the Steering and Implementation groups. In retrospect, though the members of the Implementation group

who came from each clinical area accepted the responsibility for providing communication and education to nurses in their areas, these members required strong support at the ward level to create change. In the future this failing could be addressed by facilitating collaborative engagement of staff with the use of a fortnightly news update sheet, encouraging staff to initial they have read practice development material, facilitators being available at staff handovers to answer questions, and stronger support by nurse managers who were inclined to leave this practice development to the nurse who was the member of the Implementation group.

Further, the distance between the facilitators and the ward nurses led to assumptions being made about the existing assessment skills of the ward nurses. In the evaluation it was recognised nurses were not as skilled at interviewing patients as had been assumed. Earlier recognition of this could have led to skill development workshops being held by educators in each area during the redesign of the assessment. This would have placed ward nurses in a stronger position to manage the change and would also have addressed their need for professional development more comprehensively.

As a formal part of the planning process, patient representation on the Steering group was sought prior to its establishment. This effort was initially rewarded with good attendance at the first meeting. However later attendance was ad hoc and when in attendance, contribution was either timid despite encouragement or personalised to specific hospital experiences. This supports McCallum and Gieselhart (1996) view that participation of service users in service design is inhibited in bureaucratic structures. The size of the Steering group and the professional background of the members may have contributed to patient representative discomfort. Though involving patients in practice development activities is essential to ensure a patient-centred focus, this experience indicates the involvement of patients in such activities needs to be actively and sensitively managed. The inclusion of patient representatives may have worked better if the facilitators and members of the Steering

group had met with all the patient representatives prior to the first meeting. This would have provided an opportunity to explain the project and the required time commitments in more detail; answer questions; and guide participants in their role of representation. Further, mentoring roles could have been assigned to group members. Such a strategy could enhance the representatives understanding of the health system and build rapport between staff and representatives so fostering possible increased participation. By gaining confidence in this manner the patient representatives may have felt more comfortable engaging in group discussion.

The culture and context

As the context was an acute care hospital inevitably the organisational culture was bureaucratic (Crookes and Knight 2001). Each clinical area was part of this larger culture and also had its own idiosyncratic nature. The trial was planned to fit each ward's slightly different admission procedures and different patient types. Consideration of these specifics was successful. However other aspects of difference, such as the subculture of nursing staff in each clinical area, could have received more attention. The culture in one trial area for example, created tension between a manager and an Implementation group member, leading to the member's initial retreat from the activity. Despite negotiation by facilitators this group member only returned by choice to her role in a limited way. This situation is an indication of the need for culture to be addressed within practice development activities as recommended by Manley and McCormack (2003) and McCormack et al (1999).

The technical approach to practice development applied in this activity focused mainly on the outcome of the activity. Using emancipatory practice development that "... assist groups' enlightenment (increased awareness) through nurturing a culture which enables individuals and groups to act" (Manley and McCormack 2003, p.26) may have led to more effective change. However the use of an emancipatory practice development approach in a complex clinical setting involving high numbers

of nursing staff with varying skill levels in very busy clinical areas with high patient loads, would require skilful facilitation. The skills for this level of facilitation need to be identified and developed.

Other factors that inhibited the practice change in the areas were: all staff did not receive the three education sessions and therefore lacked awareness of information resources available; support from the nurse responsible for the trial in each area was spasmodic and not accessible on all shifts; and time to reflect on the change during the trial in a formative manner was not taken. This strongly suggests opportunities for aspects of staff professional development were poorly addressed. In future practice development activities professional development of staff requires more meticulous planning and implementation to enable staff to empower themselves to change.

Though the systematic process enabled engagement with the practice environment as Cutcliffe et al (1998) recommends, the degree of engagement in each area was not as deep as had been expected despite the use of key nurses. Though the facilitators had considered ownership and credibility of the redesigned assessment would be better nurtured by Implementation group members in the clinical areas, on reflection they overestimated the capacity of the Implementation members to be conduits of information, to engage ward staff with the development and to provide the necessary education and support. An extension of the collaborative partnership between the facilitators and Implementation group members at the workplace throughout the activity needs to be employed to overtly strengthen the capacity for embedding the new practice.

This critique is in the most part from the perspective of the facilitators. By referring to the findings from the focus groups with nurses who trialed the assessment in the clinical areas their voices can be added. Findings for example showed some nurses recognised their need for education to improve their interviewing skills for more competent assessment. This and other findings support conclusions that

the consultation process at ward level during the development of the assessment format had not achieved engagement of enough clinical staff to the desired degree and the educative process used to introduce the trial was flawed. Further, the policy revisions required to accompany the use of the new assessment information were not completed by the organisation prior to the trial. This reinforced some skepticism from clinicians as the policies required to support their work and overcome particular challenges faced daily on the wards were not available. These findings support directions for more effective professional development to bring greater opportunity for staff empowerment as noted previously.

CONCLUSION

Though the practice development activity achieved redesign of the assessment there were aspects stifled by the technical practice development approach. Practice development particularly in bureaucratic organisations is complex with the process of generating changes in practice with both service users and providers a major challenge. Facilitation is critical to the dimensions of the change, as is the degree of collaboration that unites clinicians together with a common aim. Practice development was found to require widespread participation, be demanding of time and effort and a challenge to the existing culture. Recommendations able to be made for ongoing practice development activities in clinical settings from reflection on the process are:

- engage all staff in the change process;
- set up alternatives with delegated authority for key facilitators;
- build professional development into the practice change;
- ensure service users (eg patient representatives) are mentored;
- provide capacity at the workplace for embedding the new practice;
- develop transformational strategies that address

not only the dominant organisational culture but also existing subcultures; and

- use an emancipatory practice development process.

Further and most importantly, there is an urgent need to identify the evidence base for achieving effective practice development in bureaucratic organisations to ensure best use of resources.

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Pre-registration nurses: an investigation of knowledge, experience and comprehension of e-health

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KEY WORDS

e-health, nursing informatics, nursing education, curriculum development

ABSTRACT

Objective

The present study investigates the perceptions and attitudes of nursing students with regard to e-health, the level of their knowledge in e-health and their expectations of e-health. Barriers which impede the development of knowledge and skills in e-health within a nursing curriculum are also explored.

Design

The study design was a cross-sectional survey questionnaire. A questionnaire focusing on the attitudes and perceptions of nursing students toward e-health was distributed to 60 second year nursing students at a university nursing school in Queensland, Australia.

Setting

A tertiary education centre for nurses.

Subjects

Second year undergraduate nursing students.

Results

77% (43) respondents admitted they were not familiar with the term e-health. 82% (46) rated their knowledge of e-health technologies as minimal. 87% (49) admitted they never had e-health education in any form. Over 50% (34) of all respondents said they were not sure if e-health has any relevance to their future practice. 82% respondents rated their computer skills as advanced or intermediate; while 39% (22) responded the main barrier for them to improve their knowledge and skills in e-health is lack of systematic education and training.

Conclusions

Despite the fact that the majority of respondents regularly used computers and the internet in their day to day activities and nursing education, their awareness and knowledge with regard to e-healthcare was very limited. In order for nurses to be equipped with the skills required to facilitate e-healthcare applications there is a need for undergraduate students to be provided with formal e-healthcare training.

INTRODUCTION

The health care sector is under growing pressure to provide health services more efficiently and economically. The reasons include the increasing cost of health care, more restrictive health budgets and the ageing population. The potential of e-health applications, ie the delivery of health services across a distance using information and communication technologies (ICT), is being recognised, especially for the delivery of health services to rural and remote areas. This is particularly important in countries such as Australia where large distances separate some patients from specialists based in metropolitan areas. Furthermore, the emerging demographic challenges have also made health systems more vulnerable. Governments around the world are beginning to investigate the potential benefits of e-health and some are introducing new policies to help encourage the integration of e-health as an alternative to conventional health service delivery.

LITERATURE REVIEW

The impact of information and communication technologies on every aspect of society seems inevitable and irreversible. ICT have also made a significant impact on medical and health fields. There is a growing consensus that ICT improve the quality of care and efficiency of health care services (Haigh 2004). Studies have established the need for systematic education and training of health care professionals in information technologies. For example, a survey conducted among nurses and midwives working in a wide range of specialties in the National Health Service (NHS) in the UK showed that only a small number of health care professionals were confident in their knowledge and skills associated with the use of new technologies (Bryson et al 2005). Conversely, a large number of studies have shown the importance of knowledge and skills in ICT for health care professionals, including nurses (Jiang et al 2004).

During the 1990s, rapid growth in the deployment of computer facilities in the health sector and the growing acceptance of the internet compelled

health care professionals to consider how these new technologies should be used in their practice. On the assumption that ICT have the potential to help deliver services more efficiently, a large number of medical and health curricula were revised to include core information technology (IT) skills in education programs (Yee 2002; Marini 2000). As part of this process, a number of nursing courses around the world incorporated IT subject(s) into the nursing curriculum as well (Jacobs et al 2003; Rosenfeld et al 2002). In some cases, there were attempts to develop national strategies to include IT education in nursing curriculum (Herbert 2000).

The objective of these changes was to give nurses and other health professionals essential skills in the use of information technologies (Sinclair and Gardener 1999). There was a belief that knowledge and skill in information and communication technologies would offer nurses and other health practitioners an opportunity to manage information more efficiently, including documentation of clinical work, patient care planning and clinical problem solving (Wallace et al 1999). Furthermore, it was expected that ICT would improve efficiency in research and best practice (Jacobs et al 2003). There is evidence that the introduction of IT related subjects in nursing curriculum has produced a positive impact on nursing education, research and clinical practice (Travis et al 1994).

IT courses provide nursing and other health students with valuable training in the use of computers and prepare them for fast changing workplaces. However these courses have focused specifically on fundamental computer operating skills, such as word processing and database management (such as access to reference libraries). To date there have been very few (if any) e-health subjects incorporated into undergraduate health programs which formally conceptualise e-health and demonstrate the potential benefits in clinical, educational and administrative applications. The primary argument of this study is that, although introduction of IT and computer courses makes a contribution to nursing and other health care curriculum development, the

lack of systematic education components in e-health remains a considerable barrier to the potential uptake of e-health in nursing practice.

AIMS

The objective of the present study was to examine the attitudes and perceptions of nursing students toward e-health. The acceptance and knowledge of health professionals are extremely important if e-health is to become an important element of mainstream health care. Nurses make up the largest proportion of the health workforce. Their acceptance and enthusiasm to use e-health as an alternative means of health care delivery would help facilitate the integration of innovative methods of health service delivery into mainstream practice.

METHODS

A survey was designed to assess the perceptions and attitudes of nurses toward e-health and distributed to 60 second year pre-registration nursing students enrolled at a university nursing school in Queensland, Australia. Questions were divided into the following sections: demographic details, knowledge of e-health, relevance of e-health to the nursing

profession, computing skills, use of the internet and access to e-health education.

FINDINGS

Demographics of participants

A total of 56 (93%) students completed the survey. 91% (51) of respondents were female. About two thirds of all respondents (64%) were aged less than 24 years and the remainder (36%) were between 25-50 years of age. The majority of students (85%) thought they would most likely work in metropolitan hospitals as opposed to rural and remote areas when they finished their studies and were qualified.

Knowledge in e-health

Most respondents (76%) were unfamiliar with the term e-health (table 1). In contrast, about half of all respondents were familiar with the term 'online health' (45%) and 'electronic health records' (52%). 82% (n=46) of respondents described their knowledge and skills related to e-health as minimal. 88% (n=49) of respondents had no previous exposure to e-health education and/or training. Five students (9%) reported an e-health experience gained during clinical practice.

Table 1: Proportion of responses related to knowledge of e-health

Question	n	Response			
How familiar are you with the term e-health?	53	Very familiar (4%)	Somewhat familiar (15%)	Not familiar (81%)	
How would you rate your current knowledge and skills in relation to e-health?	51	Advanced (0%)	Intermediate (4%)	Basic (8%)	Minimal (88%)

Generally, there was very limited understanding of e-health (table 2). Only a small number of students (9%) understood the various communication techniques which can be used in e-health such as email, internet, telephone or videoconferencing. Similarly, the majority of respondents (90%) had difficulties in identifying e-health as applications related to clinical services, education, management, and administration. The majority of respondents

(39%) identified a lack of education and training to be the main obstacle. This was linked to poor awareness of e-health, while factors such as lack of time, lack of exposure to technology and lack of direction and guidance were other constraining factors.

Relevance of e-health to nursing profession

Questions were asked to discover the perceptions of the students about e-health as an important element in their future practice. About 62% of all

respondents were unaware of 'the importance of e-health in the current and future health sector'. Only a small number of students (23%) suggested that e-health may be important in health care practice. The question 'do you think that e-health applications can be used to improve nursing practice?' resulted in 75% of students responding they did not know. Regarding the importance of e-health in improving their services as nurses, more than half the students answered they were not confident.

Computing skills

Several questions were asked to establish the knowledge and skill of nursing students in computing. The results of the survey showed that the majority of students were very comfortable with computers and had strong knowledge and skill in IT. 66% (n=37) rated their computer skills as intermediate while 16% (n=9) rated them as advanced. None rated their computer skills as minimal. The majority of students had formal computer training in various applications.

Table 2: Proportion of responses related to understanding of e-health (n=56)

Question	Response					
Which of the following communication techniques are used in e-health?	Email (16%)	Telephone (5%)	Internet (21%)	Videoconference (7%)	Post (1%)	Fax (1%)
Which of the following areas are mainly associated with e-health?	Clinical (10%)	Educational (16%)	Managerial (1%)	Administrative (1%)	Research (9%)	
What are the main barriers to improving your e-health knowledge?	Lack of time (18%)	Lack of education and training (39%)	Lack of exposure to technology (9%)	Lack of direction and guidance (16%)	Other (14%)	

Use of the internet

The survey revealed that the majority of students had easy access to computers and the internet. Most of the students (94%) had easy access to the internet both at university and at home. 89% of students stated they used the internet regularly. The majority of students (51%) had access to a broadband connection. 76% of students who used the internet spent 1-3 hours per day 'surfing the web'. Students indicated they used the internet regularly for their nursing education. With regard to other peripheral equipment, about two thirds of all students had a digital camera and the majority (90%) were confident in operating it.

Access to e-health education

94% (n=53) of students admitted they were not given knowledge about concepts, terms and definitions of e-health during their nursing program. While 29% of students said that e-health should be included in the nursing program, 66% (n=37) were unsure. Nearly 90% students admitted they were not aware of the fact that the university they were attending or any

other tertiary institution offered undergraduate and graduate courses in e-health. In terms of delivery mode, the preferred learning methods of students were: on campus lectures, self-directed learning modules and web-based methods.

DISCUSSION

To understand the potential benefits of e-health in the nursing profession, a group of second year nursing students who had completed a substantial proportion of their nursing curriculum were surveyed to determine their knowledge and skills associated with e-health. The results showed the majority of students were not aware of the meaning and relevance of e-health and did not understand how e-health could impact on their roles in health care.

Despite the lack of knowledge and skills associated with e-health, the overwhelming majority of students claimed to have a sound knowledge of IT and confidence in general computing skills. The majority of students had formal training in computing and some IT applications. Students were quite confident

in the use of computers, the internet and peripheral devices such as digital cameras. It may be assumed that the lack of knowledge and awareness in e-health has little or no relation to knowledge of IT.

In the context of e-health there are exciting opportunities for the way in which health services may be delivered. The use of ICT in the health industry is becoming more widespread, especially with regard to management of patient records, storage of test results and transmission of data. In terms of the delivery of clinical services, ICT remain underutilised and perhaps a key reason relates to the lack of knowledge and skills developed in this area. Another reason could be that more emphasis has been traditionally placed on investment in technology and equipment and the development of policies as opposed to the management of organisational change, staff training, research and technical support.

The emerging role of the nurse practitioner has major implications for health services, in that experienced nurses will have more responsibility in managing patients, particularly where access to medical services is inadequate. The nurse practitioner is a registered nurse educated to function in an advanced clinical role (Beales 1997). Telemedicine has proven to be a useful tool for nurse practitioners. For example in the United Kingdom (UK), nurse practitioner units have been established to provide primary health care and support for patients with minor injuries. Results in the UK have shown these facilities to be very effective, with reported reductions in waiting times and more efficient use of medical resources (Reed 2005; Jenkins and White 2001; Tachakra et al 2001; Beales 1997).

The lack of knowledge in e-health, its basic concepts and application is a result of the absence of systematic education (Edirippulige 2006). It is clear that unless nursing students are given a systematic education in basic concepts, principles and a variety of ICT applications, then e-health will not become a part of their practice. Knowledge and skills of computers alone will not help them benefit from e-health applications. The potential benefits

of e-health can only be realised if nursing students are provided with formal e-health education as part of their curriculum.

CONCLUSIONS

The absence of systematic education in e-health at university level is a serious issue for consideration. This is true with health education in general and nursing in particular. There is an erroneous perception that the introduction of IT and computer training will help nurses to use e-health in their practice. While IT and computer training has contributed tremendously to improving services, e-health applications and their use require specific education and training. Due to the lack of such systematic education in e-health, nurses have not been sufficiently exposed to e-health applications. E-health is not formally included in most undergraduate nursing education programs.

E-health courses to introduce basic concepts, definitions and theoretical aspects of e-health tied up with practical examples must be included in undergraduate nursing programs. From the perspective of governments and policy makers, funding arrangements for e-health should support research and teaching. Education must be considered as a significant aspect in attempts for integration of e-health into mainstream health care.

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Income inequality and health status: a nursing issue

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KEY WORDS

socio-economic, nursing, population health, inequality

ABSTRACT

Objective

To review the association between income inequality and health status, and consider an appropriate nursing response.

Primary Argument

Nursing has a rich heritage of advocating for a healthy society established on a foundation of social justice. The future legitimacy and success of public health nursing depends on recognising and appropriately addressing the social, economic and political determinants of health in the populations served. There is an incontrovertible association between population health status, absolute income levels and income inequality. Thus, along with other social determinants of health, income differentials within populations must be a fundamental consideration when planning and delivering nursing services. Ensuring that federal and state health policy explicitly addresses this key issue remains an important challenge for the nursing profession, the public health system and the Australian community.

Conclusions

Higher mortality and worse health status occur in societies with higher income inequality. The relationship between income inequality and health appears to be determined both by relative access to resources for health gain and relative social position. The association between greater income equality and improved health may be explained by improved social cohesion. As social factors are at the root of much of health inequality, this knowledge needs to invoke political action and advocacy from the nursing profession to promote the development of healthy public policy.

Including indicators of income inequality when planning and monitoring nursing services will enable services to measure to what extent they are based on the principle of social justice.

INTRODUCTION

Nursing has a rich heritage of nurses serving as advocates for a healthy society based on the principle of social justice (Drevdahl et al 2001). The role of public health nursing in many countries, including Australia, is varied but the focus on the populations' health is central to its role (WHO 2001). This role includes action in the areas of preventative health services and public policy. The future legitimacy and success of public health nursing depends on recognising and appropriately addressing the social, economic and political determinants of health in the populations served. Most notably, the relationship between income and population health status should not be neglected.

The link between population health status and socioeconomic status has long been recognised. Many diseases are more common and life expectancy is shorter at the lower rungs of the social ladder in each society (WHO 2003).

The World Health Organisation (2003) describes the main social determinants of health as: social exclusion; the social gradient; stress; a good start in life; employment; social support; addiction; nutrition; and healthy transport. Social exclusion is inextricably linked with income inequality. In this paper, this association is reviewed, and the contributions of relative social position and community social cohesion considered. The implications for the planning and delivery of equitable nursing services are discussed.

Mortality, health status and income inequality

The association between socio-economic status and mortality rates has been established for many years and validated in many countries (WHO 2003), including Australia, where McMichael (1985) found that male mortality rates in the 1970's had an inverse relationship with social class. In New Zealand, males aged 15-64 years in the lowest socio-economic group had a mortality rate 3.5 times higher than those in the highest socio-economic group during the 1970's and 1980's (Marshall et al 1993). Scotland had higher mortality rates than England and Wales

in 1980-1982, with greater Scottish deprivation identified as the key determinant of this difference (Carstairs and Morris, 1989).

The Population Health Forum, a group of academics and other people who work to build a healthier society, argue that the greatest health hazard is the economic gap between the rich and the poor (Population Health Forum 2007). More than a decade ago reports indicated that income inequality rather than absolute income was the most important factor underlying the profound and increasing mortality differentials in Scotland (McLoone and Boddy 1994), the USA and Britain (Davey-Smith and Egger 1993).

The effect of income inequality on population health status continues to be described. Recently, manual workers were found to be at a higher risk of death than non-manual workers when they live in areas with higher income inequality within Sweden (Henriksson et al 2007). Poverty and income inequality correlated with teenage pregnancy rates (Crosby and Holtgrave 2006). The risk of suicide in young adults has also been associated with income inequality (Miller et al 2005). In an ecological study of 21 developed countries, Pickett et al (2005) found that obesity, calorie consumption and diabetes mortality were associated with income inequality. The effects of income inequality were also seen at a young age, with 11 year old children in countries with high income inequality reporting more episodes of drunkenness than the same age group in countries with low income inequality (Elgar et al 2005).

Even in Italy, a country where health care and education are universally available and a strong social safety net exists, income inequality had an independent and more powerful effect on life expectancy at birth than did individual income and educational attainment (De Vogli et al 2005).

In an analysis of combined Canadian and USA data, Ross et al (2000) found that income inequality was a significant explanatory variable of mortality, with a 1% increase in the share of income to the poorer half of working age-group households modelled to reduce mortality by nearly 21 deaths per 100,000 per year.

Although some commentators still question the relationship between income inequality and population health, a recent authoritative review of the evidence (Wilkinson and Pickett 2006), including 168 analyses in published 155 reports, found that a large majority (70 per cent) of these analyses conclude that poorer health was experienced in societies where income differences were bigger. According to Wilkinson and Pickett (2006) many of the studies that showed no association were measuring inequality in small populations with a limited range of social class differences and thus were unable to show the association.

In a review of the social determinants of health, the World Health Organisation (2003) concluded that relative poverty, as well as absolute poverty and social exclusion, had major impacts on health. The distribution of income and inequality of its distribution is the main factor defining relative poverty. Relative poverty denies people access to housing, education, transport and other societal benefits. Being treated as less than equal and being excluded from society can lead to poorer health experience (WHO 2003).

How income inequality results in poorer health is not fully understood. Explanations include the effect that income inequality has on negative emotions and stress behaviours, an innate dislike of inequality (Godoy et al 2006), the influence of invidious social comparisons, and a reduction of social capital (Zimmerman and Bell 2006). The level of environmental disorder and quality of the built environment are also important factors and primarily explained the effect of income inequality on overdose deaths in New York City (Nandi et al 2006). In a study by Siahpush et al (2006) the psychological effects of income inequality in Melbourne, Australia, were clearly demonstrated, with smoking being associated with a higher level of perceived income inequality, lower perception of relative material well-being and living in a community with a lower degree of trust and safety.

The greater the length of time that people live in disadvantaged circumstances, the more likely their health will be worse (WHO 2003). It appears that this effect is cumulative over an individual's lifespan,

with childhood and adult social and economic conditions combining to determine health experience (Langenberg 2005). Thus the disconcerting trend of increasing income inequality in many countries does not bode well for future health equality (Shaw et al 2005). Wilkinson (1997a) considers that the processes of social stratification explain the link between income inequality and health, a relationship that is further clarified by an understanding of the role of social cohesion (Wilkinson 1997b). Labonte (1999) describes social cohesion as the palpable and powerful "gluey stuff that binds individuals to groups, groups to organisations, citizens to societies". Wilkinson (2002, 1997b) argues that social cohesion and health deteriorate simultaneously with increasing income inequality. Income equality's link with better health has been directly attributed to greater social cohesion (Wilkinson 1997a).

The Nursing Perspective

This important link between income inequality, social disadvantage and poor health status deserves careful consideration and action by the 21st century nursing profession.

It is well recognised that health systems are not conventionally organised to deliver more or better health services to people at the bottom of the class structure, but if this is addressed, marked improvements in health status are possible. This call for justice is supported by evidence that health risks are reduced by favourable changes in organisational justice (Kivimäki et al 2004). Drevdahl et al (2001) suggest that nursing practice must apply justice as a key principle to resolve the tension between the health of individuals and the health of populations. It is easy to focus on the health of individuals and neglect the socio-economic struggles at population level. Improved access and quality of schooling, health care, social welfare and working conditions were identified by Lynch et al (2000) as the principal areas where strategic investments would improve population health. Nursing has a central role in advocating for these investments.

As social factors are at the root of much of health inequality, health status is of concern to policy makers in every sector, not solely those in the public health

sector and this concern needs to invoke political action (Baum 2005, Marmot 2005).

The WHO (2003) has argued that developments in the policy areas of wages and salaries, protection from discrimination and social exclusion, removal of barriers to health care services and reductions in social stratification are required. Advocacy by nurses individually and as professional collectives for government policy to address these issues could result in important changes to reduce income inequality and improve the health of the population.

The World Health Organisation (2007) put forward ten principles for policy action that are helpful for guiding nursing action. Inherent in these principles is the concept of levelling up and not levelling down, that is bringing up the level of the groups of people who are worse off to that of the groups who are better off. This approach requires focusing on people in poverty and narrowing the health divide.

Drevdahl et al (2001) argue that nurses, together with other health professionals, must create a climate where socio-economic differentials are unacceptable, and thus remain true to our heritage of advocating for a healthy society. Including a measure of income inequality in the populations served could be incorporated in the planning, delivery and monitoring of all nursing services. This should resonate well with the Australian community, which has indicated broad support for reducing the gap between the rich and poor (Newspoll Market Research 2000).

CONCLUSIONS

Higher mortality and worse health status occur in societies with higher income inequality. The relationship between income inequality and health appears to be determined both by relative access to resources for health gain and relative social position. The association between greater income equality and improved health may be explained by improved social cohesion. As social factors are at the root of much health inequality, this knowledge needs to invoke political action and advocacy from the nursing

profession to promote the development of healthy public policy. A measure of income inequality should be used when planning and monitoring nursing services.

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