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THE AUSTRALIAN JOURNAL OF ADVANCED NURSING

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EDITORIAL

Jill Iliffe
Federal Secretary, Australian Nursing Federation

This issue of AJAN covers some interesting and contemporary issues of relevance to nurses and midwives.

Eley et al surveyed nurses in Australia to determine their current use of information technology and barriers to that use. They found that for most Australian nurses, experience and confidence in use of information technology is confined to basic computer skills and common applications and that in order to use information technology to support health delivery, action to increase access for nurses and remove barriers to use is urgently required. These finding are particularly pertinent in an age where there is increased use of information technology to support care delivery. With nurses at the forefront of health and aged care delivery, it is of considerable concern that nurses have limited confidence in and access to information technology applications.

Addressing another contemporary issue, Walters explores the experience of nurses educated in other countries in being recruited to work in Australia and suggests some important strategies to ensure their experience is as efficient and supportive as possible. With so much current commentary about the abuse of temporary work and training visas by recruiting agencies, it is a timely contribution to the debate.

In another important contribution to nursing, Zhao and Turner reviewed the evidence around the impact of shift work on people's daily health habits and the association with adverse health outcomes. They found that shift workers had more adverse lifestyle behaviours and compared to non-shift workers, their nutritional intake was less healthy; they were more likely to be overweight; and to smoke cigarettes. Zhao and Turner concluded that with the majority of Australian health care workers, and in particular nurses, working rotating shifts, it was essential to address the impact of shift work on a health care workforce in short supply.

A number of the papers in this issue of AJAN make a significant contribution to nursing practice. Armstrong and Goldfield report on the results of a community based project in regional Victoria (Australia) focused on early childhood intervention for developmental and behavioural problems. The project successfully established a questionnaire that could act as a communication and developmental screening tool between providers, and between providers and parents, as well as having sufficient psychometric properties to enable its use as a developmental screening tool for maternal and child health, childcare, preschool and primary school staff.

Cummins and Trotter explored the perspective of HIV positive clients on issues related to ageing; noting that the continuing advances in the treatment of HIV through the use of highly active antiretroviral therapy which reduce HIV viral load allowing immune recovery, has led to an increased survival rate and the emergence of an ageing population. This has implications for people who are HIV positive, their carers and service providers as diseases associated with ageing need to be considered together with ongoing care for HIV.

The management of pain in labour is the subject of a study by Peart who evaluated the efficacy and

acceptability of sterile water injections to relieve lower back pain during labour. The significant finding of the study was that the majority of women (with a response rate of 87%) found the administration of intra dermal sterile water to be a satisfactory method of pain relief and a highly acceptable method because it was not harmful to the baby. Peart concludes that sterile water injections should be routinely offered to manage lower back pain during labour.

Brunero and Stein-Parbury reviewed the evidence in relation to the effectiveness of clinical supervision for nurses in mental health settings and found sufficient research evidence to suggest that clinical supervision provides peer support and stress relief for nurses as well as a means of promoting professional accountability and skill and knowledge development. While the nursing literature dominates with specialty areas of practice such as mental health and aged care, the authors conclude that more research is needed to evaluate the effectiveness of clinical supervision in other specialty areas of nursing.

AJAN's international papers provide an interesting insight into nursing care in other countries and an opportunity for cross fertilisation of ideas and practices.

HyunSoo and WhaSook from Korea evaluated whether the Critical Patient Severity Classification System (CPSCS) could be effectively used to predict the mortality, functional disability and cognitive ability of brain injury patients at one month and six months after admission to an intensive care unit. They found the probability of discriminating survival and death correctly with the use of the CPSCS was 77.3% and 81.3% respectively. They also found the system was less reliable at predicting functional and cognitive recovery in brain injury patients and suggest that to expand the CPSCS applicability to functional or cognitive recovery, the system needs to include brain injury specific nursing activities such as managing brain oedema or brain tubes.

Mercer et al from New Zealand present findings that emerged from a hermeneutic study that explored the experiences of people whose partner was hospitalised in a non-local tertiary setting. They found that participants in the study faced the fear of death and put their 'life on hold' amid social isolation from family and friends. The authors suggest strategies that nurses can use to facilitate resolution of the uncertainty and minimise fear of the unknown.

Foster et al's survey was based in Fiji and aimed at identifying the attitude of mental health workers in Fiji toward mental illness. Their findings included both positive and negative attitudes toward mental illness with their survey providing a baseline measure of attitudes which will enable future educational interventions to be evaluated and comparisons made.

Tabak and Zvi from Israel present a case study which explores the issues around the participation of a minor with a life threatening illness in decision making about their medical care and the role of the nurse in that process. In the face of parental opposition to the minor's involvement in decisions about care, Tabak and Zvi discuss the respective rights of the parents; rights of the minor; and the role of the nurse.

Our final paper is from Brazil. Rocha et al explore a nursing care model for temporarily institutionalised child victims of abuse using therapeutic play. The nursing care model presented allows the needs of the child to be identified by the nurse and addressed in a non-threatening and supportive environment. Rocha et al encourage nurses to be more actively involved in the care of child victims of abuse and suggest their model offers the opportunity for children to have a healthier institutional experience. They found the developed care model was concise and practical, and easily applied by nurses in their day-to-day practice.

Reflections on nursing

GUEST EDITORIAL

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I never really planned to make nursing a career. I worked in a bank when I left school (which I hated) and it was not until I visited a hospital with a friend that I decided nursing was what I wanted to do.

I consider I was very fortunate to have 'trained' in a private hospital. We had no doctors on site and if we needed a doctor, we had to call them in. So we learnt early to undertake comprehensive assessments and to make our own clinical decisions (often supported by a telephone consultation with the doctor). This problem-solving was critical to my later work in occupational health nursing and rural nursing.

The next significant part of my career was the years that I worked in occupational health nursing. I loved this primary health care role. We not only patched up the walking (and not walking), but we also ran preventative programs such as hearing and routine health screening and spent considerable amounts of time making some suggestions on how to improve safety within the workplace. Working with well people instead of sick people was also different - the challenge was keeping them well or rehabilitating them back into a suitable work situation after an illness or injury.

Having lived in a major city all of my life, I was excited when my husband and I decided to move to a rural area and commence farming. My husband had experience in rural life and I had the need for a 'tree

change'. It also changed my focus from delivering clinical nursing to teaching as I was appointed to a position of Nurse Educator in a hospital training school. At the same time, I had begun to work toward other qualifications. I completed a Diploma in Nursing Education and then enrolled in a Bachelor of Arts (there were no Bachelor Degrees in Nursing available externally at that time). This was a productive time of life - managing an orchard and production nursery, studying for my degree and then my PhD and working full-time in a School of Nursing.

My background in a rural community and teaching nursing made me realise that rural nursing was very different to the role of nurses in larger hospitals. It was very like the work I had undertaken as an occupational health nurse. Usually there are no doctors on-site (they may be within the town, but again they may be distant with only telephone backup). There was also the visibility within the community. Many country people tend to ask the nurse for health advice (they do not want to bother the doctor and often a trip into town to see the doctor is economically difficult). So documenting this work became the focus of my PhD.

I also realised there were little professional activities for rural nurses. And so, with the help of several nursing colleagues, we established the Association for Australian Rural Nurses. I would like to think that this Association (now the Australian Rural Nurses and Midwives Association) has put rural nursing on the map as a nursing speciality. Certainly the role of rural nurses is now considered by all levels of government and there are several universities offering rural nursing programs at both the undergraduate and postgraduate level (including nurse practitioner programs).

At the same time as we established the Association for Australian Rural Nurses, we also received funding through a Rural Health Support Education and Training (RHSET) grant to establish the *Australian Journal of Rural Health*. I was the Editor of this journal from 1992-2002. The journal has gone from strength to strength and is now in its 16th year of publication. While it is a multi-disciplinary journal, it has published rural nursing research and continues to provide an excellent source of new evidence for all rural health professionals.

I am still passionate about rural nursing. However I am also passionate about nursing workforce issues and looking at different models of care. For example, we are currently undertaking two studies examining the impact of nurse-led models of care (one in a general practice setting and one in an acute hospital setting). One of these models is a nurse practitioner model and the other is an advanced practice role for registered nurses who are not nurse practitioners. The other work we have been undertaking has focused on nursing workforce issues. In particular, we have worked with both the Australian Nursing Federation (ANF) and the Queensland Nurses' Union (QNU) (ANF Queensland Branch) to ascertain barriers to information technology[1] and job satisfaction. It was re-assuring that the QNU work (we now have data from three studies) has been used in negotiations to improve the workplace environment for nurses in Queensland.

I remember one of our second year nursing students saying to me after I gave a lecture to them about research methods/methodology "Do you really feel you can make a difference with research?", and I could answer "Yes, absolutely". Nursing has been kind to me. While I have worked hard, I have also had the privilege of working with wonderful supportive colleagues - colleagues who often push the boundaries. I have also been 'driven' by the need to try to improve the care that nurses deliver and consider that research is one way of making a significant contribution to this work.

References
[1] http://www.anf.org.au/it_project/

The impact of shift work on people's daily health habits and adverse health outcomes

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KEYWORDS

shift work, diet, BMI, smoking, exercise, alcohol

ABSTRACT

Objective
To review the published scientific literature for studies analysing the association between shift work and people's daily health habits (as measured by diet, exercise, smoking or alcohol consumption) and adverse health outcomes such as obesity.

Methods
The following selection criteria were used to systematically search the literature: the studies were to be primary observational or analytical in design; targeted populations were working adults engaged in shift work; and outcome measures were the association between shift work and either diet, exercise, BMI, smoking or alcohol consumption. Data extraction and quality assessment were performed independently by the two authors using a standardised procedure. Synthesis of data is presented in text and tabular format. Meta-analysis was not possible due to the heterogenic nature of the studies reviewed.

Results
This review retrieved seventeen studies that met all inclusion criteria. The majority of the studies found that shift workers had more adverse lifestyle behaviours. Compared to non-shift workers, the nutritional intake of shift workers is less healthy and they are more likely to smoke when compared to non-shift workers. Shift workers also tend to be overweight. The impact of shift work on exercise patterns and alcohol consumption could not be ascertained because of the paucity of high quality studies.

Conclusions
Shift work impacts negatively on daily health habits and can lead to adverse health outcomes, such as poor dietary intake, smoking, and becoming overweight. The majority of Australian health care workers, and in particular nurses, work rotating shifts. It is important to have a greater understanding of the impact of shift work on our health care workforce.

INTRODUCTION

Modern society is moving toward a pattern of working twenty-four hours a day. Essential services provided by police departments, fire brigades, ambulance officers and hospital employees have traditionally always operated throughout a twenty-four period. Increasingly other services such as restaurants, petrol stations, and grocery/convenience stores are open twenty-four hours in order to accommodate night workers (Geliebter et al 2000). Over the last several decades, there has been a rapid increase in the number of shift workers worldwide (Sudo and Ohtsuka 2001). In Australia in 2003, a national survey found that over one million employees (14%) had worked shift work in the previous four weeks. Of these shift workers, 46% had worked a rotating shift (ABS 2004). Health and community services have the second highest proportion of shift workers of any industry in Australia (32.3%: ABS 2004). The health workforce is estimated to be about 7% of the entire Australian workforce and nurses comprise the single largest health professional group (54%: Productivity Commission 2006).

As people work irregular hours, their daily routine is interrupted. Regular eating and exercise habits are difficult to maintain (Geliebter et al 2000). Consequently, shift workers have a higher prevalence of being overweight (Chee et al 2004; Sudo and Ohtsuka 2001). In addition, shift workers also have more adverse life-style behaviours, such as higher tendency to smoke (Reeves et al 2004) and drink alcohol (Nakamura et al 1997). These daily habits (diet, exercise, smoking and alcohol consumption) and their immediate consequences (eg obesity) are the fundamental causes of many chronic diseases (Mcginnis and Foege 1993). An unhealthy diet often leads to being overweight and contributes to circulatory diseases, diabetes mellitus and various forms of cancer (Vuori 1998). Lack of exercise is closely associated with food-related ill health (Nestle and Jacobsson 2000). A person who is obese is at greater risk of cardiovascular risk factors (Orzano and Scott 2004). Cigarette smoking has been identified as a classical risk factor for coronary heart

disease (Kannel et al 1987). Alcohol consumption also increases the risk of chronic disease (Rehm et al 2006). The impact of shift work on people's daily health habits and adverse health outcomes should be well understood.

The majority of nurses in Australia are working rotating shifts in order to provide twenty-four hour health care. Current nursing shortages warrant investigation of all possible factors that affect nurses' health and daily lives. Nursing workforce shortages are acknowledged globally. In Australia, there was an estimated shortfall of between 10.000 to 12,000 nurses in 2006 and between 10,000 and 13,000 in 2010 (Productivity Commission 2006). One of the factors associated with nursing retention is shift work, particularly night shift (Cooper 2003). The aim of this paper is to systematically review the evidence in the published scientific literature that quantifies and examines the association between shift work and daily health habits that lead to adverse health outcomes.

METHODS

Electronic databases were searched using EBSCO host as a search engine for CINAHL (1982-2006), pre-CINAHL (2006), Health Source: Nursing/Academic Edition (1975-2006), and MEDLINE (1966-2006). The following six separate search terms were used: shift work AND health; shift work AND diet; shift work AND exercise; shift work AND BMI; shift work AND smoking; shift work AND alcohol.

The combined effort of the above searches produced 601 abstracts. On examination of the study titles and abstracts by the two authors, 33 articles were retrieved. Rejected abstracts did not meet the study selection criteria. The references of these retrieved articles were also examined. A 'snowballing' strategy of reference titles was used and related abstracts and/or full text articles were accessed.

Other databases were searched using the above terms (except the first one) including: PubMed, PsycInfo and Proquest health and medical complete. However only Proquest health and medical complete yielded another two relevant articles. The Cochrane library was also searched with no relevant literature identified.

Overall, 35 full text articles were retrieved and assessed by the two authors independently, using the following selection criteria for this study:

1. Studies were to be published, primary research;

2. Study designs were to be observational and/or analytical (cross-sectional; case-control or prospective cohort studies);

3. The targeted populations were working adults engaged in shift work; and

4. Outcome measures were the association between shift work and either diet, exercise, BMI, smoking or alcohol consumption.

Seventeen studies met all the inclusion criteria for this review. Assessment for the quality of the methodology of these studies was based on a standardised abstraction procedure (Centre for Reviews and Dissemination 2001). The eighteen excluded articles are shown in table 1 with the reasons for exclusion. The results of selected studies are outlined in table 2.

Table 1: Studies retrieved but not selected

First author (year)	Reason for exclusion
Fujino et al (2006)	Outcome measure was the risk of ischemic heart disease rather than the association.
Ostry et al (2006)	No report of outcome measure of the association between shift work and BMI.
Persson and Martensson (2006)	Not a primary analytical study. A qualitative descriptive design with a Critical Incident Technique approach.
Higashikawa (2005)	A retrospective cohort study examining the health influences of alcohol consumption, smoking and eating habits on increased serum GGT. It is unclear whether the subjects were engaged in shift work.
Janzon et al (2005)	Exposure measure was smoking status rather than shift work.
Kageyama et al (2005)	Exposure measures were sleep problems and recent life events rather than shift work.
Love et al (2005)	Not a primary analytical research. An experimental study on the effects of shift workers' consumption of test meals on alertness scores.
Lamberg (2004)	Not a primary analytical research. A review of literature.
Portela et al (2004)	Outcome measure was the association between different working schedules and sleep complaints.
Hughes and Stone (2004)	Not a primary analytical research.
Wilson (2002)	Not a primary analytical research. A review of the literature.
Keating (2001)	Not a published article. A PhD dissertation.
Shields (1999)	Outcome measure was the association between long working hours and health rather than the association between shift work and health.
Tenkanen et al (1998)	Outcome measure was the joint effect of shift work and certain adverse life-style factors on coronary heart disease rather than the association between shift work and those adverse life-style factors
Chou (1997)	Not a published research article. A PhD dissertation.
Paz and Berry (1997)	Not an observational study. A serial repeated-measures design whereby each subject served as his own control.
Lennernäs et al (1995)	An intra-group comparison of the 24 hour nutrient intake and the intake of coffee and tea between days off and work days in day workers; or between days in shift cycle in two-shift workers; or between days in shift cycle in three-shift workers. No inter-group comparison between these three subgroups.
Skipper et al (1990)	Outcome measure was the association between shift work and physical health and mental depression.

RESULTS

This review found seventeen studies that met all inclusion criteria. Five studies examined the association between shift work and diet (Bilski 2006; de Assis et al 2003a; de Assis et al 2003b; Sudo and Ohtsuka 2001; Lennernäs et al 1993). Four studies analysed the association between shift work and BMI (Chee et al 2004; Parkes 2002; Karlsson et al 2001; Niedhammer et al 1996). One study reported the association between shift work and smoking (Knutsson and Nilsson 1998). Some studies measured several health outcomes. Smoking, BMI and exercise were used as outcome measures in a study by Fernández Rodríguez et al (2004). Reeves et al (2004) used diet, smoking and BMI as their outcome measures. Geliebter et al (2000) measured diet, BMI, smoking, and exercise. Di Lorenzo et al (2003) measured smoking and BMI. Two cross-sectional studies measured exercise, BMI, smoking and alcohol consumption as the outcomes (Kivimäki et al 2001; Nakamura et al 1997). Among the selected articles, there is one study that has covered all five health outcomes (van Amelsvoort et al 2004).

Studies examining the association between shift work and diet

A cohort study investigated the influence of shift work on energy and nutrient intake in workers with very high levels of energy expenditure (de Assis et al 2003a; de Assis et al 2003b). The sample population were garbage collectors of the city of Florianopolis in the South of Brazil. Equal numbers of subjects were selected from each shift (morning, afternoon, and night). The subjects were 30.2 ± 0.8 years old and had a BMI of 24.1 ± 0.3 kg/m². Age, body weight and BMI were not statistically different among shifts. Using one 24 hour recall and two 24 hour records (Gibson 1990) during three non-consecutive days, this study measured the intake of energy and macronutrients, the frequency of ingestion and the energy derived from foods and circadian variations in energy and nutrient intake of each shift (de Assis et al 2003a); percentage of eating events and frequency of intake

and so on (de Assis et al 2003b). The results of this study found no significant effects of shifts on the total, protein, carbohydrate and fat calories. However shifts were found to significantly influence intake of starches, alcoholic drinks, and sweets. In different periods of the day, food and nutrient intake were also affected by shifts (de Assis et al 2003a). Different work schedules affected the daily distribution of eating events as the total number of eating events per day was significantly higher for night shift workers.

In Japan, a cohort study aimed to clarify the effects of shift work on nutrient intakes in association with food consumption patterns (Sudo and Ohtsuka 2001). The study population were female workers in a computer factory, consisting of 44 daytime workers and 93 weekly-rotating shift workers (of whom 47 and 46 were engaged in early-shift work and late-shift work respectively). The mean age of daytime, early-shift and late-shift workers was 28, 26 and 25 years respectively. Height was significantly greater in daytime workers than in the other two shift workers; however no significant differences were found in body weight and BMI among the work groups. The intakes of energy, protein, fat, carbohydrate, calcium and iron for three working days and an off day were estimated by self-registered food consumption records with the aid of a photographic method. The mean commencement time and percentage distribution of frequencies of meals and snacks, mean energy and nutrient intakes, and mean nutrient adequacy rate (NAR) by three work groups were measured on working days; and the latter two were also measured on the off day. The results showed that the shift workers, particularly the late-shift workers, consumed smaller amounts of energy and nutrients than the daytime workers. This finding implied that shift workers' nutritional status was worse, which was attributable to lower meal frequency and poor meal quality.

In contrast, Lennernäs et al (1993) argued that rotating 3-shift work did not affect the nutritional quality of diet or the frequency of different types of meals and snacks.

Sixteen healthy, male shift workers, age 34.8 years ± 3.0 were recruited into this cross-sectional study. They were interviewed five times each to reflect their twenty-four hour consumption of food on morning, afternoon and night shifts, as well as a twelve hour shift and one day off. Outcome measures included the intake of energy and nutrients, the total number and mean frequency of types of meals and snacks, and total intake of energy, nutrients, and the content of energy and nutrients for types of meals and snacks as a function of work schedule.

Another non-English published study examined this research topic (Bilski 2006). This study involved a population of 171 nurses on shifts and at night and 70 non-shift nurses. The study aimed to assess the quality of meals consumed at night and nutrition habits among nurses. The mean age of the study population was 34.1 years, and their working experience ranged from 1 to 31 years (mean, 12.5 years). Bilski (2006) concluded that nurses on night shifts were more likely to consume cold meals and drank more cups of coffee everyday.

Studies examining the association between shift work and body mass index (BMI)

Chee et al (2004) conducted a cross-sectional survey to examine the socio-demographic and lifestyle factors that are associated with being overweight among 1612 female workers from 10 large electronics assembly factories in Peninsular Malaysia: 70.7% of the subjects were below 35 years old and 78.5% of them were Malay. More than half of the women (57.6%) worked three shifts, rotating every seven to ten days. Data were obtained by self-administered questionnaires and anthropometric measurements. BMI was calculated to determine the overweight status. The results revealed that working in rotating shifts including nights was significantly associated with being overweight after adjusting for age.

A cross-sectional study investigated the effects of age and shift work exposure and their interactions with

shift pattern (day shifts versus day-night rotation) as predictors of BMI (Parkes 2002). Data were collected from offshore personnel working on oil and gas installations in the United Kingdom. There were 1,574 male workers in this study population, consisting of 787 day shift workers and 787 day-night shift workers. Subjects were asked for information about demographic factors, height, weight, shift pattern, years of shift work exposure and smoking habits. This study reported that continued exposure to day-night shift work was significantly associated with increases in BMI, and the effects of shift pattern on BMI depended significantly on both age and years of exposure to shift work.

Karlsson et al (2001) conducted a cross-sectional study involving a working population of 27,845 people from the Västerbotten intervention program in Sweden. The authors analysed whether shift work was associated with the metabolic syndrome, which included obesity, hypertension, and high triglycerides and so on. The study population consisted of day and shift workers in 30, 40, 50, and 60 year age groups. Data were obtained by taking blood samples and answering questionnaires. The prevalence of obesity in shift workers was higher than that in day workers.

A longitudinal observational study conducted in a nurses' cohort (Niedhammer et al 1996), involved 469 female nurses (mean age of 30 years) working in acute care in public sectors in France. The purpose of the study was to examine the prevalence of being overweight and weight gain in relation to night work. Demographic characteristics: exposure to night work, age, parity, smoking, and sports activities in 1980, 1985 and 1990 were collected from self-administered questionnaires. Weight and height was taken by occupational physicians to calculate BMI. From the results listed in table 2, the authors concluded that exposure to night work could lead to weight gain.

Table 2: Studies of associations between shift work and either diet or exercise or smoking or BMI or alcohol consumption

Authors (year)	Study design	Study population	Outcome measures	Exposure measures	Results
de Assis et al (2003a)	Cohort	Garbage collectors - city of Florianopolis (south of Brazil) during March and April 1999 (n=66 male)	Energy and macronutrients intake Frequency of ingestion and energy from food groups	Morning shift (0700-1300h) Afternoon shift (1500-2100h) Night shift (2100-0300h)	No significant differences among the three shift groups for the total, protein, carbohydrate, and fat calories intake. Night shifts had a significantly higher frequency of starches and alcoholic beverages intakes (p=0.0001; p=0.0003 respectively). Morning shifts took sweets more frequently (p=0.0001).
de Assis et al (2003b)	Cohort	Same as population above	Percentage of eating events Energy per eating event (%) Energy per period (%)	Morning shift (0700-1300h) Afternoon shift (1500-2100h) Night shift (2100-0300h)	The total number of eating events per day was higher for night shift workers (6.2 ± 1.2) compared to morning shift workers (5.3 ± 0.2) and afternoon shift workers (5.5 ± 0.9) (p=0.004).
Sudo and Ohtsuka (2003)	Cohort	Female workers in a computer factory in Yamanashi Prefecture, Japan (44 daytime workers 93 weekly-rotating shift workers n=137)	Mean nutrient adequacy rate (NAR) on 3 working days and the off day Mean Commencement time and frequencies of meals and snacks	Daytime workers (0830-1715, 60 mins for rest) Early-shift workers (0600-1345,45 mins for rest) Late-shift workers (1340-2225,45 mins for rest)	All nutrient intakes and mean nutrient adequacy rate on working days were the highest in daytime workers and the lowest in late-shift workers. On the off day, only carbohydrate intake was significantly larger in daytime workers than in late- shift workers (p<0.017). The percentage of the subjects who took breakfast 3/3 times was the lowest in late-shift workers and non-meal frequency played a principal role in the low NAR energy of the late-shift workers.
Lennernäs et al (1993)	Cross-sectional	Male shift workers age 34.8 years ± 3.0 (24-62 years) (n=16)	Frequency of types of meals and snacks Content of energy and nutrients for types of meals and snacks	Morning shift (0600-1400) Afternoon shift (1400-2200) Night shift (2200-0600) 12h shift (0600-1800 or 1800-0600)	The frequency of meals and snacks across shifts showed no significant variation. No significant variation across shifts for the content of energy and nutrients of each type of meal and snack.
Bilski (2006) [study not published in English]	Unable to ascertain from English abstract	171 nurses working in shifts and at night and 70 non-shift nurses(n=241)	Unable to obtain information	Unable to obtain information	Only 17(9.9%) nurses consumed a warm meal at night. As many as 13(7.6%) consumed no meals and 17 (9.9%) drank only coffee.

Table 2: Studies of associations between shift work and either diet or exercise or smoking or BMI or alcohol consumption continued...

Authors (year)	Study design	Study population	Outcome measures	Exposure measures	Results
Chee et al (2004)	Cross-sectional	Female workers from 10 large electronics assembly factories in Malaysia (n=1612)	Body Mass Index (BMI)	Age group; ethnic group marital status; education; income; staying in hostel; exercise; rotating shift work including nights (3 shifts or 2 shifts)	In a logistic regression model with all variables included as covariates, working in rotating shifts was significantly associated with being overweight (p<0.001). Shift workers including nights faced significantly higher odds of being overweight even after adjusting for age and other variables (p<0.001, adjusted OR: 1.6, 95% CI: 1.28-2.06).
Parkes (2002)	Cross-sectional	Male offshore personnel from 17 oil and gas installations in the United Kingdom sector of North Sea (n=1574)	Body Mass Index (BMI)	Age; years of shift-work exposure; educational level; smoking habits; job type; shift pattern (day shift: 0700-1900; day-night shift: 0700-1900 and 1900-0700)	Over successive age points and years of exposure, the increase in BMI was more marked in day-night shift group. Exposure years were correlated significantly with BMI (r=0.19, p<0025).
Karlsson et al (2001)	Cross-sectional	Subjects were recruited from Västerbotten intervention programme in the north of Sweden (n=27,485)	Metabolic risk factors (obesity, hypertension, and high triglycerides) / Total cholesterol / HDL cholesterol	Day workers and shift workers in 30, 40, 50 and 60 year age groups	Increased odds ratios in being obese (Women: OR: 1.39, 95% CI: 1.27-1.64); low HDL cholesterol (Women: OR: 1.26, 95% CI: 1.03-1.53; Men: OR: 1.15, 95% CI: 0.96-1.38); high triglycerides (Women: OR: 1.13, 95% CI: 1.02-1.25; Men: OR: 1.12, 95% CI: 1.01-1.24) for both women and men shift workers after adjusting for both age and socioeconomic factors.
Niedhammer et al (1996)	Cohort	Female nurses working in acute care in public sector hospitals in France (n=469)	Overweight (BMI>26.9kg/m²) / Weight gain of more than 5kg or 7kg	Current exposure to night-work / Exposure to night-work during the previous 10 yrs / Number of children / Tobacco / Sports activities	Prevalence of being overweight was associated with exposure to night work in 1980 (OR: 3.3, 95% CI: 1.3-8.2). After adjustment for confounding variables, between 1985 and 1990, more nurses on night work exhibited excessive weight gains than nurses on day work(>5kg, OR: 1.9, 95% CI: 1.0-3.6; >7kg, OR: 2.9, 95% CI: 1.2-6.9).
Knutsson and Nilsson (1998)	Cross-sectional	Swedish 1990 Census. 2584 men, 2836 women (n=5420)	Prevalence of smoking; Prevalence of exposure to environmental tobacco smoke	Job strain level / Day work / Shift work / Asthma/ non-asthma	The results of multiple logistic regression modelling showed that smoking was associated with shift work (OR: 1.3, 95% CI: 1.1-1.6).

Table 2: Studies of associations between shift work and either diet or exercise or smoking or BMI or alcohol consumption *continued...*

Authors (year)	Study design	Study population	Outcome measures	Exposure measures	Results
Di Lorenzo et al (2003)	Cross-sectional	Subjects were randomly selected among workers involved in the production process of a chemical industry in Apulia, Southern Italy. (n=319)	BMI; waist hip ratio (WHR); systolic blood pressure (SBP); Diastolic blood pressure (DBP); Fasting glucose; Total cholesterol/ high density lipoprotein (HDL) - cholesterol/ triglycerides/ insulin	Day workers (0700-1600) Shift workers (3 regular rotating shifts)	Obesity was more prevalent in shift workers than in day workers (p<0.05), whereas body fat distribution was not different between the two groups. Shift workers were more frequently smokers (40%) or non-smokers (38.4%) than day workers (34.3% and 32.1% respectively), even though this difference did not reach statistical significance (p=0.058). There was a significant relationship between shift work and BMI, even after taking into account fasting insulin levels (p<0.05).
Reeves et al (2004)	Cohort	Subjects recruited from residential nursing homes and hospitals, 20 females (10 day shift workers 10 night shift workers) 16 males (8 day shift workers, 8 night shift workers) (n=36)	Total dietary intakes of night and day- shift workers Energy intakes of female and male night-shift workers on work and rest days over 24h Macro-nutrient composition of the diets consumed by male and female night-shift workers on work and rest days	Male day workers Male night workers Female day workers Female night workers	There were no significant differences in dietary intakes between night and day- shift workers. Day staff were more likely to consume more meals per day (p<0.05) and consume fewer snacks than night-shift workers. Female night-shift workers drank more cups of tea and coffee than female day-shift workers (p<0.01). Night-shift workers were more likely to smoke than day-shift workers and smoked significantly (p<0.01) more cigarettes per 24 hours.
Geliebter et al (2000)	Cross-sectional	85 nurses, nurse's aides or security personnel (36 on day shift, 49 on late shift)	Demographics Work and weight history Health/medical history Sleep and meal pattern	Day shift (8am to 4pm), evening shift (4pm to 12am), night shift (12am to 8 am)	Late-shift group reported gaining more weight than the day-shift group (p=0.02) since starting the job on current shift. There were no significant differences in current BMI, years on the current shift or smoking prevalence between groups. After statistically adjusting the mean weight change for the covariates of age, years on the shift, and smoking, the results showed a significantly higher weight gain in late shift than the day shift (p=0.008).

Table 2: Studies of associations between shift work and either diet or exercise or smoking or BMI or alcohol consumption continued...

Authors (year)	Study design	Study population	Outcome measures	Exposure measures	Results
Fernádez Rodríguez et al (2004) [study not published in English]	Unable to ascertain from English abstract	207 permanent morning-shift workers and 210 shift workers(3-shift system) (n=417)	Dietary intake Body Mass Index Blood lipid levels Physical activity	Morning-shift workers 3-shift workers	Shift workers showed higher intakes of red meat, eggs, fruit juices and pasta. No differences were observed in lipid levels, weight status and physical activity in relation to shift working status.
Kivimäki et al (2001)	Cross-sectional	Female nurses currently working shifts, always been a shift worker OR currently a permanent day worker with no history of shift work during career as a nurse (n=689)	Smoking Alcohol consumption Overweight Sedentary lifestyle	Permanent day shift 3-shift schedule Permanent night shift	There was a significantly higher tobacco consumption in shift workers (p=0.027). The prevalence of heavy drinkers (OR: 1.50, 95% CI: 0.63-3.53) and the prevalence of non-drinkers (OR: 1.23, 95% CI: 0.68-2.21) were higher in shift workers than in day workers, but the difference did not reach statistical significance. Shift workers (OR: 1.54, 95% CI: 1.06-2.25) were more often overweight than day workers and the difference between these two groups increased with age. Sedentary lifestyle was not significantly more prevalent in shift workers (OR: 1.3195% CI: 0.81-2.12) compared to day workers.
Nakamura et al (1997)	Cross-sectional	Industrial male, blue-collar workers at a personal computer and printer manufacturing company. (60 shift workers, 239 day workers, n= 299)	Demographic and anthropometric characteristics Blood pressure and serum lipid concentrations of shift workers and day workers	3-shift workers (morning: 0815-1515; afternoon: 1515-2230; night: 2230-0815) 2-shift workers (day: 0815-1815/1715; night:1915-0805) Day workers (0815-1715)	3-shift and 2-shift workers had greater values of abdominal to hip girth ratio (AHR) and subscapular skin fold thickness than day workers, with statistically significant differences in AHR between 3-shift and day workers (p<0.05). There were no statistically significant differences in BMI. About 69% of shift workers did not exercise at all, while 50% of the day workers did (p<0.05). More than 70% of all groups of workers smoked everyday and the differences among the three groups were not statistically significant. The highest alcohol consumption every day was in 3-shift workers (54%). Frequency of no drinking habits also tended to be greater in the 3-shift workers, but the differences were not statistically significant.
Van Amelsvoort et al (2004)	Cohort	Subjects were from: (1) persons undergoing a pre- employment medical examination in two occupational health services; (2) all workers in a newly built waste incinerator plant; and (3) nurses, starting with practical in hospital training. (n=396)	Job-related factors Diet Anthropometry Blood lipids Lifestyle	Day workers Shift workers	Compared with baseline, the percentage of smokers and the number of cigarettes smoked per day (in smoker only) increased more in shift workers compared with daytime workers. BMI decreased significantly in shift workers compared with their own baseline values (compared with the increase in the day workers p=0.004). Comparing the 1-year change in energy intake between the shift and daytime workers, both groups displayed a decrease but the decrease in the daytime workers was significantly higher (p<0.001). Energy from fat and cholesterol intake were reduced in both groups, but the difference between the two groups was not significant (p=0.8). There was a decrease in alcohol consumption in shift workers compared to an increase in daytime workers, but the difference was non-significant (p=0.4). Analysis of respondents changing from a daytime job to a shift work job between baseline and the 1 year of follow-up (n=32) revealed a significantly higher decrease in BMI compared with daytime workers (p=0.05) and a higher increase in number of cigarettes smoked per day in smokers (p=0.02). For respondents changing from shift work to a daytime job (n=34), there was a greater decrease in the amount of physical activity during sport (p=0.04).

Association between shift work and smoking

Knutsson and Nilsson (1998) conducted a cross-sectional study to measure the prevalence of tobacco use and passive smoking in different occupations. The subjects were obtained from the Swedish 1990 Census, including 2,584 men and 2,836 women randomly selected from 63 occupations. The mean age was 42.5 in females and 41.5 in males. Data on personal habits and exposure to environmental tobacco smoke were obtained by questionnaire, and job strain was assessed using a four-item job demand scale and a four-item job decision latitude scale. The results indicated that current smoking was significantly associated with shift work.

Associations between shift work and smoking and BMI

One cross-sectional study conducted in Apulia, Southern Italy, was to examine the effect of shift work on metabolic and cardiovascular risk factors in blue collar workers (Di Lorenzo et al 2003). The subjects were glucose tolerant males, who were all Caucasians, aged 35-60 years. All subjects underwent clinical examination and measurements of anthropometric parameters. The results showed that shift workers had higher BMI and they were more frequently smokers or non-smoker than day workers.

Associations between shift work and diet, BMI and smoking

Reeves et al (2004) conducted a cohort study to investigate the effect of shift work on food intake and eating patterns. There were 20 female and 16 male shift workers in this study. Weight was measured anthropometrically; lifestyle factors were established using a questionnaire; and food intake was recorded using six-day food diaries. The results found that night shift workers did not eat more than day workers. There were significant differences in food intake patterns on work and rest days for night-shift workers as shift work is a factor in the timing of food consumption. No significant differences were identified in the weights and body mass indexes of night and day-shift workers; however no statistical results were reported. Night-shift workers were more likely to smoke and smoked significantly more cigarettes per 24 hours.

Associations between shift work and diet, BMI and exercise

Another non-English published study by Fernández Rodríguezet et al (2004) evaluated the nutritional status, food habits and physical activity in health shift workers. Permanent morning-shift workers (n=207) and shift workers (3-shift system n=210) were randomly selected from 2,100 workers of the North Area of the Canary Island Sanitary Health System. Dietary intake was assessed by a self-registered food frequency questionnaire. Other outcome variables included BMI, blood lipid levels, physical activity, age and sex. The results showed that shift workers had a higher intake of red meat, eggs, fruit juices and pasta. There were no significant differences found in lipid levels, weight status and physical activity in relation to shift work.

Associations between shift work and diet, BMI, smoking and exercise

Geliebter et al (2001) conducted a cross-sectional survey involving 85 hospital workers to determine whether weight gain was more prevalent in late-shift workers than in day-shift workers. The mean age and years on current shift were 43.1 years and 8.6 years respectively. The questionnaire used in this survey covered demographics, work and weight history, health/medical history, and sleep and meal pattern. The results yielded that late-shift workers reported greater weight gain than day workers. Late-shift workers had a higher food intake than day workers when combined with those reporting exercising less. However late-shift workers reported eating fewer meals. In addition, late-shift workers reported eating the last daily meal later than day workers.

Studies examining the associations between shift work and smoking, BMI, alcohol consumption and exercise

Kivimäki et al (2001) conducted a cross-sectional study to examine the associations between shift work and health habits as measured by smoking, alcohol consumption, sedentary lifestyle and being

overweight. Study subjects were obtained from the 'Work and Health in Finnish Hospital Personnel' project, which involved 689 female nurses from 10 hospitals in two Finnish health care districts. The mean age of the study participants was 41.6 years. According to the results, shift workers were found to smoke more and to be overweight more often than day workers; however shift work was not associated with alcohol intake or sedentary lifestyle.

In Japan, Nakamura et al (1997) conducted a cross-sectional study to compare serum total cholesterol, serum triglyceride, body fat distribution, blood pressure and ways of living of 3-shift and 2-shift workers with those of day workers. Subjects were all blue-collar male workers and the average length of shift work was 9.2 years. The average age of shift workers and day workers was 34.5 and 32.7, respectively. Anthropometric measurements, blood collection and blood pressure were taken and a self-administered questionnaire was administered to elicit demographic characteristics. The study did not find any significance differences in BMI between the three working groups; however 3-shift workers had a higher tendency to central obesity, which was characterised by a higher waist to hip ratio. More than half the shift workers did not exercise at all. Over 70% of the blue-collar workers smoked every day and 3-shift workers had the highest daily alcohol consumption; however the differences in these two aspects were not statistically significant.

Association between shift work and smoking, BMI, alcohol consumption, exercise and diet

Van Amelsvoort et al (2004) conducted a one-year cohort study to compare changes in cardiovascular risk factors between shift and daytime workers to identify possible factors that might explain the elevated cardiovascular disease risks among shift workers. Among 239 shift and 157 daytime workers, one-year changes in biological and lifestyle cardiovascular risk factors were monitored between the start of a new job and one year later. At baseline, the mean age of shift workers was significantly older than that of day workers (26.8 and 24.1 respectively). All participants were asked to complete a questionnaire about personal characteristics, current job title and job history and any objections against shift work. Anthropometric measurements and plasma cholesterol measurements were taken. A self-administered food-frequency questionnaire was filled out for dietary assessment. Job strain was assessed using a validated Dutch version of the self-administered Job Content Questionnaire (Karasek 1985; Houtman 1995). The results revealed that BMI decreased significantly in shift workers compared to day workers; there was a higher decrease of physical activity for respondents changing from a shift work to a day job; energy intake as well as the energy from fat and cholesterol reduced in both groups; there was a decrease in alcohol consumption in shift workers as compared to an increase in day workers; and cigarettes smoked per day increased significantly in shift compared with day workers.

DISCUSSION

Whilst overall research findings indicate that shift work impacts negatively on daily health habits, the methodological quality of the studies reviewed should be assessed objectively in order to acknowledge the strengths and limitations of these findings. However the strengths and limitations of the two non-English articles could not be analysed due to the inability to interpret information from the original reports.

The study by de Assis et al (2003a; 2003b) was limited by gender bias and a small sample. Furthermore, the subjects volunteered to participate in this study which may underestimate some adverse results. Due to the male only sample, the external validity and generalisability to all shift workers are questionable. Drawing conclusions from the study conducted by (Sudo and Ohtsuka 2001) should also be done with caution due to the relatively small, gender biased study sample. There was a lack of internal validity as there was no adjustment for confounding factors. External validity and generalisability were also limited due to the female only sample. Findings of Lennernäs (1993), which is the only study reporting that shift work did not affect the nutritional intake or the frequency of meals and snacks, should be

interpreted with caution as the sample size was very small, recruiting only 16 male workers. The study is also limited by the cross-sectional design as is the survey conducted by Chee et al (2004). The subjects participated in the latter study voluntarily, so the subjects may have a greater health consciousness which could have led to biased results. Confounding factors such as age, socioeconomic factors and exercise were adjusted in this study; however it did not include dietary assessment, which could have been a significant factor when determining BMI. Generalisability of the study results is limited due to the female only study population.

The subjects in the study by Parks (2002) were male offshore workers who, on employment, were required to meet rigorous standards of physical and mental health, so their health status was more favourable than in the general working population. In multivariate analysis, job type, education and smoking were controlled; however no odds ratio was reported. In addition, physical activities were not taken into account when adjusting for confounders.

The research quality of the Karlsson et al (2001) study is high due to the large representative study population. In the multiple regression analysis, age and socioeconomic situations were adequately adjusted to control confounders. On the other hand, there are still some limitations. Firstly, the cross-sectional study did not follow the subjects for a period of time to estimate chronic diseases. Secondly, the definition of exposure to shift work was weak and imprecise and did not provide information about day to day patterns of shift work, frequency of night work, type of rotation, or duration of shift work. Thirdly, exercise was not adjusted for, which could affect the research results.

The 10-year cohort study of Niedhammer et al (1996) may have been biased in several aspects. Firstly, this is a female nurses' cohort study and after 10 years, 16% of the sample had been lost to follow up. Secondly, the respondents in the study for 10 years could be healthier than the non-respondents, because the healthiest nurses may have been selected for night work and those nurses who left the

hospital may have done so because of health reasons. These biases may have led to underestimation of the association between night work and being overweight. Thirdly, this study did not evaluate the duration of night work exposure throughout follow up, which could be a more accurate indicator to assess the association between night work and being overweight. Fourthly, potential pregnancies were not taken into consideration. Lastly, the author argued that eating habits were intentionally not taken into account to avoid underestimating the association. However there was no statistical evidence in the study to prove this underestimation. Despite all the limitations, the confounders were well controlled for, such as age, weight at baseline and regular sport activities.

Knutsson and Nilsson (1998) conducted a high quality study. The study subjects were randomly selected from 63 occupations in Sweden consisting of large numbers of males and females. Confounding variables, such as occupation and other determinants were adjusted for. However two limitations may affect the validity of the results. One is that the response rate, especially in occupations with a lower educational level, was low. The other one is about the reliability of data, which were all reported by the individuals themselves.

The sample size was very small (n=36) in Reeves et al (2004). The author mentioned there were no significant differences in weights and body mass indexes of night and day shift workers in discussion, nevertheless no statistical results were reported. The strength of this study is that it made an effort to eliminate the possibility of under-reporting. If energy intakes were less than 1.5 times Basal Metabolic Rate, this suggested under-reporting unless there was a loss in body weight.

Several limitations existed in the study by Geliebter et al (2000). Firstly, the sample size was relatively small and it was also limited by its cross-sectional study design. Secondly, the weight data relied on self-report; especially the subjects were required to recall the weight data when they first started on shift work, which was more than eight years ago.

However the authors argued that the data obtained were reliable as the number of years did not differ significantly between shift groups, so the accuracy of data among the three groups could be regarded similar. Thirdly, the results showed that late-shift workers took more and longer naps; and the authors indicated that more weight gain could result from a decrease in energy output in the form of naps. However it was not adjusted for as a confounder in the results and neither was exercise.

Two cross-sectional studies recruited only males in the study population (Di Lorenzo et al 2003; Nakamura et al 1997). Both studies' subjects were blue-collar male workers, which led to selection bias and the generalisability was also limited. In the study of Di Lorenzo et al (2003), fasting insulin levels were controlled as confounders; however exercise was not taken into account. The second one (Nakamura et al 1997) adjusted age, exercise, smoking, drinking and snacking to determine the association between three-shift work and serum total cholesterol concentration, though no odds ratios were reported.

Kivimäki et al (2001) recruited a large number of study subjects however it only involved female participants. Those subjects who drop out of work are typically less healthy, which is called the healthy worker effect and this may lead to under-evaluations of the associations. This study is also limited by its cross-sectional data and generalisability of the research results.

In the prospective cohort study (van Amelsvoort et al 2004), the authors planned to follow the subjects for one year to assess the impact of shift work on cardiovascular disease risk factors. However at the end-point of the study, only the data from workers not changing work schedule were presented (264 out of 396). No comparison was performed to ascertain sample bias between those who remained in the same work schedule and those lost to follow-up or changed work schedule or on sick leave or became unemployed. Selection bias could have occurred due to self-selection effect, which might be influenced by job availabilities. People who assume they are

not capable of working shift work are less likely to apply for a shift work job. Also, companies may use different criteria when employing shift workers. These selection biases could lead to an underestimation of the results. Measurement biases could have occurred. First, the measurements taken in different phases of the circadian rhythm may cause biased results. Second, as the baseline measurements were taken between 1 and 8 weeks after the start of a new job, a short-term effect of shift work cannot be excluded. Work related confounders such as job strain, physical activity at work and noise were adjusted for. The author indicated no different results were generated after adjustment, nevertheless no results were reported. More importantly, the mean age of shift workers was significantly older than that of day workers, but it was not adjusted for as a confounder. Another issue of concern is that this cohort study only lasted for one year, which might not be long enough to show significant changes in cardiovascular disease risk factors.

CONCLUSION

To our best knowledge, this is the first systematic review examining the effects of shift work on various daily health habits and body mass index. One limitation of this review is the introduction of possible biases through the search strategies. The individual authors may have different interpretations in the review process, nevertheless both tried their best to search the published scientific literature on this topic comprehensively and exhaustively. In addition, the inclusion criteria guided the independent reviewers through the review process, so that the validity of the conclusions could be strengthened and possible biases could be minimised. Another limitation is the inability to interpret two non-English articles retrieved, despite the efforts made. The results from these articles could not be analysed and strengths or limitations could not be concluded.

This review has unfolded a number of research studies in the literature from which evidence quantifying the association between shift work and people's daily health habits and adverse health

outcomes could be obtained. Despite various research on the diverse aspects of diet, most of the results indicated that shift work affected nutritional intake in a negative way. As for BMI and smoking, most of the researchers agreed that shift work was associated with high BMI and a high prevalence of smoking. This review retrieved only a few studies that examined the association between shift work and exercise or alcohol consumption; as a result, conclusions on these outcomes could not be drawn and further research should be directed into these two areas.

In addition, the review did not find any studies conducted with Australian working populations. Australia has a large proportion of shift workers in its labour force; and undoubtedly, shift workers' health and well-being require due consideration. Particularly, as the majority of Australian nurses work rotating shifts, understanding the impact of shift work on daily health habits that lead to adverse health outcomes is important.

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Nurses' confidence and experience in using information technology

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KEY WORDS

nurses, information technology, computers, Australia

ABSTRACT

Objective
In order to support policy planning for health, nurses in Australia were surveyed to determine their current use of information technology and barriers to that use.

Design
A self-administered postal survey.

Setting
Nurses throughout Australia.

Subjects
The survey was distributed to 10,000 members of the Australian Nursing Federation.

Main outcome measures
Data on nurses' experience and confidence in use of computers and information and technology across all sectors of nursing in Australia.

Results
Of the 4330 respondents (response rate 43.3%), 86% used computers at work. Most frequent uses were for managing patient records, continuing professional education, communication, accessing policies and procedures and accessing clinical results. Experience in the use of information technology ranged from 90% for a common application such as word processing to 64% for reference tools. Confidence in use of the technology was generally low with fewer than 25% of nurses stating they were very confident in using any software application. Results varied by level of nurse, their age, and length of time in nursing. Assistants in nursing and enrolled nurses had significantly lower experience and confidence than registered nurses, while younger nurses and those with the least time in nursing were more experienced and confident.

Conclusion
For most of Australia's nurses, experience and confidence in use of information technology is confined to basic computer and common applications. In order to use information technology to support health delivery, action to increase access for nurses and remove barriers to use is urgently required. Employers and policy makers at all levels of government must work with nurses to adopt strategies to increase their access to and use of information technology.

INTRODUCTION

Information technology (IT) is playing an increasing role in the delivery of health services in Australia. IT is no longer limited to specialised clinical areas and supporting administrative services. The potential benefits of IT use in the health care sector include those anticipated within any other industry or business such as improved efficiency and communication. However an additional goal and anticipated benefit of IT within health care is to improve patient care in a cost effective manner.

Nurses will have to possess adequate IT competency to operate effectively in an IT enhanced environment. To inform policies and strategies it is paramount that the extent of the current use of IT and factors affecting the adoption of IT by nurses are known. However information on current use of IT by nurses in their workplace and the factors affecting IT use in Australia is relatively sparse. This paper reports on some results of a national study undertaken in Australia in 2005. Nurses' access to and use of IT in nursing and the experience and confidence nurses possess in using IT are detailed. Results in relation to the attitudes of nurses to IT, barriers to IT use, and education and training in IT are the subject of other publications (Eley et al 2008a; Eley et al 2008b). The full report is available from the Australian Nursing Federation website: http://www.anf.org.au/it_project/.

BACKGROUND

Computer Access and Use
Physical access by nurses to computers and their uses of IT varies enormously among countries. Contemporary data from Australia is limited but would suggest that computer use by nurses is relatively high especially in public hospitals although access is sometime problematic. For example, Darbyshire used focus groups to establish the use of computerised patient information systems by nurses and midwives across Australia and determined that access to computers was a major concern (Darbyshire 2000).

More recently, a study in two Brisbane hospitals reported high computer use among nurses (98.5%) however only 87.5% considered their access was adequate (Webster et al 2003). In another Australian study, remote area nurses enjoyed equally high access to computers but many complained of problems with internet and email access (Klotz and Reis 2005).

Expertise and Confidence.
Confidence is use of computers by nurses has been determined in several studies. For example, public health nurses in Oregon, USA "appeared comfortable" using computers (Turner and Stavri 2003) while nurses in South Dakota, USA were reported to cite "discomfort" in their use (Hegge et al 2002). Studies from the UK show that limited confidence in use of computers results in low frequency of use (Hillan et al 1998; Chan et al 2004). Additionally, an Australian study (in New South Wales) found the use of online clinical evidence tools was affected by nurses' confidence (Gosling et al 2004).

Other studies have determined competency or proficiency. In Australia, studies have shown that the majority of nurses consider their level of competence in computer use to be less than proficient (Smedley 2005; Garde et al 2006). Proficiency and subsequent computer use has been determined to be influenced by education, nursing seniority, age, sex and length of time in service (Webster et al 2003). These and other factors were examined in the present study to ascertain their effect on both nurses' confidence and their expertise.

METHOD

The study used a mixed-method approach to collect both quantitative and qualitative data.

Questionnaire Development and Design
Qualitative data were collected from key stakeholder interviews and focus groups. The results of the qualitative data and the extant literature on nurses' use of IT were then used to design a questionnaire. The resultant questionnaire was modified to ensure clarity and comprehension following review by the project steering group and two pilot studies.

Table 1: Definitions of position titles used in the study

Position titles used in study	Indicative position titles from states and territories
Assistant in nursing	Advanced assistant in nursing
	Assistant in nursing
	Nursing assistant
	Personal care assistant/personal carer
	Student nurse
	Trainee enrolled nurse
Enrolled nurse	Enrolled nurse
	Nurse 1
	Registered nurse Division 2
Registered nurse (RN1)	Nursing officer 1
	Nurse specialist
	Registered nurse 1
	Registered nurse Division 1
Registered nurse (RN2)	Clinical nurse specialist
	Nurse 3
	Nursing officer 2
	Registered nurse 2
Registered nurse (RN3)	Clinical nurse consultant (grades 1-2)
	Clinical nurse educator
	Nurse 4
	Nursing officer 3
	Nurse unit manager 1-2
	Registered nurse 3
Registered nurse (RN4)	Clinical nurse consultant (grade 3)
	Nurse 5
	Nursing officer 4
	Nurse practitioner
	Nurse unit manager 1-2
	Registered nurse 4
Registered nurse (RN5)	Assistant director of nursing
	Director of nursing
	Nurses 6-8
	Nurse manager
	Nursing officer 5-7
	Registered nurse 5

The final questionnaire consisted of 78 questions within the five broad areas of access, use, barriers, training and technical support. This paper reports on four questions that determined the frequency of use of a list of computer hardware and software applications and on the confidence of nurses in using those applications. Questions used Likert scales and yes/no responses. In addition to these questions, respondents were asked to insert any other comments they wished to make about IT in their workplace at the end of the questionnaire.

To ensure clarity of terminology, IT was defined at the beginning of the questionnaire as computer-based systems or applications that assist in the

management and processing of information to support health care and health care delivery.

Participants

Recipients of the survey as outlined in table 1 were assistants in nursing (AIN), enrolled nurses (EN) and registered nurses levels 1 to 5 (RN1-5) who were financial members of the Australian Nursing Federation. In July 2005, the questionnaire was mailed to 10,000 nurses; 2500 each within metropolitan, inner regional, outer regional and rural/remote areas of Australia as defined by the Australian Standard Geographical Classification (ASGC) (Australian Bureau of Statistics 2001). A second mail-out was sent to non-respondents three weeks after the first mail-out.

Analysis

Data were analysed by SPSS version 12 (SPSS Inc. Chicago, Illinois) using descriptive and inferential statistics as appropriate to the scale of measurement. Each question was analysed on the basis of all responses and also by age of the nurse, length of time in nursing, ASGC, level of job and area of work (public, private, or aged care).

Consent

The study was approved by the University's of Southern Queensland's Human Research and Ethics Committee. A cover letter from the ANF explaining the study and a plain-language statement were enclosed with the questionnaire. Informed consent was implied if the participant returned a questionnaire.

RESULTS

Results are presented as overall responses and by age of the nurse, length of time in nursing and level of job. Data on ASGC and health sector are not presented here.

The overall response rate was 43.3%. The demographic characteristics of respondents are presented in table 2.

Experience in the Use of Information Technologies

Question 17 (Q17) asked respondents: *how would you describe your level of confidence in the use of the following?* Nineteen types of IT hardware and software (hereafter referred to as 'applications') were offered. In addition to confidence options of:

very confident, confident, little confident and not confident an additional option of: *have no experience*, was offered. As depicted in figure 1, over 90% of respondents had experience with the use of a mouse, computer, and keyboard. Around 90% of respondents also had experience in the use of computers for accessing the internet and word processing. Less than 70% of respondents had experience in the use of presentation software, USB drives, computer-based reference tools, statistical software or the Apple operating environment.

Table 2: Demographic characteristics of survey respondents (n=4330)

Demographic characteristic	n (%)
Geographic location [a]	
Major capital city	961 (22.8)
Inner regional	1163 (27.6)
Outer regional	1148 (27.3)
Remote/very remote	935 (22.2)
Job Level	
Assistant in nursing	162 (4.0)
Enrolled nurse	642 (15.7)
Registered nurse – level 1	1406 (34.3)
Registered nurse – level 2	869 (21.2)
Registered nurse – level 3	409 (10.0)
Registered nurse – level 4	256 (5.9)
Registered nurse – level 5	357 (8.2)
Sector	
Public hospital	2269 (54.0)
Private facilities	506 (12.0)
Other public facilities	476 (11.3)
Aged care	536 (12.8)
Community health	414 (9.9)
Age of nurse	
Average age (± sd)	45.3 (± 9.7)
Number of years worked in nursing	
Average years worked (± sd)	19.7 (± 10.3)
Other	
Sex of respondent – male	306 (7.2)
English as first language	4047 (95.4)
Used computer for work-related purposes	3603 (86.3)

[a] Classification based on Australian Standard Geographical Classification system (Australian Bureau of Statistics, 2001)

Figure 1: Confidence and experience by nurses in using information technology
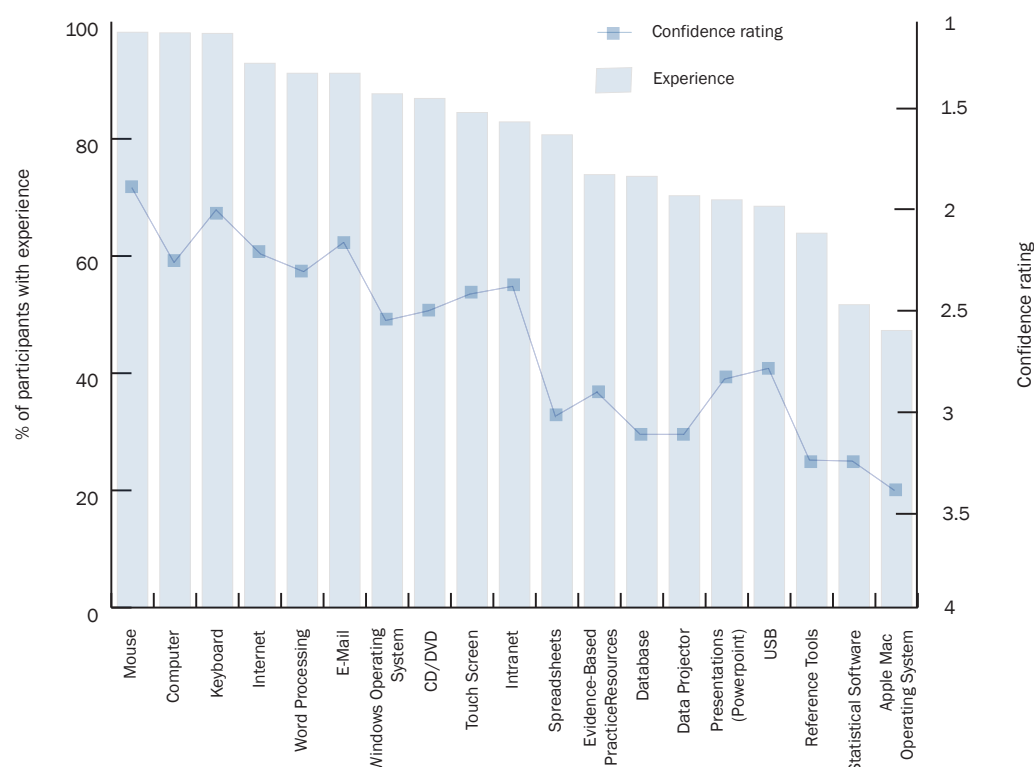
Table 3: Mean age differences between those nurses with and without experience of specific hardware and software

Application	Age			Number of years worked		
	Mean Difference	**95% CI**	**Statistic**	**Mean Difference**	**95% CI**	**Statistic**
Computer	7.9	6.2 - 9.6	*t(82) = 9.30*	1.3	-1.0 - 3.6	t(4152) < 1
Mouse	7.4	5.7 - 9.2	*t(76) = 8.59*	1.1	-1.3 - 3.5	t(4155) < 1
Keyboard	6.7	5.0 - 8.3	*t(88) = 8.06*	1.4	-0.9 - 3.6	t(4141) < 1
Touch screen	4.9	4.1 - 5.6	*t(1026) = 13.22*	3.4	2.5 - 4.2	*t(963) = 8.12*
Data Projector	3.5	2.9 - 4.1	*t(2644) = 10.75*	1.9	1.2 - 2.6	*t(2587) = 5.46*
CD/DVD	5.8	5.0 - 6.6	*t(775) = 14.40*	3.6	2.7 - 4.6	*t(775) = 14.40*
USB	4.0	3.5 - 4.7	*t(2925) = 13.00*	4.0	3.5 - 4.7	*t(740) = 8.04*
Word Processing	5.4	4.5 - 6.3	*t(467) = 11.53*	3.4	2.4 - 4.4	*t(452) = 6.42*
Spreadsheets	3.6	2.9 - 4.3	*t(1342) = 10.03*	2.4	1.7 - 3.2	*t(1315) = 6.24*
Databases	2.8	2.1 - 3.5	*t(2146) = 8.40*	2.0	1.3 - 2.7	*t(2165) = 5.70*
Referencing Tools	3.0	2.4 - 3.6	*t(3323) = 9.41*	2.1	1.4 - 2.7	*t(3321) = 6.06*
Evidence-Based Resources	4.2	3.5 - 4.8	*t(2131) = 12.71*	2.4	1.6 - 3.1	*t(2030) = 6.54*
E-mail	5.1	4.2 - 6.1	*t(456) = 10.49*	2.4	1.3 - 3.5	*t(4069) = 4.31*
Presentation Software	4.1	3.5 - 4.7	*t(2720) = 13.03*	2.3	1.6 - 3.0	*t(2620) = 6.66*
Statistical Software	1.9	1.2 - 2.5	*t(3282) = 5.72*	0.8	0.2 - 1.5	*t(3242) = 2.42*
Windows	3.8	3.0 - 4.7	*t(3890) = 8.41*	2.0	1.0 - 2.9	*t(3870) = 4.05*
Apple	2.9	2.3 - 3.6	*t(2623) = 8.79*	2.3	1.6 - 3.0	*t(2606) = 6.31*
Internet	6.1	5.1 - 7.1	*t(359) = 12.23*	3.1	1.9 - 4.3	*t(4084) = 5.03*
Intranet	4.1	3.4 - 4.8	*t(1105) = 11.03*	1.5	0.7 - 2.3	*t(3946) = 3.55*

Statistics in *italics* are significant at p < 0.05

For all identified applications, those who had no experience were significantly older than those with experience. Age differences ranged between 1.9 years for experience with statistical software, and 7.9 years for experience with computers. With only three exceptions those without experience had also been nursing for a greater number of years than those with experience. Significant differences ranged between 0.8 years for statistical software and 3.4 years for the use of touch screens and word processing packages (see table 3).

Experience, as a function of job level, is shown in table 4. For the most part, the more senior the job level, the more likely it was that nurses had experience with the identified information technology. For example, 40.7% of AINs and ENs had no experience in the use of evidence-based resources, compared to 27.6% of RN level 1-2 and 19.2% of RN level 3-5.

There were some exceptions with all RNs equally likely to use the computer, mouse, keyboard, touch screens and Windows. However RN level 3-5 were more likely than other levels to have experience in the use of reference tools and statistical software.

Confidence in the Use of Information Technologies

Those who responded that they had experience with information technologies stated their level of confidence in using these technologies. As noted above confidence options were: *very confident, confident, little confident and not confident*. In general level of confidence followed a similar trend to level of experience (figure 1) with high overall level of confidence in the use of the common applications. Confidence was low for many of the other offered applications.

Table 4: Proportions of nurses with no experience in selected information technologies as a function of job level

	JOB LEVEL			
Technology	AIN/EN	RN 1-2	RN 3-5	χ² Statistic[†]
Computer	7.0[ab]	0.7[a]	0.8[b]	130.04
Mouse	6.3[ab]	0.8[a]	0.6[b]	114.59
Keyboard	6.6[ab]	1.0[a]	0.9[b]	99.61
Touch screen	21.9[ab]	15.3[a]	14.7[b]	20.04
Data Projector	40.8[ab]	34.7[ac]	24.4[bc]	51.95
CD/DVD	23.5[ab]	12.5[ac]	8.6[bc]	86.01
USB	41.3[ab]	35.7[ac]	27.3[bc]	37.05
Word Processing	18.5[ab]	8.2[ac]	4.0[bc]	113.51
Spreadsheets	28.8[ab]	21.1[ac]	12.3[bc]	71.17
Databases	35.5[ab]	29.7[ac]	21.2[bc]	43.11
Referencing Tools	43.0[b]	42.5[c]	35.4[bc]	14.16
Evidence-Based Resources	40.7[ab]	27.6[ac]	19.2[bc]	91.82
E-mail	18.2[ab]	7.8[ac]	4.1[bc]	113.70
Presentation Software	43.5[ab]	34.0[ac]	21.7[bc]	91.45
Statistical Software	57.8[b]	58.4[c]	41.6[bc]	25.83
Windows	19.8[ab]	11.9[a]	10.0[b]	40.26
Apple	59.3	61.9	62.1	1.53 (NS)[‡]
Internet	15.5[ab]	6.2[ac]	3.3[bc]	104.31
Intranet	35.3[ab]	15.4[ac]	10.1[bc]	198.25

Same superscripts denote significant differences between groups from post-hoc comparisons.
[†] For all tests, *df* = 2
[‡] NS = not statistically significant

Table 5 shows confidence in the use of selected information technologies as a function of age, years worked, and job level. For many applications, as indicated by positive correlations, confidence in the use of IT decreased as age and number of years worked increased. The relationships between age and confidence in use were stronger than those for number of years worked and confidence in use.

Table 5: Confidence in use of selected information technologies as a function of age, number of years worked and job level

| Information Technology | Age | Years Worked | Job Level | | | F-Statistic |
			AIN/EN M	RN 1-2 M	RN 3-5 M	
Computer	0.25**	0.17**	2.51[ab]	2.38[ac]	2.16[bc]	$F(2,3976) = 37.65$**
Mouse	0.28**	0.20**	2.06[ab]	1.90[ac]	1.78[bc]	$F(2,3989) = 25.25$**
Keyboard	0.27**	0.21**	2.19[ab]	2.03[ac]	1.91[bc]	$F(2,3965) = 22.46$**
Touch screen	0.25**	0.19**	2.64[ab]	2.44[a]	2.37[b]	$F(2,3194) = 13.21$**
Data Projector	0.10**	0.05**	3.27[b]	3.21[c]	2.95[bc]	$F(2,2401) = 22.45$**
CD/DVD	0.21**	0.15**	2.65[b]	2.58[c]	2.47[bc]	$F(2,3332) = 6.05$**
USB	0.11**	0.07**	2.97[b]	2.84[c]	2.61[bc]	$F(2,2397) = 16.41$**
Word Processing	0.24**	0.17**	2.52[ab]	2.32[ac]	2.14[bc]	$F(2,3578) = 28.78$**
Spreadsheets	0.14**	0.09**	3.07[b]	3.00[c]	2.80[bc]	$F(2,3044) = 15.60$**
Databases	0.10**	0.08**	3.14	3.16	3.10	$F(2,2640) = 1.00$
Referencing Tools	0.12**	0.09**	3.25	3.27	3.20	$F(2,2079) = 1.29$
Evidence-Based Resources	0.11**	0.08**	2.99	2.91	2.85	$F(2,2654) = 2.73$
E-mail	0.16**	0.11**	2.44[ab]	2.20[ac]	1.98[bc]	$F(2,3625) = 44.03$**
Presentation Software	0.16**	0.10**	3.09[ab]	2.94[ac]	2.66[bc]	$F(2,2523) = 26.39$**
Statistical Software	0.01	-0.01	3.42	3.48	3.38	$F(2,1528) = 2.44$
Windows	0.16**	0.12**	2.67[b]	2.61[c]	2.51[bc]	$F(2,3288) = 5.69$**
Apple	0.11**	0.09**	3.40	3.41	3.41	$F(2,1306) < 1$
Internet	0.24**	0.19**	2.46[ab]	2.25[a]	2.17[b]	$F(2,3701) = 18.66$**
Intranet	0.18**	0.11**	2.76[ab]	2.43[ac]	2.21bc	$F(2,3196) = 50.52$**

Superscript letters denote significant differences between groups from post-hoc comparisons p < 0.05; ** p < 0.01

There were also significant relationships between confidence in use and job level for the use of all information technologies except databases, reference tools, evidence-based resources, statistical software and the Apple operating environment. In general, as denoted by the lower means, nurses employed at more senior levels had higher levels of confidence in the use of the other information technologies, with the most pronounced differences evident for the use of the intranet and e-mail.

The Use of Computers for Work-Related Purposes
Eighty-five percent of respondents (n=3680) used computers at work. Those who used computers for work purposes were younger (M = 47.8 years) than those who did not (M = 44.9 years), t(4107) = 6.74, p < 0.001. No such difference in use for work-related purposes existed with the number of years worked, t(4088) = 1.93. Use differed by level of job with only 64.0% of AIN/ENs using computers for work-related purposes as compared to 90.6% of RN level 1-2 and 95.4% of RN level 3-5, χ^2 (2) = 444.76, p < 0.001.

Participants who used computers for work-related purposes were asked in Q27: *How often do you use a computer for the following work-related purposes?* A total of 22 applications were offered divided in the categories of patient/client management; clinical use;

administration; and other. Responses were made on a Likert-type scale (never =0, rarely =1, occasionally =2, frequently = and always =4). Responses and relationships with age, number of years worked, and job level are summarised in table 6.

As denoted by the higher means, computers were used most frequently for managing patient records, continuing professional education, communication, accessing policies and procedures and clinical results.

Younger nurses used computers more frequently for three of the five patient/client management purposes (patient records, bed management and theatre), five clinical use purposes (poisons, results, ordering, accessing policies/procedures and accessing evidence-based practice) and continuing professional education. In contrast older nurses used computers more for consultation, the administrative purposes of reporting, developing policy/procedures and complaints and for accreditation.

Table 6: Use of computers for work-related purposes as a function of age, number of years worked and job level

Work-Related Purpose	Age	Years Worked	Job Level			F-Statistic	Overall Mean
			AIN/EN M	RN 1-2 M	RN 3-5 M		M (95% CI)
Patient/Client Management							
Patient records	-0.06**	-0.02	1.52[ab]	2.00[a]	2.10[b]	$F(2,3335) = 25.57**$	1.95 (1.90 – 2.00)
Appointments	0.02	0.07**	0.52[ab]	0.74[ac]	1.31[bc]	$F(2,3179) = 71.39**$	0.87 (0.82 – 0.91)
Bed Management	-0.14**	-0.09**	0.80[ab]	1.22[a]	1.19[b]	$F(2,3152) = 15.52**$	1.12 (1.07 – 1.18)
Patient Assessment	0.01	0.03	0.98[ab]	1.24[ac]	1.45[bc]	$F(2,3157) = 14.59**$	1.25 (1.20 – 1.31)
Theatre	-0.04*	0.002	0.17[ab]	0.38[a]	0.35[b]	$F(2,2908) = 9.02**$	0.33 (0.30 – 0.36)
Clinical Use							
Documentation	0.01	-0.01	0.43[ab]	0.60[a]	0.66[b]	$F(2,3082) = 5.49**$	0.59 (0.55 – 0.63)
Medication	0.01	0.01	0.31[ab]	0.48[ac]	0.60[bc]	$F(2,2067) = 10.65**$	0.50 (0.46 – 0.54)
Poisons	-0.04*	0.01	0.25[b]	0.35	0.38[b]	$F(2,3115) = 3.94*$	0.35 (0.31 – 0.36)
Consultations	0.04*	0.07**	0.38[ab]	0.66[ac]	1.11[bc]	$F(2,3136) = 64.42**$	0.74 (0.70 – 0.78)
Results	-0.22**	-0.15**	1.21[ab]	2.02[ac]	1.80[bc]	$F(2,3291) = 55.65**$	1.83 (1.77 – 1.88)
Ordering	-0.09**	-0.06**	0.39[ab]	0.67[a]	0.78[b]	$F(2,3050) = 23.61**$	0.66 (0.61 – 0.70)
Access policies/ procedures	-0.04*	0.03	1.25[ab]	1.77[ac]	2.36[bc]	$F(2,3411) = 130.19**$	1.84 (1.80 – 1.89)
Access EBP	-0.07**	-0.003	1.09[ab]	1.53[ac]	2.07[bc]	$F(2,3384) = 104.36**$	1.61 (1.57 – 1.66)
Administration							
Reporting	0.08**	0.15**	0.55[ab]	0.94[ac]	2.35[bc]	$F(2,3126) = 374.25**$	1.29 (1.23 – 1.34)
Staff management	0.03	0.12**	0.42[ab]	0.81[ac]	1.95[bc]	$F(2,3091) = 246.01**$	1.06 (1.00 – 1.11)
Finance	0.02	0.09**	0.20[b]	0.26[c]	1.10[bc]	$F(2,2931) = 217.66**$	0.50 (0.46 – 0.54)
Develop policy/ procedures	0.05**	0.15**	0.52[ab]	0.99[ac]	2.21[bc]	$F(2,3179) = 353.48**$	1.27 (1.22 – 1.32)
Complaints	0.04*	0.12**	0.31[b]	0.44[c]	1.37[bc]	$F(2,3066) = 229.19**$	0.68 (0.64 – 0.72)
Recruitment	0.01	0.09**	0.15[ab]	0.29[ac]	1.31[bc]	$F(2,2981) = 314.89**$	0.56 (0.52 – 0.60)
Other							
Professional education	-0.08**	-0.02	1.47[ab]	1.88[ac]	2.35[bc]	$F(2,3433) = 90.64**$	1.94 (1.90 – 1.98)
Communication	0.01	0.11**	1.00[ab]	1.72[ac]	2.72[bc]	$F(2,3372) = 287.78**$	1.89 (1.84 – 1.94)
Accreditation	0.08**	0.16**	0.45[ab]	0.63[ac]	1.67[bc]	$F(2,3094) = 250.34**$	0.89 (0.85 – 0.94)

NB: * p < 0.05; ** p < 0.01. Superscript letters denote significant differences between groups from post-hoc comparisons

Patterns in relation to number of years worked varied. Nurses with a greater number of years worked were more likely to use computers for appointments, consultations, all six of the identified administration tasks, communication, and accreditation. Frequency of computer use declined with greater number of years nursing for bed management, results and ordering.

There were also significant relationships between frequency of use and job level for the use of computers. In general computer use increased across the three job groups, although for patient records, bed management, theatre applications, documentation and ordering, there was no difference in frequency of use between RN level 1-2 and RN level 3-5. Furthermore for finance and complaints RN level 3-5 used computers for these purposes more frequently than either AIN/ENs or RN level 1-2, with no difference in frequency of use between the latter groups.

The Use of Specific Systems for Work-Related Purposes

Participants who used computers for work-related purposes were also asked how frequently they used an additional list of systems and applications (Q28: *How often do you use any of these systems for work-related purposes?*).

As shown in table 7, increasing age and number of year of years worked was associated with a decreasing frequency of use in most of the 15 applications. However telehealth/telemedicine and financial management were used more frequently by nurses who had been working for longer.

Table 7: Frequency of use of systems and applications for work-related purposes as a function of age, number of years worked and job level

| System/Application | Age | Years Worked | Job Level | | | F-Statistic | Overall Mean |
			AIN/EN M	RN 1-2 M	RN 3-5 M		M (95% CI)
GPS/Satellite Navgationi	0.00	0.01	0.01[b]	0.03[c]	0.08[bc]	$F(2,3218) = 11.01**$	0.04 (0.03 – 0.05)
PDA/Tablet Computer	-0.01	0.00	0.05[b]	0.10[c]	0.17[bc]	$F(2,3206) = 7.79**$	0.11 (0.09 – 0.13)
Patient Monitoring	-0.19**	-0.15**	1.00[a]	1.40[ac]	1.11[c]	$F(2,3221) = 18.51**$	1.26 (1.20 – 1.31)
Diagnostic Result Access	-0.13**	-0.08**	0.69[ab]	1.21[a]	1.09[b]	$F(2,3248) = 24.83**$	1.09 (1.04 – 1.14)
Delivery	-0.19**	-0.11**	0.90[ab]	1.56[ac]	1.19[bc]	$F(2,3213) = 38.31**$	1.35 (1.29 – 1.40)
Telehealth/ Telemedicine	0.03	0.08**	0.32[ab]	0.53[ac]	0.70[bc]	$F(2,3227) = 24.53**$	0.54 (0.51 – 0.57)
MIMS Online	-0.13**	-0.07**	1.18[ab]	1.63[a]	1.67[b]	$F(2,3325) = 27.83**$	1.56 (1.52 – 1.61)
Joanna Briggs Institute	-0.07**	-0.03	0.69[b]	0.83[c]	1.14[bc]	$F(2,3276) = 32.29**$	0.88 (0.84 – 0.92)
Cochrane Library	-0.09**	-0.03	0.54[ab]	0.85[ac]	1.09[bc]	$F(2,3274) = 38.61**$	0.87 (0.83 – 0.90)
Patient Management	-0.07**	-0.02	0.39[ab]	0.78[ac]	1.12[bc]	$F(2,3218) = 44.50**$	0.81 (0.76 – 0.86)
Staff Management	-0.05**	-0.01	0.20[ab]	0.42[ac]	0.69[bc]	$F(2,3225) = 33.10**$	0.46 (0.42 – 0.49)
Financial Management	0.02	0.08**	0.08[b]	0.08[c]	0.53[bc]	$F(2,3222) = 129.96**$	0.21 (0.18 – 0.24)
Online Professional Journals	-0.10**	-0.04*	0.83[ab]	1.13[ac]	1.40[bc]	$F(2,3280) = 39.22**$	1.16 (1.12 – 1.20)
Information Access Systems	-0.04*	0.00	0.65[ab]	0.80[ac]	1.04[bc]	$F(2,3249) = 19.25**$	0.83 (0.79 – 0.87)
CCHP	0.06**	0.04*	0.13[b]	0.14[c]	0.24[bc]	$F(2,3223) = 8.41**$	0.17 (0.14 – 0.19)

N.B. * p < 0.05; ** p < 0.01. Superscript letters denote significant differences between groups from post-hoc comparisons

For the most part, RN level 3-5 identified using systems more frequently. However RN level 1-2 used diagnostic result access and MIMS Online[1] as frequently as RN level 3-5 and used patient monitoring and delivery systems more frequently than RN level 3-5.

Question 29 asked respondents to: *indicate your confidence in using the applications that you identified in Q28*. As age of respondents and number of years worked increased, confidence in the use of patient monitoring, diagnostic result access, delivery, MIMS online, Joanna Briggs Institute[2], Cochrane Library, online professional journals and information

access systems decreased, while confidence in the use of financial management increased (table 8).

In general RN level 3-5 had the highest levels of confidence in the use of these systems. In the case of patient monitoring, diagnostic result access and delivery systems, RN level 1-2 and RN level 3-5 were equally confident but more confident than AIN/ENs.

DISCUSSION

Representation of the Nursing Workforce

Approximately 60% of the 250,000 nurses in Australia (Australian Institute of Health and Welfare

Table 8: Confidence in the use of systems and applications as a function of age, number of years worked and job level

System/Application	Age	Years Worked	Job Level AIN/EN M	RN 1-2 M	RN 3-5 M	*F*-Statistic	Overall Mean M (95% CI)
GPS/Satellite Navigation	-0.01	0.01	3.71[b]	3.74[c]	3.40[bc]	$F(2,504) = 8.36**$	3.64 (3.57 – 3.71)
PDA/Tablet Computer	0.09*	0.07	3.60[b]	3.49	3.29[b]	$F(2,600) = 3.97*$	3.46 (3.38 – 3.48)
Patient Monitoring	0.16**	0.08**	2.73[ab]	2.27[a]	2.26[b]	$F(2,1759) = 22.26**$	2.33 (2.28 – 2.38)
Diagnostic Result Access	0.12**	0.07**	2.90[ab]	2.41[a]	2.44[b]	$F(2,1787) = 19.13**$	2.47 (2.42 – 2.52)
Delivery	0.18**	0.08**	2.83[ab]	2.06[a]	2.12[b]	$F(2,1524) = 36.59**$	2.17 (2.11 – 2.23)
Telehealth/ Telemedicine	0.01	-0.02	3.47[b]	3.36[c]	3.11[bc]	$F(2,1189) = 11.54**$	3.30 (3.24 – 3.35)
MIMS Online	0.18**	0.14**	2.67[ab]	2.42[a]	2.38[b]	$F(2,2473) = 9.17**$	2.44 (2.40 – 2.48)
Joanna Briggs Institute	0.15**	0.11**	2.87[b]	2.79	2.67[b]	$F(2,1683) = 3.78*$	2.76 (2.71 – 2.81)
Cochrane Library	0.14**	0.09**	2.96	2.85	2.80	$F(2,1676) = 1.54$	2.84 (2.79 – 2.89)
Patient Management	0.03	-0.01	3.04[ab]	2.74[ac]	2.50[bc]	$F(2,1320) = 15.19**$	2.69 (2.63 – 2.75)
Staff Management	0.02	-0.07	3.44[ab]	3.02[ac]	2.49[bc]	$F(2,3225) = 33.10**$	2.88 (2.81 – 2.95)
Financial Management	-0.08*	-0.13**	3.62[b]	3.67[c]	2.88[bc]	$F(2,958) = 40.54**$	3.34 (3.27 – 3.41)
Online Professional Journals	0.15**	0.10**	2.87[b]	2.78[c]	2.67[bc]	$F(2,676) = 60.49**$	2.76 (2.71 – 2.80)
Information Access Systems	0.09**	0.06*	2.93	2.95[c]	2.76[c]	$F(2,2082) = 4.54*$	2.88 (2.83 – 2.93)
CCHP	-0.04	-0.04	3.45	3.42[c]	3.16[c]	$F(2,654) = 5.22**$	3.36 (3.29 – 3.43)

NB: * p < 0.05; ** p < 0.01. Superscript letters denote significant differences between groups from post-hoc comparisons

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1   Mims Online is the web version of MIMS - an Australian pharmaceutical database which offers access to essential information on over 2,300 prescription and non-prescription drugs: http://www.mims.com.au

2   An internationally collaboration conducting systematic reviews of evidence based nursing: http://www.joannabriggs.edu.au

2006) are members of the ANF. Demographics of the study's EN and RN are consistent with those of the national workforce and our results are deemed to be representative. However AINs within the ANF under-represent the proportion within the national workforce (Richardson and Martin 2004) and results therefore must be viewed with caution for this cohort.

Response Rate

The high response rate for such a lengthy survey suggests that this topic is one which is important to nurses. This is substantiated by other recent Australian studies where the importance of computers and IT to the provision of health, have been acknowledged by nurses (Edirippulige 2005; Ho 2004; Darbyshire 2000).

Access to Computers

The number of nurses across all sectors using a computer was 86% and within hospitals, the figure of 95% was consistent with that for other hospital based nurses in Brisbane (Webster et al 2003). The results emphasise the high adoption of computers into nursing. Differences among levels of job in access and use of computers is however high and as noted previously, was influenced by seniority (Webster et al 2003; Gosling et al 2004).

Over half the nurses below RN level 3 do not have sole access to a computer at work. This contrasts to the 80% of RN level 3 and above who do. If access is restrictive at work then this is clearly not satisfactory and our data are in agreement with Webster who reported that over 20% of RN level 1-2 felt their access was inadequate (Webster et al 2003).

Whether there would be a positive benefit to the standard of care of patients and clients if ENs and AINs had increased access to computers is not clear. Further research should be undertaken to evaluate the impact on the standard of care and the cost-effectiveness of an increase in computer use in this level of nurse and within and across sectors (acute public and private hospitals, community, and aged care).

Experience and confidence in IT

The data could be grouped into three types of application: the common ones such as use of a mouse experienced by the majority of nurses; the intermediate applications that are familiar in some degree (eg intranet); and the more specialised applications (eg presentation software) for which between a quarter and a half of the nurses had no experience at all.

In some of the more specialised applications, such as use of spreadsheets and databases, it is not surprising that experience was low and as expected there were clear differences in response related to level of job. The most senior nurses had more experience and confidence in applications used for administration and management.

For virtually all applications (apart from those associated solely with management functions) both younger and newer nurses expressed greater experience in use and confidence in use. This is possibly because this group have recently gone through tertiary education programs where they had more exposure to IT. The difference in age for experience was 2-7 years across the applications.

These results were not unexpected, however what was surprising was that confidence rating of the most confident nurses in the most familiar of applications was only confident. Very confident was an infrequent response. Although newer nurses are more familiar and confident presumably in part because of their education in IT there is huge room for improvement if nurses are to fully utilise IT in their workplace.

Use of IT

Use of applications by nurses show similar trends as those previously presented for Australia (Webster et al 2003), Scotland (Hillan et al 1998), China (Liu et al. 2000) and the UK (Griffiths and Riddington 2001). Any differences among studies are probably due to time (increased prevalence of computers) and to the nursing sector and job levels of those surveyed.

A major use of computers at work was for professional development. In addition to work use, it was determined that two-thirds of the nurses who use a home computer did so for continuing professional

education. Respondents reported that much of this activity is undertaken at home because of factors such as insufficient time or facilities at the work place.

The results of this study indicate that employers should provide opportunities for all levels of nurses to access computers for professional development within the workplace (both within and outside of working hours).

The absolute level of use was surprising given the high reported computer use in the workplace. Even the most used applications were used by less than 40% of total respondents to the study. These data suggest that there is huge room for expansion in the use of IT in nursing practice.

Other than applications associated with administrative functions, there was a negative correlation of frequency of use of applications with age indicating that younger nurses had a tendency to use applications more often. These results were confirmed by analysis by length of time in nursing where the same applications were used most frequently by nurses with less than 10 years experience. This result supports the notion that newer nurses are either more ready to accept or more confident in the use of information technology.

Data on the use of several more innovative systems such as telehealth and personal digital assistants (PDA) were collected but found not to have been taken up in nursing in any great numbers. For example only 148 respondents had ever used a PDA. This result was surprising as a higher adoption of this technology was expected.

Use of the internet was relatively high, although its purpose was not determined. A recent study in Brisbane reported that less than a quarter of nurses with internet access used it for nursing purposes (Edirippulige 2005).

Evidence based practice is strongly advocated as the way forward for nursing in Australia. However current usage of the Cochrane Library, the Joanna Briggs Institute, on-line journals or clinical information systems was very low and consistent with previous findings from both small local studies (Webster et al 2003; Gosling et al 2004) and with previous results from the UK (Hillan et al 1998; Chan et al 2004). These results are concerning and clearly the reasons for this lack of use should be ascertained considering the Cochrane Library is freely available to any member of the Australian community and that the states and territory of Australia have invested heavily in their own information systems.

CONCLUSION

Given the prevalence of computers in society and the stated goals of government, engagement by nurses in Australia of IT is still lower than would be expected. Apart from nurses in senior administrative levels, experience and confidence in use of IT is confined to basic computer and common applications and even in these instances is lower than desirable. On a positive note increased exposure and confidence was seen with nurses having more recently entered the workforce, suggesting that university preparation is building confidence in the use of IT. Considerable ground must be covered before the full benefits of IT in delivering health care can be realised. Employers, including Australian national, state and territory governments, must work with nurses to adopt strategies to increase their access to and use of IT.

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Systems of early detection in Australian communities: the use of a developmental concern questionnaire to link services

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KEY WORDS

PEDS, parents, communication, screening, prevention

ABSTRACT

Objective

To establish the Parents' Evaluation of Development Status (PEDS) questionnaire as an acceptable and feasible communication and developmental screening tool to use with parents and providers of maternal and child health centres, childcare centres, preschools and primary schools.

Design

This was a cross sectional study designed to evaluate the utility and uptake, satisfaction level, referral patterns and impact of the PEDS on services and parents. Methods included provider and parent completed questionnaires and semi structured interviews.

Subjects

The PEDS questionnaire was utilised by maternal and child health nurses, childcare workers, preschool teachers, primary school teachers and primary school nurses in the regional city of Wodonga in 2003. There were 246 parents who completed the PEDS questionnaire.

Results

The PEDS proved to have high utility and be relatively cheap. The majority of parents (99.4%) found the questionnaire easy or very easy to complete and would use it in the future, particularly in relating to health and education professionals. Those least educated found it the most helpful. Similarly, over 80% of providers felt confident in using the PEDS, agreeing that it was a positive addition to their practice especially to facilitate routine visits, and periods of transition. Costs were estimated at $1.80 per child based on conservative estimates.

Conclusions

The PEDS was found to be a useful and acceptable tool for screening, facilitating parent discussion, and communication between service providers. It increased attention on children's developmental progress and helped to create a coordinated early years service framework that focused on child development, early detection and prevention.

INTRODUCTION

International evidence highlighting the importance of the early years of life is now having a significant influence on governments across Australia as they consider the best approach to developing systems that lead to improving outcomes for children (Western Australian Department of Community Development 2004; Commonwealth Taskforce on Child Development, Health and Wellbeing 2003; Department of Human Services 2002; Office for Children and Young People 2002; National Research Council IoM 2000). In parallel, a report by the National Health and Medical Research Council (NHMRC), summarising the evidence for a number of child health screening and surveillance programs has highlighted the importance of systems of early detection (Centre for Community Child Health 2002). The report supports an integrated and coordinated approach to the early identification of problems, rather than stand alone activities, with subsequent provision of evidence based interventions. Finally, the seemingly growing number of children with developmental difficulties and behavioural problems (some reports have estimated as high as 20% of children) suggest that a new approach to early detection and intervention is required if there is to be a shift in children's developmental trajectories and improved outcomes for children and their families (Glascoe 1994; Yeargin-Allsopp et al 1992; McCue-Horwitz et al 1992).

Given this evidence, the City of Wodonga, a regional city in Victoria, undertook a project to test the feasibility of establishing a questionnaire that could act as a communication tool between providers, and between providers and parents, as well as have sufficient psychometric properties to enable its use as a developmental screening tool in the context of services and professionals that were already providing a system of care. Previous community consultation with parents of young children and service providers revealed that childcare, preschools and primary schools provided a ready platform for early identification of developmental and behavioural problems in children. The same consultations also suggested that a suitable tool for maternal and child health nurses (MCHN), childcare, preschool and primary school staff to use in identifying problems was necessary.

This paper reports on the results of a community based project that aimed to establish the Parents' Evaluation of Developmental Status (PEDS) questionnaire as an acceptable and feasible communication and developmental screening tool for use with parents and providers of maternal and child health services, childcare services, preschools and primary schools to identify, address and appropriately refer developmental and behavioural problems in children aged birth to eight years.

METHODS

This project was a cross sectional study of children recruited and enrolled through child care centres, preschools, maternal and child health centres and primary schools in the City of Wodonga in 2003. Parents who agreed to participate completed the PEDS and a questionnaire which included questions relating to the PEDS as well as demographic information. Professionals completed questionnaires that explored the utility of the PEDS within their practice. Six focus groups with parents and providers were also undertaken. The study measured the process, impact and cost of using the PEDS across a range of service providers. Simple bivariate analyses were undertaken utilising chi squared to estimate significance. Ethics approval was obtained from the Ethics in Human Research Committee, Royal Children's Hospital, Melbourne.

Measures
Parents' Evaluation of Developmental Status (PEDS)
The PEDS is a 10-item parent completed questionnaire designed to systematically elicit parents' concerns regarding their children's (birth to eight years of age) health, development and behaviour. It has been shown to be as accurate as any of the previously developed screening tests (Glascoe 1997). However it has the distinct advantage of taking less time, needing no specialised equipment and has a strong emphasis on parental involvement

(Glascoe 1999; Christopherson 2002). The PEDS has been shown to have a high sensitivity and identifies 74% to 80% of children with disabilities, similar to the accuracy of other screening tests which take much longer to administer. The PEDS also has a high specificity in that 70%-80% of children without disability are identified as developing normally. Certain groupings of concerns have found to be significant predictors of the risk (low, medium or high) of developmental disability for certain age categories. The PEDS has been adapted for Australia to ensure cultural appropriateness (Coghlan 2003).

Brigance Screen

The use of the Brigance as a secondary developmental screen increases the specificity of the PEDS to over 82% (Glascoe 1998). In this study, children under school age with 'high-risk' and 'medium-risk' of disability were referred to the MCHN for the secondary Brigance screen while school age

children were referred to the primary school nurse (PSN).

The Brigance screen helps the professional decide whether further assessment and referral is warranted. By increasing the specificity (ie excluding those with normal development who were false positives on the PEDS) the professional can then decide who to refer and who not to refer, thus potentially decreasing the number of children who may be on waiting lists for intervention services.

Developing an early years intersectoral framework

Using the PEDS and Brigance, an early years intersectoral framework was established (see figure 1). Concerns raised through PEDS could then be addressed by primary care providers who could prevent further problems through early intervention and anticipatory guidance and also act as appropriate triage for referrals.

Figure 1: PEDS within an inter-sectoral communication and referral framework around child development and behaviour (Wodonga Early Years Service Coordination Framework)
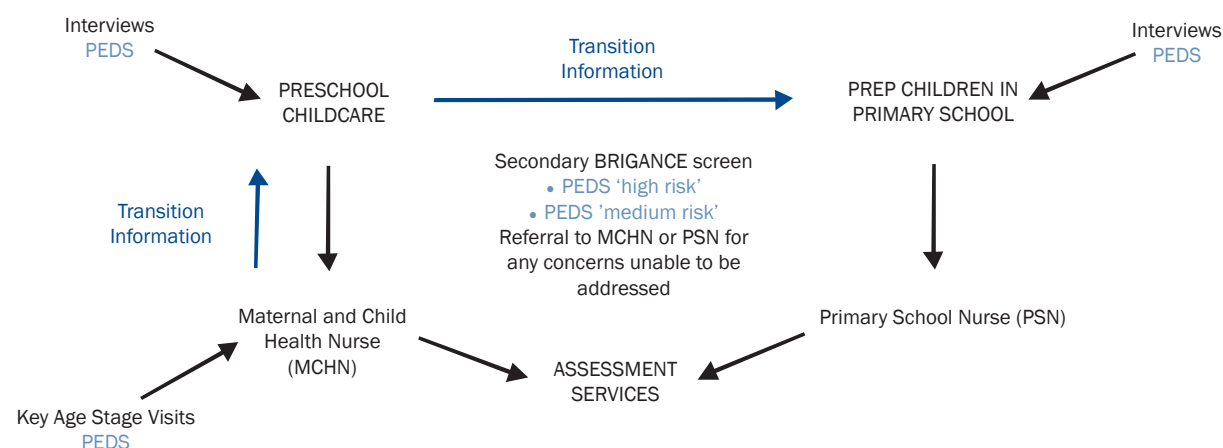
RESULTS

Sample size

A total of 380 parents were approached for recruitment to the project. Of these 246 parents completed the PEDS questionnaire (including information about gender and age) with regard to their child and consented to be part of the project. However only 162 (65.8%) returned a completed questionnaire on the ease of use/acceptability

of the PEDS and demographic data. A total of 26 service providers participated in the project. These service providers included maternal and child health nurses, primary school nurses, childcare workers, and preschool and primary school teachers.

Demographics

One hundred and sixty two parents responded to the written parent questionnaire. Most were mothers (93.8%) and the remainder were fathers. The average

age of the parent was 33.13 years with the majority of parents (94.4% n=153), born in Australia. The majority of parents were either married (79.6%) or living in a de-facto relationship (8.6%). Seven percent reported being single or never married, with 4.3% separated, divorced or widowed. Respondents reported having an average of 2.31 children in their family.

Forty-three percent of responding parents were either not in paid employment or attended home duties, while 82.2% of the spouses of responding parents were reported to be in full time employment. Thirty-two percent of responding parents reported being in part time employment, while only 6.8% of responding parents and 1.3% of spouses of responding parents reported being a pensioner.

Fifty percent of parents had a high school education (16.3% < Year 10 and 33.8% Year 11 or Year 12) and 49.4% of parents had post secondary qualifications (19.4% trade or diploma and 30.0% tertiary degree). Less than one percent of parents did not respond. Table 1 presents sample characteristics for the children and parents.

Parent report on utility of the PEDS

The majority of parents (99.4%) found the PEDS questionnaire easy or very easy to complete and would use it in the future. Most parents (96.0%) felt the PEDS would be helpful or very helpful for health and educational professionals. This varied with parental educational levels; 62.5% of parents with a tertiary level education rated the PEDS questionnaire as very helpful compared with 74% of those with an educational level of year 11-12 and 83% of those with an educational level of Year 10 or lower.

During the focus groups parents were asked about the best time to use the PEDS, and they agreed that the key stage visits were appropriate at maternal and child health centres and suggested on enrolment at other services such as childcare, preschool and school. Parents also reported that it would be beneficial to use the PEDS at parent interviews during the year at childcare, preschool and primary school.

Table 1: Sample characteristics of the respondents to the Parent's' Evaluation of Developmental Status (PEDS) questionnaire

Characteristic	n (%)[†]
Responding parent (n=162)	
Sex	
Female	152(93.8)
Male	10(6.2)
Age of parent (years; mean ± SD)	33.13 ± 5.64
Education	
≤ Year 10	26(16.3)
Year 11-12	54(33.8)
Trade/Diploma	31(19.4)
Tertiary	33(30.0)
Australian born	153 (94.4)
Speak English at home	160 (98.8)
No. of children (mean ± SD)	2.31 ± 0.09
Marital status	
Single/never married	12 (7.4)
Married	129 (79.6)
De facto	14 (8.6)
Separated/divorced/widowed	7 (4.3)
Employment of responding parent	
Employed/self employed full time	26 (16.0)
Employed /self employed part time	52 (32.1)
Not in paid employment/home duties	70 (43.2)
Pensioner	11(6.8)
Other	3(1.9)
Employment of spouse of responding parent	
Employed/self employed full time	131(82.2)
Employed /self employed part time	7(4.4)
Not in paid employment/home duties	4(2.5)
Pensioner	2(1.3)
Other	2(1.3)
Doesn't apply	13(8.2)
Child (n=246)	
Sex	
Female	106 (43.1)
Male	140 (56.9)
Age	
< 18 months	49 (19.9)
18 months - < 3 years	49 (19.9)
3 years - < 4.5 years	67 (27.3)
≥ 4.5 years	81 (32.9)
Birth weight (kg; mean ± SD)	3443.56 ± 654.83
Provider	
Maternal and Child Health	85(34.5)
Childcare	85(34.5)
Preschool	26(10.7)
Primary School	50(20.3)

[†] Percentages might not add up to 100 because of missing data

Parents suggested that transition information be passed on by both parents and service providers with the child health record should be the carrier of this information.

Provider feedback

The PEDS was thought to be an easily used tool by all providers from schools, childcare and maternal and child health, with over 80% of providers feeling confident in using the PEDS and agreeing that it was a positive addition to their practice and they would be interested in using the PEDS in the future.

Service providers in childcare, preschool and primary school agreed the most appropriate time to use the PEDS was on enrolment and possibly repeated in an interview during the year. MCHN agreed at key stage visits from 8 - 12 months onwards. Both the MCHN and PSN liked the Brigance screen and found it an easy tool to use.

The PSN acknowledged that if all schools used the PEDS on enrolment, it would identify early those children requiring further assessment and referral. The PSN reported they would need to adjust their current practice in order to meet the potential increased demand at the beginning of the year to provide secondary screenings to those children at high and medium risk of disability on the PEDS. The nurse also commented that the PEDS had the ability to provide a triage system, whereby those children who are at 'high-risk' or 'medium-risk' of disability, are seen by the PSN as a priority. Children, whose parents have non significant concerns or no concerns could be reviewed at a later date. This would mean a change in the service provision of the PSN program.

Cost per child

The true cost of sustaining this model is the purchase cost of the PEDS forms and photocopies of the transition information. These costs are based on purchasing only small quantities of the PEDS. Costs would be reduced with bulk purchases. There was no additional time necessary by the providers as the PEDS simply reshaped current practice rather than being an additional load. These costs are summarised in table 2.

Table 2: Summary of sustainability costs

Item	Cost per child
PEDS forms initial	$1.10
PEDS forms ongoing	$0.55
Photocopy of PEDS for referral	$0.05
Photocopy of transition information	$0.10
Total	$1.80

Developmental concerns and referral pathways

Twenty-eight children (11.4%) were classified as being at 'high-risk' of disability and 54 (22.0%) were classified as being at 'medium-risk' of disability. Thirty-nine children (15.9%) were classified as non-significant concern only, mostly on behavioural and social emotional domains. Around half the parents (50.8%) reported no developmental concerns and required no further follow up.

Table 3 provides detail on the risk of disability and referral outcomes. Of the 28 children (11.4%) considered at 'high-risk' of disability following the PEDS questionnaire, 60% were new referrals to outside services and 28.6% had been previously referred. Three (10.7%) were not referred to outside services as the concerns identified by these parents were unrealistic for the child's age. The nurse had no professional concerns regarding these children and counselled and reassured the parents on normal developmental progress. Of the 54 (22.0%) children considered at 'medium risk' of disability, 26 (48.1%) were referred to outside services and six (11.2%) had been previously referred. Twenty-two (40.7%) of children were not referred to outside services as the issues identified were able to be addressed by the provider. Thirty-nine (15.9%) children were considered at 'low-risk' of disability following the PEDS questionnaire and concerns were mainly managed directly by the provider. However three (7.7%) were referred to outside services and one (2.6%) had been previously referred. Thirty-five (89.7%) were not referred to outside services. Of those children who were previously referred across risk groups, most (73%) were three years of age and over. One hundred and twenty-five (50.8%)

children were at 'low-risk' of disability following the PEDS questionnaire with their parents reporting no concerns. Only one (0.8%) child was referred to an outside service and this was related to a professional concern regarding the child's speech development. The parent was unaware the child's speech was delayed for their age.

Table 3: Risk of developmental disability and referral

PEDS Path n (%)	Referral n (%)		
	Yes	No	Previously Referred
High-risk	28 (11.4)	17 (60.7)	3 (10.7)	8 (28.6)
Medium-risk	54 (22.0)	26 (48.1)	22 (40.7)	6 (11.1)
Low-risk (non significant concerns)	39 (15.9)	3 (7.7)	35 (89.7)	1 (2.6)
Low-risk (no concerns)	125 (49.2)	1 (0.8)	124 (99.2)	0 (0)
Total			246 (100.0%)

Overall, 47 (19.1%) children were referred to outside services as a result of their parents completing the PEDS. Of the 47 children referred to outside services, the majority of referrals were made to speech therapy, followed by multiple referrals and then 'others'. Those children at 'high-risk' of disability (who were referred to outside services) had a higher referral rate to multiple services (42.9%) compared to 'medium-risk' (7.4%), 'low risk' (2.6%) and those with no concerns (0%). Children with 'medium-risk' and 'low-risk' were more likely to receive a referral to a single service provider and this was significantly different (p=0.029).

DISCUSSION

Evidence would suggest that any system of early detection (and hence early intervention) will rely on a more coordinated service system (that crosses traditional sectoral boundaries) as well as tools that help detect developmental and behavioural problems early and assist professionals to engage with parents during the early years of their children's lives (Centre for Community Child Health 2006). This includes better use of the available service platforms in order to ensure a universal approach (ie those most in need do not miss out) and the capacity to engage with parents recurrently over time. The additional benefit is the prevention of 'bottlenecks' at the secondary and tertiary level with more appropriate and triaged referrals for children with more complex needs, and prevention and early intervention strategies implemented through primary care providers.

This small but significant study demonstrated that the PEDS can successfully form an integral part of a service coordination framework. The Wodonga Early Years Service Coordination Framework used the PEDS to facilitate a focus on child development, family centred practice, early detection and prevention and assist in transition information between services. Given the provider change process that was necessary for this project, the PEDS was still thought to be an easily used tool by a range of providers. Interestingly over 80% of professionals felt confident using the PEDS regardless of where they were located (schools, childcare or maternal and child health). All agreed the PEDS was a positive addition to their practice and had interest in using it in the future. As importantly, parents found it useful, particularly those with the least amount of education. While the PEDS is a useful tool for more educated parents; its greatest benefit may lie in its capacity to empower parents who have previously not been able to voice their concerns.

The PEDS also provided a process whereby those children most at risk were identified and appropriate anticipatory guidance and referrals could be implemented by providers. Those children with 'high-risk' of disability required more referrals than those with 'medium-risk'. Children with non significant concerns required minimal referral. Of those with 'no risk factors', only one (0.8%) was referred to an outside service. These results would suggest that the PEDS and the framework facilitated appropriate gate keeping. Concerns raised through PEDS can be addressed by primary care providers and prevent further problems through early intervention and anticipatory guidance.

Despite the small size of this study, it supports the findings (proportion of children at risk of disability) from the USA (Glascoe 1999) and Melbourne, Australia (Coghlan 2003) research. This study is particularly unique within the current PEDS literature as it captures both parent and provider feedback across sectors. The overwhelmingly positive utility (cost and practice) of the PEDS within a framework designed to coordinate services would suggest this model may be robust enough to test more widely across Australia. With the increasing adoption of the PEDS in primary care and universal services within Australia, there is a real opportunity to test this model further and ultimately improve service delivery and outcomes for children.

CONCLUSION

This study has demonstrated that PEDS is a feasible, acceptable and cost effective way of engaging with parents, promoting family centred practice and addressing parental concern. Within a service coordination framework or model, the PEDS has the potential to be used across service providers to coordinate early detection and intervention for developmental and behavioural concerns. The full report of this project titled *Good beginnings for young children and families: a feasibility study* can be found at www.wodonga.vic.gov.au and www.rch.org.au/ccch/peds.

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Managing labour pain safely

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ABSTRACT

Purpose
The aim of this study was to evaluate the efficacy and acceptability of sterile water injections to relieve lower back pain during labour. This paper discusses the findings from a study of women at two Victorian hospitals (Australia) who used sterile water injections as a method of pain relief during labour.

Procedure
The study involved assessment of pain during labour with midwives recording pain scores pre and post administration of the sterile water injection. Of the 60 women in the study cohort, 52 women returned a questionnaire giving a response rate of 87%.

Finding
The significant finding from the women's responses was that the majority found the administration of sterile water to be a satisfactory method of pain relief. All the participants noted that they would choose this method of pain relief because it would not harm their baby.

Conclusion
The women's comments supported previous findings that intra dermal sterile water injections are a safe, effective pain relieving measure during labour and should be routinely offered as a further option to manage lower back pain.

INTRODUCTION

Data collected during 2003-2004 in Victoria, Australia documented that three quarters of women used analgesia during their baby's birth (Riley et al 2005). The data shows that the type of analgesic and method of administration of analgesia offered during labour have remained unchanged over the past twenty years. The analgesic toolbox available to most women living in Victoria, Australia includes: inhaling nitrous oxide gas; intramuscular injection of opioid; and epidural administration of analgesia. These three methods of relieving labour pain have not been without controversy in terms of efficacy and side effects (Lieberman and O'Donoghue 2002; Olofsson et al 1996). Evidence from the United States of America (USA) has led some researchers to argue that such a limited range of choices reflects professional and economic constraints and does not support a woman's preferences in managing pain (Marmor and Krol 2002). Thus the impetus for this study was to investigate other analgesic options that might have fewer side effects and provide a safe and acceptable alternative for women.

A recent survey of women at a New South Wales, Australia hospital aimed to identify which pain relieving regimens were preferred by them during labour (Henry and Nand 2004). Antenatally, 62% of women identified that they planned to use 'natural' (showers, hot packs) methods of pain relief, primarily to avoid unwanted side effects to themselves and their baby during labour, although only 9% were ultimately successful (Henry and Nand 2004). The majority of women used a combination of 'natural' and pharmacological pain relieving measures throughout their labour. However it remains unclear within that survey whether the relief of pain through the use of pharmacological methods created a more satisfactory birthing outcome for women compared to other non pharmacologic regimens, as pain options were quite restricted. It is reported that in the USA non-pharmacologic methods of pain relief are rarely offered to women in labour despite evidence that continuous labour support, warm water baths, maternal movement and positioning, and touch and massage are very effective in managing labour pain (Leeman et al 2003; Simkin and O'Hara 2002).

In Australia, the only summative data collected on pain management during labour is pharmacological strategies (Riley et al 2005). Ellen Hodnett (2002) in her review of women's satisfaction with the experience of childbirth concluded that pain and pain relief were not the primary factors that enhanced a woman's labour and birth experience and argued that a range of personal and professional care giving factors also impacted on that encounter. Adopting methods of pain management that meet women's needs and expand the options available to them during labour should be a primary focus of maternity care.

This paper discusses the results of a study undertaken during 2003-2004 which explored the labour experience of women attending two Victorian regional hospitals in Australia. The women in the study group participated in a trial of an alternative method of pain relief: the use of intra dermal sterile water injections for the relief of back pain in labour and an evaluation of their effectiveness. Intra dermal sterile water injections have been used in other countries to relieve back pain in labour but their usage remains a relatively unknown pain management strategy in Australia (Martensson and Wallin 1999; Ader et al 1990; Lytzen et al 1989). Relief of pain by counter irritation is an old technique used by medical practitioners for a number of years with varied results (Parsons and Goetzl 1945; Gammon et al 1936). The use of sterile water for back pain during childbirth is derived from a theory suggested by Melzak and Wall (1965) which proposed that pain perception could be altered by introducing a brief period of pain from an alternative receptor site. The exact means by which pain pathways are blocked is unclear but the non isotonic effect of injecting sterile water under the skin causes a counterirritant effect which leads to an altered perception by the labouring woman of the severity of back pain experienced. Severe back pain is a major issue for women in labour and has been reported in approximately 30% of all labours (Melzak and Schaffelberg 1987).

The use of subcutaneous injection of isotonic saline, rather than intradermal injection, has been trialled in overseas studies, where it has been reported to cause less discomfort at the time of injection (Bahasadri et al 2006; Martensson and Wallin 1999) and while it has been effective in some situations, the duration of efficacy is reported to be markedly lessened. The actual stinging sensation reported by women appears to be an important factor in the effectiveness of intradermal sterile water and is likely to be related to the pain experienced at the injection site (Melzak and Wall 1965; Gammon et al 1936).

This study on the effect of intradermal sterile water injections on women's pain during labour reported similar findings to overseas research which validated its usage as a means of managing severe back pain. In the data set, significant pain relief was reported for up to 90 minutes post injection (Peart et al 2006). However these results were reported from the midwives reporting pain measures during labour and not from the women themselves. Satisfaction with the use of intradermal sterile water injections from the perspective of participating women was also investigated. This paper reports on the findings from those questionnaires.

AIM OF THE STUDY

The aim of this study was to evaluate the effect of administration of intradermal sterile water injections on a woman's experience of back pain in labour. Two evaluation techniques were used to collect the data. The first was a pre and post test pain assessment undertaken by midwives who scored the level of back pain experienced by the participants receiving the sterile water injection during labour. The acceptability of the technique was evaluated with a follow-up questionnaire completed by the women two days post partum.

METHOD

Ethics approval for the study was applied for and granted at each of the three organisations involved in the study (Colac Area Health, Wimmera Health Care Group, Horsham and University of Ballarat).

Women were recruited during their pregnancy at each of the participating hospitals. The intradermal sterile water injection technique was discussed and they were shown a video demonstrating the procedure. Over seven hundred women completed a consent form to participate if they experienced back pain while in labour; 432 women in Horsham and 270 women in Colac. The women consenting to participate in the study were made aware of the probable discomfort they would experience, that is the stinging sensation felt when the sterile water injection was administered. Staff at each maternity unit also underwent formal competency training in the technique.

Sixty (60) women (30 at Colac and 30 at Horsham) agreed to participate in the clinical study when they experienced severe back pain during their labour. Once they identified a need for the sterile water injection an assessment of pain severity using a Visual Analogue Scale (VAS) was undertaken immediately prior to injection, five minutes after and every 30 minutes for up to three hours. The procedure involved the intradermal injection of 0.2-0.5ml of sterile water into four sites in the Michaelis Rhomboid or lumbar-sacral region of the spine. Two midwives simultaneously injected to reduce the number of stinging sensations experienced by women.

On day two post partum, satisfaction surveys were distributed to all women who used sterile water injections for pain relief during their labour. The questionnaires collected demographic information and qualitative data on the best and worst aspects of the women's birthing experience. That data included information on their age, parity, previous births, their current labour and birth, methods of pain relief they used and their understanding of the purpose of sterile water injections. The questionnaires were posted back to the principal researcher by the study participants in a self-addressed envelope. A total of 52 were returned, giving a response rate of 87%. Twenty-two (22) questionnaires were returned from women who attended Colac Hospital and 30 were returned from women who had attended Horsham hospital for their birth.

RESULTS

Data were analysed using the statistical package SPSS (Version 9.0). Data collected from the 52 women demonstrated that a high proportion of women were aged under 30 (63%) (table 1) and experiencing their first birth (61.5%) (table 2). Back pain during labour is a more common phenomenon for first births (Hodnett 2002) so it is not a surprising finding that primagravida were over-represented in the study participants.

Table 1: Age of women

AGE	NUMBER	%
20-25	11	21.2
26-30	22	42.3
31-35	12	23.1
36-40	7	13.5
Total	52	100

Table 2: Parity after most recent birth

PARITY	NUMBER	%
One	32	61.5
Two	12	23.1
Three	7	31.5
Four	1	1.9
Total	52	100

The women in the study (table 3) reflected slightly higher rates of vaginal birth than the state average in 2003-2004 (69% versus 58%) (Riley et al 2005). However the number of women participating was too small to make any useful assertions regarding the efficacy of sterile water injections and their influence on birth outcome and this was not a stated aim of this research project. However overseas research has demonstrated little significant effect of any analgesia on outcome during a woman's labour and birth (Ader et al 1990).

Table 3: Outcome of most recent birth

Type of birth	Number (%)	State average 2004 (%)
Vaginal birth	36 (69.2)	56.9
Forceps birth	2 (3.8)	6.2
Vacuum birth	4 (7.7)	6.9
Emergency C/S	10 (19.2)	14.1
Total	52 (100.0)	

The questionnaire sought to identify whether women found intradermal sterile water injections an acceptable pain management strategy for their labour. All the women (100%) who participated in the research stated they considered the harmless effect of sterile water injections on their baby during labour an important consideration in its choice. Despite the acknowledged pain felt by women using sterile water (non isotonic sterile water causes severe localized pain for approximately 20 seconds following injection), they identified that the relief achieved by the water injections was worth the accompanying pain. Intramuscular and epidural narcotic administrations have a range of potential short and long-term effects on women and their infants (Henderson et al 2003; Nissen et al 1995). The lack of side effects on the foetus made using sterile water injections an attractive option for many of those women who participated in the study. One woman commented:

The injections do really sting but compared to the back pain it's worth it. And there's no drug worries compared to other options like pethidine. I'm very glad the option was available to me, as I would have refused pethidine at the point where I used the sterile water and thus laboured much longer in pain (Horsham).

Women noted in the questionnaire just how painful the sterile water injections were.

The site pain and back pain was completely gone in a minute or two. But the sterile water was very painful at the time (Colac).

The sterile water was like magic with the backache itself. It provided very good pain relief until it wore off (Horsham).

Sterile water provided immediate relief for three quarters of the women who participated in this study. More than 90% of women reported a reduction in back pain after 5 minutes and this effect was observed to continue for up to 90 minutes for some women.

The site pain and back pain was completely gone in a minute or two (Colac).

It worked with the following contraction [after the sterile water injection] and lasted (Horsham).

Worked instantly and was fantastic for about an hour (Horsham).

Women were asked to rate their satisfaction with sterile water injections. Of the 52 respondents, 47 (90%) stated they were satisfied or very satisfied with the pain relief provided (figure 1).

Figure 1: Satisfaction of women with the pain relief provided by sterile water?
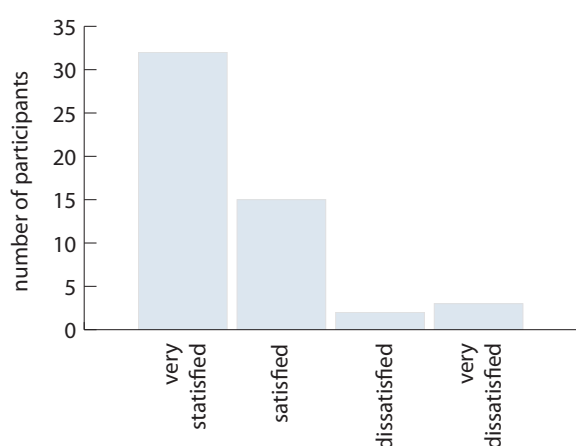
Problematic from the outset of this study was the newness of the method. It took more time than the researchers anticipated to generate an awareness of sterile water injections as a pain option among local women and health professionals alike. Both groups were hesitant at first to try something new. One woman summed up the issue succinctly by commenting:

The worst aspect of this study was convincing midwives present at labour that I was serious about trying it as they were cynical about the technique working. Hospitals should encourage nursing and midwifery staff to try the technique on themselves. Yes the injections do really sting but compared to the back pain its so worth it (Horsham).

Those women who were dissatisfied with sterile water injections as a pain relieving option in labour felt that the pain of the injection outweighed the benefits or did not experience adequate relief from its use. For example one woman made the comment:

It's just that the injections were so painful initially. If the injections weren't so painful I would have no problem recommending them to everyone (Horsham).

DISCUSSION

Sterile water injections for back pain in labour have been demonstrated in a number of studies to be a safe, effective method of pain relief for women in labour (Peart et al 2006; Reynolds 2002; Trolle et al 1991). While they are not the analgesic of choice for all women, within this study the majority of women commented positively on their pain reduction following administration. There exists no single method of analgesia in labour that is suitable for all women or all labour situations. However providing women with an increased range of options, particularly options that carry no risks to the baby, would seem to be an important consideration in assisting women to safely manage labour pain. There is no recorded Australian data on non-pharmacologic pain relief used in labour, despite the probable uptake of multiple methods by almost all women. The utilisation of non-pharmacologic methods is poorly understood and often overshadowed by the dominance of pharmacological options. The reported data on the uptake of pharmacological management of labour pain suggests that all health professionals collude to ensure it remains a primary strategy for pain relief. It is important that maternity providers seek alternatives and offer a broader range of effective regimens to relieve pain during labour particularly as pregnant women identify this is an important aspect of their birth experience.

CONCLUSION

The data collected from the questionnaires completed by women who used intradermal sterile water during labour suggests that it was a positive experience for many. Women recognised that the use of a pain relieving modality that had no adverse effect on their baby was an important factor and is a significant consideration for health professionals when discussing with women their pain needs during labour. It was not the method of choice for all

women, however it represents an important, safe, drug free option that should be made available to all women experiencing unrelenting back pain during childbirth.

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Validity for the critical patients severity classification system developed by the Korean Clinical Nurse Association

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KEY WORDS

severity classification; prediction; traumatic brain injury

ABSTRACT

Objective
This study aimed to evaluate whether the Critical Patient Severity Classification System (CPSCS) can be effectively used to predict mortality, functional disability, and cognitive ability of brain injury patients at 1 month and 6 months after admission to an intensive care unit.

Design
This study was conducted using a prospective prediction study design.

Setting
Data were collected at a university hospital located in Incheon, South Korea.

Subjects
The study subjects were 190 brain injury patients admitted to a surgical intensive care unit.

Main outcome measures
Mortality, functional disability, and cognitive ability were evaluated directly at 1 month and 6 months after admission to an intensive care unit.

Results
The probability of discriminating survival and death correctly using identified significant predictors of the Critical Patient Severity Classification System (CPSCS) was 77.3% and 81.3% respectively, which are considerably high. However this system was less reliable at predicting functional and cognitive recovery in brain injury patients.

Conclusions
The result of the present study showed that the Critical Patient Severity Classification System can be used to predict a restricted area of the outcome: mortality, in brain injury patients. To expand its applicability on functional or cognitive recovery, this system needs to include brain injury specific nursing activities such as, for example, managing brain oedema or brain tubes.

INTRODUCTION

The Critical Patient Severity Classification System (CPSCS) was initially used to stratify patients according to disease severity and later its use was extended to predict outcome - particularly mortality. Such abilities of the classification system can be used to provide objective information to improve patient management (Knaus et al 1985) and to establish selection criteria for admission to intensive care units (ICUs). Furthermore, the classification system also functions as a tool for comparing the efficiencies of medical treatment and nursing care among different units or hospitals (Tan et al 1998; Shann et al 1997).

Of various tools developed for measuring severity, the Acute Physiology, Age, and Chronic Health Evaluation (APACHE), Therapeutic Intervention Scoring System (TISS), and Sickness Score, Multiple Organ Failure (MOF) appear to be the most frequently used (Cassinello et al 1994; Rutledge et al 1993; Bion et al 1988). These three systems are widely used due to their high reliability and validity, which have been demonstrated by many researchers. However the following limitations of these tools have also been reported: 1) they place a great deal of weight on physiological measures, 2) they require considerable time commitments, and 3) they are unsuitable for evaluating treatment and care efficiency in the ICU because they were designed to predict mortality rather than morbidity (Vincent and Ferreira 2000).

In the nursing area, one of the primary purposes of a patient classification is to efficiently allocate nursing resources according to demand based on the level of nursing care required (Hass 1988; Giovannetti and Mayer 1984). In particular, appropriate allocation of limited ICU resources must be determined based on a classification system that fits well the ICU setting (Kim and Jang 2002). In 1994, the Korean Clinical Nurse Association (KCNA) developed a classification system, ie the Critical Patient Severity Classification System (CPSCS), which aimed at estimating demand, supply, and priority of nursing activities (KCNA 1994). The CPSCS has now been acknowledged as a valuable tool for nursing management, in-line with its original purpose.

However if the CPSCS is used only for estimating nursing demand and supply, this system can be considered to have limited applicability. To increase the value of clinical usage of the CPSCS, nursing demands and workloads computed using the CPSCS should be verified to significantly relate to the prognostic prediction. Such verification can be convincing evidence of a close connection between nursing activities and patient prognosis. Therefore, further studies on evaluating the predictive value of the CPSCS were needed.

In ICUs, the most important outcome should be mortality, because the major cause of admittance is brain injury, which is also one of the most common causes of death (Rovlias and Kotsou 2004; Schreiber et al 2002; Ono et al 2001). On the other hand, many brain injury survivors remain disabled and are discharged to their own homes to lead a somewhat independent life, even after completing rehabilitation. Therefore, predictions of the functional, cognitional, and sociological recovery of brain injury patients are as meaningful as mortality predictions. The purpose of the present study was to evaluate whether the CPSCS can be effectively used to predict mortality, functional disability, and cognitive ability of brain injury patients at 1 month and 6 months after admission to an ICU.

METHOD

Design and subjects

The present study was conducted using a prospective prediction study design. The study subjects were 190 brain injury patients admitted to a surgical ICU at a university hospital located in Incheon, South Korea.

Data Collection

CPSCS was applied on the third day of admission to all study subjects. Outcome variables, ie mortality, functional disability, and cognitive ability were evaluated directly at 1 month and 6 months after admission to the ICU. For subjects discharged before the 6 months evaluation, the information required to assess outcome variables was obtained by telephone interviews.

Measurements

The CPSCS consists of 8 specific areas of nursing activities: 'vital signs measurement', 'monitoring', 'activities of daily living (ADL)', 'feeding', 'IV therapy and medication', 'treatments and procedures', 'respiratory therapy', and 'teaching and emotional support'. Each of these 8 areas is composed of 9~22 items, and each item can be scored based on nursing activity demand, difficulty, and time (Diagram 1). According to CPSCS total scores, patients were classified into 6 groups: group 1, 0~13 (lowest severity); group 2, 14~32; group 3, 33~65; group 4, 66~98, group 5, 99~150; and group 6, above 151 (highest severity).

Diagram 1: The Critical Patient Severity Classification System (CPSCS)

Total score	Classification
0~13	I
14~32	II
33~65	III
66~98	IV
99~150	V
above 151	VI

Items	Content
VITAL SIGNS (Manual TPR, BP)	(1) Vital signs four times a day or less (2) Vital signs every 4 hours or x 6 (3) Vital signs every 3 hours or x 8 (4) Vital signs every 2 hours or x 12 (8) Vital signs every 1 hour or x 24 (2) Rectal or axillary temperature or apical pulse four times a day or more (2) Femoral or pedal pulses or foetal heart tones every 4 hours or more (2) Tilt tests every 4 hours or more (6) Post-op, post-partum, or post-new born vital signs
MONITORING	(2) Intake and output every 8 hours or x3 (4) Intake and output every 4 hours or x6 (8) Intake and output every 2 hours or x12 (16) Intake and output every 1 hour or x24 (2) Circulation or fundus check every 2 hours or x12 (3) Neurological checks every 4 hours or x6 (6) Neurological checks every 2 hours or x12 (12) Neurological checks every 1 hour or x24 (2) CVP/ICP/LAP(manual) every 2 hours or x12 (4) CVP/ICP/LAP(manual) every 1 hour or x24 (6) Cardiac/Apnoea/Temp/Pressure monitor(not accumulative) (6) Transcutaneous monitor (4) A-line or ICP(monitor) or Swan Ganz set-up (2) A-line or ICP(monitor) reading every 2 hours or x12 (4) PAP/PCWP/RVP reading every 2 hours or x12 (2) Cardiac output three times a day or x3
RESPIRATORY THERAPY	(2) Oxygen therapy or oxyblood (2) Incentive spirometer or cough and deep breathing every 4 hours (2) IPPB or Nebulizer twice a day or x2 (4) IPPB or Nebulizer every 6 hours or x4 (6) IPPB or Nebulizer every 4 hours or x6 (8) Crop tent or mist tent (2) Chest physiotherapy twice a day or x2 (4) Chest pulmonary therapy every 6 hours or x4 (6) Chest pulmonary therapy every 4 hour or x6 (2) Suctioning every 4 hours or x6 (4) Suctioning every 2 hours or x12 (8) Suctioning every 1 hour or x24 (18) Suctioning every 30 minutes or over (10) Ventilator (4) Tracheostomy care x3 (after 48 hours) (6) Tracheostomy care x3 (before 48 hours)

Diagram 1: The Critical Patient Severity Classification System (CPSCS) *continued...*

Items	Content
ACTIVITIES of DAILY LIVING	(6) Infant/toddler care (<5years) (2) Self/minimal care (adult or child >5years) (6) Assisted care (>5years), position self (14) Completed care (<5years), assists with positioning (18) Total care (<5years), position and skin care (32) Total care (<5years), position and skin care every 2 hours (4) Extra line change and partial bath per shift (14) Turning Frame (2 staff to turn every 2 hours) (8) Paediatric recreation/observation (0-12years)
FEEDING	(5) Tube feed (bolus) every 4 hours or x6 (8) Tube feed (bolus) every 3 hours or x8 (10) Tube feed (bolus) every 2 hours or x2 (2) Tube feed (continuous) per bottle change (6) Adult meals> 5years, spoon feed x3 (10) Child meals> 5years, spoon feed x3 (2) Infant/neonate bottle x1 feeding (12) Infant/neonate bottle every 4 hours or x6 (18) Infant/neonate bottle every 3 hours or x8 (24) Infant/neonate bottle every 2 hours or x12
IV THERAPY and MEDICATIONS	(4) KVO (change bottle twice a day or less) (4) Heparin lock or Broviac (6) Simple (change bottle three or four times a day) (8) Complex (2 or more sites or change bottle every 4 hours or multilumen line) (2) IV medication every 8 hours or x3 (3) IV medication every 6 hours or x4 (4) IV medication every 4 hours or x6 (2) Blood products (each administration) (2) Medication every 3 hours or x8 (up to 12 trips), exclude IV medication (4) Medication every 2 hours or more (>12trips), exclude IV medication
TREATMENTS, PROCEDURES	(2) Star IV or NG or Foley or EKG (2) OR preparation or enema or Ace wraps/Teds (2) Lab studies x6; ABG stick or Blood culture x3 (2) Simple dressing x2 or tube care x2 or Foley care x2 (2) Irrigation or instillation x4 or less (2) Restraints (2 or 3 areas) (2) Assist out of bed to chair/stretch x3 (2) Assist out of bed, walk and return x1 (2) Infant circumcision or phototherapy (2) Accompany patient off ward >15min but <30min (2) Other activities requiring >1 min but <30min (2) Isolation (gown and glove x8) Complex>30min and <1 hour total (4) Chest tube insertion or lumbar puncture (4) Thoracentesis, paracentesis, pericardiocentesis (4) Straight catheterization > x4 (4) Complex dressing change (>30min) (4) Range of motion exercise x3 (4) Accompany patients off ward >30min (4) Other activities requiring >30min <1hr Special procedure >1h and <4h (8) Other activities requiring continuous nursing care or every 1 hour (12) New admission (assessment and orientation) (4) Transfer (in-house)
TEACHING and EMOTIONAL SUPPORT	Teaching (2) Group teaching (4) Preoperative teaching (4) Special structured teaching (Diabetic, cardiac, etc) Emotional support (>30min every 24 hours) 10 = maximum points for emotional support (4) Patient/family support (anxiety, denial, loneliness, etc) (4) Lifestyle modification (prosthesis behavior, image, copying, etc) (6) Sensory deprivation (retarded, blind, deaf, mute, etc) Continuous (99) Patients requiring 1:1 coverage (151) Patients requiring greater than 1:1 coverage

To evaluate functional disability, the Rappaport Disability Rating Scale (DRS) was used. This scale is an 8-item rating scale and consists of four main areas: 'arousability and awareness', 'ability for self-care', 'dependence on others', and 'psychosocial adaptability' (Rappaport et al 1982). Higher scores represent higher levels of functional disability. The DRS has been reported to be reliable and valid (van Baalen et al 2003; Fleming and Maas 1994; Gouvier et al 1987) and was found to have a Cronbach's α of 0.93 in the present study.

Cognitive ability was measured using the Functional Cognitive Index (FCI), which was designed to assess attention, communication, behavior/safety, behavior/social, problem solving, and memory. The FCI is a 6-item, 6-point rating scale, and has been acknowledged to be highly applicable in various clinical settings. The reliability coefficient of this scale in the present study was 0.98.

Ethical considerations

Data collection was performed with the permission of the institutional research review board at the hospital where data were collected. Subjects or families were informed of the purpose of this study and of the data collection procedures. Only those that expressed an intention to participate voluntarily were recruited.

Data analysis

Statistical analysis was performed using SPSS (version 12.0). Descriptive analysis was used to analyse general subject characteristics. Discriminant analysis was used to determine the statistical significance of the predictive accuracy of independent variables with respect to categorical outcome variables, like mortality. For interval type outcome variables, ie degree of functional disability and cognitive ability, multiple regression analysis was used.

FINDINGS

General and illness related subject characteristics

Study subjects included 119 male (62.6%) and 71 female (37.4%) brain injury patients of mean age 52.42(± 14.95) years. Eighty-two subjects (43.2%) had a traumatic brain injury, 49 (25.8%) a spontaneous intra-cerebral haemorrhage (ICH), and 49 (29.5%) a sub-arachnoid haemorrhage (SAH) with aneurysm rupture. Fifty-five subjects (28.9%) had hypertension and 12 (7.8%) diabetes mellitus. Of the 106 subjects, 98.9% had an intracranial haematoma and 22.1% a midline shift.

Regarding surgical modalities related to brain injury, 35.1% of subjects had clipping surgery, 27.7% haematoma removal surgery, 22.3% extra-ventricular drainage or extra-lesional drainage, and 14.9% decompressive craniectomy. Mean GCS score at ICU admission was 7.81 (± 4.07, range 3~15).

The mean scores of the 8 CPSCS areas were as follows: 'vital signs measurement' 9.04 (± 2.71, range 0~22), 'feeding' 0.73 (± 1.93, range 0~8), 'activities of daily living' 18.06 (± 5.19, range 0~32), 'monitoring' 16.27 (± 4.73, range 0~34), 'teaching and emotional support' 8.37 (± 2.97, range: 0~14), 'IV therapy and medication 18.86 (± 6.08, range 0~39), and 'respiratory therapy' 6.65 (± 6.14, range 0~23). The mean total score was 93.18. Most of the study subjects were classified as group 3 (n=3, 1.6%), 4 (n=96, 50.5%), and 5 (n=59, 31.1%). No subject was classified as group 1, 2, or 6 in the present study.

Thirty-six subjects (18.9%) died within 6 months of ICU admission with an average survival of 28.69 (± 38.81) days. Of these expired subjects, 34.4% died within 1 week. ICU stay averaged 14.48 days (± 13.35, range 1~71).

The predictors of mortality

Ten potential predictors were evaluated, ie the eight areas of CPSCS, total CPSCS score, and grade classified according to CPSCS total score. Discriminant analysis showed that 'vital signs measurement' (p=0.00), 'teaching and emotional support' (p=0.00), total score (p=0.00), 'respiratory therapy' (p=0.00), 'IV therapy and medication' (p=0.01), and classified grade (p=0.01) were significant predictors of mortality (table 1). Using these six significant predictors, 51% (canonical correlation=0.51) of mortalities could be explained, and this was statistically significant (Wilks' Lambda=0.74, p=0.00).

Table 1: Discriminant analysis for mortality (n=190)

Variables and significant test		Survive mean(SD)	Death mean(SD)	Structure matrix[1]	Univariate analysis F(p)
Predictors	Vital sign	8.65(1.87)	11.20(4.83)	-0.61	20.49(0.00)
	Teaching	8.74(2.72)	6.00(3.16)	0.61	20.24(0.00)
	Total score	91.23(13.21)	104.80(19.42)	-0.58	18.66(0.00)
	Respiratory	5.96(5.70)	10.48(7.15)	-0.47	12.06(0.00)
	IV therapy	18.29(5.32)	21.84(8.85)	-0.37	7.28(0.01)
	Classified grades	4.32(0.52)	4.50(0.50)	-0.34	6.34(0.01)
Significant test for Canonical Discriminant Function	Eigen value				0.36
	Canonical correlation				0.51
	Wilks' Lambda (p)				0.74(0.00)
Correct classification rate	Overall				77.3%
	Death				72.0%
	Survival				78.3%

[1] Correlation coefficients between discriminating variables and standardized canonical discriminant functions

Table 2: Multiple regression analysis for 1 month and 6 months functional disability (n=190)

Predictors	β	t(p)	Adjusted R²	Model test F(p)
1 month Functional Disability				
Respiratory therapy	0.46	3.55(0.00)		
Teaching	-0.29	-3.16(0.00)	0.29	6.77(0.00)
Activities of daily living	0.23	2.15(0.03)		
Monitor	0.19	1.96(0.05)		
6 months Functional Disability				
Respiratory therapy	0.32	2.40(0.02)	0.26	5.87(0.00)
Teaching	-0.33	-3.53(0.00)		

Predictive accuracy for deaths, survivals, and overall (both death and survival) using these six significant variables were 72.0%, 78.3%, and 77.3%, respectively. The best predictors were 'vital signs measurement' (-0.61) and 'teaching and emotional support' (0.61) followed by 'total score' (-0.58), 'respiratory therapy' (-0.47), 'IV therapy and medication' (-0.37), and 'classified grade' (-0.34). Survivors had lower scores for 'vital signs measurement', 'respiratory therapy', 'IV therapy and medication', 'total score', and 'classified grade', whereas non-survivors had lower scores in 'teaching and emotional support'.

The predictability of 1- and 6-month functional disabilities

The significant predictors of 1 month functional disability were 'respiratory therapy' (β=0.46, p=0.00), 'teaching and emotional support' (β= -0.29, p=0.00), 'activities of daily living' (β= 0.23, p=0.03), and 'monitoring' (β= 0.19, p=0.05, table 2). Using these four significant predictors, 29% of 1 month functional disability could be explained (adjusted R-square=0.29), and this was statistically significant (p=0.00). Subjects with a better functional recovery at 1 month had lower scores in 'respiratory therapy', 'activities of daily living', and 'monitoring', but higher 'teaching and emotional support' scores. 'Total score' and 'classified grade' were not found to significantly predict 1 month functional recovery.

The significant predictors of 6 months functional disability were 'teaching and emotional support' (β=-0.33, p=0.00) and 'respiratory therapy' (β=0.32, p=0.02) (table 2). The explicability of

these two significant predictors, was 26% (adjusted R2=0.26), and this was statistically significant (p=0.00). The subjects with a better functional recovery at 6 months had higher scores for 'teaching and emotional support', but lower scores for 'respiratory therapy'. 'Total score' and 'classified grade' were not found to significantly predict 6 months functional recovery.

Prediction of 1 month and 6 months cognitive ability

The significant predictors of 1 month cognitive ability were 'teaching and emotional support' (β=0.39, p=0.00) and 'respiratory therapy' (β=-0.31, p=0.03) (table 3). Using these two significant predictors, 28% of 1 month functional disabilities could be explained (adjusted R2 =0.28), and this was statistically significant (p=0.00).

Subjects with better cognitive recovery at 1 month had higher scores for 'teaching and emotional support', but lower scores for 'respiratory therapy'. 'Total score' and 'classified grade' were not found to significantly predict 1 month cognitive recovery.

The only significant predictor of 6 months cognitive ability was 'teaching and emotional support' (β=0.31, p=0.00, table 3). The explicability of this significant predictors for 6 months cognitive ability was 17% (adjusted R2=0.17) and this was statistically significant (p=0.00). The subjects with a better cognitive recovery at 6 months had higher scores for 'teaching and emotional support'. 'Total score' and 'classified grade' were not found to significantly predict 6 months cognitive recovery.

Table 3: Multiple regression analysis for 1 month and 6 months cognitive ability (n=190)

Predictors	β	t(p)	Adjusted R²	Model test F(p)
1 month cognitive ability				
Teaching	0.39	3.70(0.00)	0.28	5.35(0.00)
Respiratory therapy	-0.31	-2.17(0.03)		
6 months cognitive ability				
Teaching	0.31	3.02(0.00)	0.17	3.58(0.00)

DISCUSSION

Several studies have evaluated the validity and reliability of the CPSCS for estimating the time, amount, cost, and personnel demand required for ICU nursing activities (Ham 1997; Yu and Cho 1996; Kang 1993). Based on the results obtained, the CPSCS is now acknowledged to be a valuable classification system for nursing management and its usage continues to increase in Korea. However few studies have been conducted to further examine the prognostic predictability of CPSCS. As far as we are aware, only one study has investigated the predictability of CPSCS for 1 month recovery in brain injury patients (Hyun 2003). In the case of the Glasgow Coma Scale, it was initially developed to grade patients with acute traumatic brain injury and later it was extended to evaluate the probability of early death (Handschu et al 2005; Cho and Wang 1997). Therefore the present study was conducted to assess the ability of the CPSCS to predict various aspects of outcome for acute and post-acute stage brain injury patients. This evaluation was expected to be valuable in terms of expanding the applicability of CPSCS and its clinical usage.

Of the eight CPSCS areas, 'vital signs measurement', 'teaching and emotional support', 'respiratory therapy', and 'IV therapy and medication' were found to significantly predict mortality. In addition, 'total scores' and 'classified grade' were also identified as significant predictors of mortality. The probability of discriminating survival and death correctly using these significant predictors was 77.3% and 81.3%, respectively, which are considerably higher than the 50% expected by chance. This result implies that CPSCS can be used to efficiently predict brain injury patient mortality.

According to the result of the present study, patients with good functional recovery at one month had a higher 'teaching and emotional support' score, but lower 'respiratory therapy', 'activities of daily living', and 'monitor' scores. This signifies that the subjects who need less nursing time and effort for respiratory therapy, activities of daily living, and monitoring, but more for teaching and emotional support will achieve a good functional recovery. Similarly, the Therapeutic Intervention Scoring System (TISS) evaluates illness severity based on type of equipment and services and the level of nursing care for patient care.

In fact, a high 'respiratory therapy' score is the result of airway intubation or ventilator management, implying severe brain injury. In the same manner, a high 'monitoring' score is due to the need for neurological or intake/output assessments, or for the monitoring of intracranial pressure, central venous pressure, or pulmonary capillary wedge pressure (PCWP), which again imply severe brain injury. Therefore, high 'respiratory therapy', 'activities of daily living', and 'monitoring' scores indicate severe illness. However patients with severe brain injury need prolonged psychological or social support due to a low level of consciousness, which would result in low 'teaching and emotional support' scores.

Patients that achieved good functional recovery at 6 months had lower 'respiratory therapy' scores but higher 'teaching and emotional support' scores. As did our 1 month functional disability findings, this result seems persuasive, because patients with severe brain injury probably preferentially require respiratory therapy, but hardly need a psychological or social support. However 'activities of daily living' and 'monitoring', which were found to significant predictors of 1 month functional recovery, were not found to significantly predict 6 months functional recovery.

Patients with good cognitive recovery at 1 month also had lower 'respiratory therapy' scores but higher 'teaching and emotional support' scores. On the other hand, 'teaching and emotional support' score was the only significant predictor of 6 months cognitive recovery.

Taken together, our results signify that CPSCS can be used to efficiently predict a restricted area of the outcome in brain injury patients. That was, CPSCS was found to be a valuable tool for mortality prediction, but less reliable at predicting functional and cognitive recovery in brain injury patients.

CONCLUSIONS AND RECOMMENDATIONS

The result of the present study showed that the CPSCS can be used to efficiently predict mortality, but less reliable at predicting functional and cognitive recovery in brain injury patients. Outcome prediction is not expected to be perfect, in part because injury severity is so difficult to quantify. More importantly patient response to brain injury is complex and thus difficult to model adequately. Therefore multiple scoring systems may be needed in clinics.

Some limitations of the present study require mention. First, the study subjects were mainly of group 4 and 5 according to the CPSCS, and this might affect results. Therefore further studies on subjects with diverse CPSCS scores are needed. Second, because the CPSCS was originally developed for application to all types of ICU patients, it does not specifically address brain injury patients and as a result does not include particular nursing activities for brain injury patients (eg managing brain oedema or convulsion, preparation for medical examination, monitoring re-bleeding, assessing respiratory activity, or requirements for specific facilities or equipments (Park 2001). To use the CPSCS to predict functional or cognitive recovery in brain injury patients, such data should be included in the CPSCS. Further studies are also required on this issue.

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Ageing and HIV disease- a client's perspective

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KEY WORDS

ageing, HIV and AIDS, HAART, support services

ABSTRACT

Objective

To ascertain the perspective of HIV positive clients' on issues regarding ageing and to establish strategies to improve health outcomes for this population.

Method

A descriptive qualitative study; data was collected by means of a questionnaire.

Setting

Primary care out patient clinic in a major metropolitan teaching hospital and tertiary referral centre.

Subjects

72 HIV positive men with a mean age of 45 years (range 38 to 63). Women were excluded from the study due to low numbers over study period.

Main outcome

Clients identified issues which may be used to develop strategies for clinical care and health promotion activities.

Results

53% of respondents thought HIV would progress faster with ageing. 61% were concerned aged care facilities may not be friendly toward people who were homosexual (p=0.03). 92% thought ageing would impact on physical abilities with 28% thinking they will need future support for this. 79% were taking highly active antiretroviral medications (HAART). Younger respondents were concerned about the long term effect of HAART (p=0.002).

Conclusion

Issues, including social isolation and aspects of clinical care, identified by participants in this study may be used to develop strategies, such as monitoring for risk markers of cardiac disease during routine assessment, may provide improved care for this population with a focus on enhanced health outcomes whilst ageing with HIV and AIDS.

INTRODUCTION

Historically little attention has been given to issues concerning ageing and HIV and AIDS in Australia.

By the end of 2005, there were an estimated 15,310 people living with HIV and AIDS in Australia. Survival following an AIDS diagnosis increased from 17 months for cases diagnosed prior to 1996 to 45 months for cases diagnosed in 2001 (NCHECR 2006).

Over time the epidemiology of HIV and AIDS has changed in the western world with the emergence of an ageing population who are HIV positive due to recent advances in the treatment of HIV. The use of highly active antiretroviral therapy (HAART) which reduces HIV viral load and allows immune recovery has significantly altered the course of HIV and AIDS to a chronic manageable condition for most people (Auerbach 2003; PLWHA NSW 2005).

The long-term effectiveness of antiretroviral treatment in preventing progression of HIV illness is unknown. There may be future challenges regarding the consequences of long-term therapy for HIV disease, potential toxic side effects and the natural ageing process. The complexities of managing individuals with HIV and AIDS are well documented with emerging complications such as coronary heart disease; metabolic changes resulting in high serum cholesterol, triglycerides, and sugar levels; and possible diabetes mellitus which may be treatment related (NCHECR 2005; Pitts et al 2005).

Individuals who are HIV positive may have concerns regarding how HIV manifests itself with chronic diseases, often seen in ageing populations. In this study we refer to ageing as the chronological process in years and considered older age to be individuals over fifty six years of age. Older age is a strong predictor of HIV disease progression (Kalayjian et al 2003). Studies have shown that there are defining progressive alterations to the immune system associated with increased mortality in the very elderly (Vasto et al 2006). Understanding the differentiation between age related diseases, HIV related diseases and treatment side effects is poorly

understood. This population may have age related health problems, which are not due to HIV infection. An HIV specialist may not be familiar with ageing issues but a general practitioner or geriatrician may not have HIV knowledge and so there is the potential for sub optimal care (Montoya and Whitsett 2003).

Goodkin et al (2003), state that older people living with HIV and AIDS (PLWHA) have rarely been investigated with respect to their psychosocial characteristics. They state that older HIV infected individuals have fewer systems of community support compared to individuals who have positive relationships with parents, siblings, spouses and children; may lack siblings or parents to care for them; may have experienced multiple AIDS losses; and live with a variety of co-morbidities that often accompany older age, such as chronic obstructive pulmonary disease and diabetes compared to younger PLWHAs.

Pitts et al (2005) notes that older PLWHA are significantly less likely to rate their health and well-being as good or excellent; have additional health conditions such as diabetes, hypertension and cardiovascular disease; are less likely to be in contact with services; and have poorer financial circumstances and personal support (Cherner et al 2004).

In this research respondents were given a self administered questionnaire relating to HIV issues, physical function, psychological issues and questions about matters unique to men's health and the ageing process such as prostate cancer and erectile dysfunction. The incidence of impotence increases in men over the age of 50. Vascular disease is the most common cause of impotence. Men who also have diabetes are at higher risk (Philpot and Morley 2000).

As the HIV positive population ages, there is a need to establish strategies for future health service requirements which are effective, client focused and cost efficient. This study was developed as a quality improvement activity to ascertain clients' perceptions of or concerns about ageing issues and HIV and knowledge of other men's health issues. It

was anticipated this would lead to the recognition and development of strategies and health promotion activities targeting clients with HIV at risk of other processes related to ageing such as heart disease.

METHOD

Setting and Sample

The study was conducted within the Sydney South West Area Health Service, NSW, Australia. All clients living with HIV and AIDS and attending the outpatient clinic of a major teaching hospital and tertiary referral centre, over a one-month period were considered for the study. Participants were invited to complete a questionnaire at their regular clinic visit during the study period. There was a 95% response rate with seventy two respondents completing the questionnaire. Women were excluded from this study due to low numbers attending clinic over study period. This study was completed as a quality improvement activity and as such Ethics Committee approval was not sought.

Excluded from the study were people under 17 years of age; those with a new diagnosis of HIV; individuals with HIV related dementia; and women, due to low numbers over study period and the consequent gender bias of the questionnaire).

Instrument

Following an extensive literature review, a questionnaire was developed based on themes and outcomes of various studies and anecdotal evidence of clinic staff, to ascertain the knowledge and perceptions of HIV positive individuals on clinical and social issues, which may be impacted by ageing and being HIV positive.

Study design

Clients voluntarily completed a self-administered questionnaire during an outpatient visit.

Statistical methods

De-identified data were entered into SPSS for Windows (version 12.0) and frequencies of variables were tabulated. The X^2 test (for categorical variables) and the Mann-Whitney test (for continuous variables) were used to look for crude associations between selected variables.

Results

Seventy-two questionnaires were completed with a response rate of 95%. Topics covered by the questionnaire included: demographics; concerns about HIV disease; medication issues; potential future supports; finances; and aged care.

Demographics

Fifty five of the participants identified as homosexual, 12 heterosexual and 5 as 'other'. Thirty nine lived alone, 17 with their partner, 16 with others. Five owned properties, 15 had a mortgage and 52 were renting. Thirty four were employed and 38 unemployed.

Age

The total mean age of respondents was 45 years. The range is seen in table 1. The age ranges seen in table 1 were chosen based on the literature review.

Table 1: Age of respondents

	N	Mean (years)
Young (<44 years)	32	38
Mid aged (45-55 years)	34	49
Old age (>56 years)	6	63
All respondents		45

HIV and Ageing

Forty nine per cent of respondents were concerned about ageing and being HIV positive. Fifty three per cent thought HIV may progress faster with age and that their immune system would not work as well. Sixty five per cent were concerned that as they became older any illness may be the result of HIV and AIDS.

CD4 levels

CD4 (T cells) levels give an indication of immune function. The normal range is 400 x10^6/l (low) to 1320 x10^6/l (high). The range of the respondent's CD4 counts was 10 x10^6/l to 1100 x10^6/l with a mean of 380 x10^6/l.

HAART

Seventy nine per cent of respondents were on an antiretroviral regimen. Twenty four per cent had a

protease inhibitor (PI) (excluding atazanavir) in their medication regimen, which may increase the risk of raised serum cholesterol and triglyceride levels. Thirteen per cent were taking atazanavir sulphate (Bristol-Myers Squibb) as part of their medication regimen, which is not considered to have as great an effect on lipid levels.

Twenty per cent thought that ageing would affect the effectiveness of HAART. Fifty three per cent were concerned about the long-term effects of the medications. Seventy six per cent considered they would be not able to afford the cost of HAART as they became older and 58% thought this cost could influence their ability to continue taking these medications as they aged.

Younger respondents (<45 years) were more likely to be concerned about the long-term effects of HIV medications (Mann-Whitney test, p=0.02).

Heart disease

Surrogate markers of heart disease were examined: increased blood pressure, raised lipid levels, cigarette smoking and age. Twenty three per cent had high blood pressure >140/90. Fifty eight of the 72 respondents had blood lipids results available; of those, 45% had raised lipids levels defined as total cholesterol >5.5mmol/l or triglycerides >2.5mmol/l. Eighty five per cent thought that increases in cholesterol and triglycerides are important or very important, as they aged.

Fifty six per cent smoked cigarettes. Fifty seven per cent were older than 45 years of age.

Antiretroviral medication can increase the risk of heart disease, however when the respondents considered their future health, only 18% identified heart disease as being related to HIV. Fifty per cent thought they were at high risk of heart disease and hypertension due to ageing, but only 24 % thought antiretroviral drugs could increase their risk of heart disease.

Additional health issues

As part of the questionnaire, respondents were asked to rate a list of health conditions as important or not in relation to ageing, to determine whether they were aware of and concerned by conditions which were related to HIV infection or HIV medications such as osteoporosis, heart disease and depression. The highest rating conditions were: decreased vision (95%), decreased mobility (92%), decreased hearing (89%), prostate cancer (85%) and stroke (82%).

Sexual function

There was a highly significant association between concerns regarding sexual dysfunction, erectile problems, loss of libido and the effects of ageing on sexual attractiveness (p=0.008). The effects of ageing on respondents' appearance and concerns regarding how others perceive their appearance as they age was also highly significant (p<0.001).

Aged related concerns

Respondents considered issues which they thought might be of concern to them when reflecting on future concerns regarding ageing (see table 3).

Table 3: Description of ageing related concerns

	n	Percentage
Lifestyle changes Lifestyle changes		
Social isolation	36	50
Financial status	33	46
Changes in lifestyle	27	38
Social supports	22	31
Practical supports	14	28
Mental wellbeing		
Anxiety	47	65
Loneliness	47	65
Sleep pattern changes	49	68
Depression and other mood changes	50	69
Memory deterioration	41	57
Physical support		
Impaired vision	66	92
Impaired hearing	61	85
Decreased mobility	62	86
Practical support required for physical issues	20	28

Aged care facilities

Sixty one per cent of respondents were concerned about future placement in an aged care facility.

Those respondents concerned about going into an aged care facility who identified as homosexual were anxious that aged care facilities may not be friendly toward a person who was homosexual (p=0.003.) Three other respondents who did not identify as homosexual were also concerned about this for the same reason. Fifty four per cent were concerned about lack of HIV knowledge; 42% about lack of HIV experience; and 48% about discrimination due to HIV in aged care facilities.

DISCUSSION

As the HIV positive population ages there is a need to establish plans for future health service requirements which are effective, client focused and cost efficient. Gathering information and addressing issues now should assist health care providers to plan for the future care requirements of this growing population.

Holistic care is an optimal goal for individuals with HIV infection. As they age they may be affected by other health conditions. Individuals may need to commence taking medications for health problems related to ageing such as antihypertensives. HAART prescribers need to be vigilant when prescribing medications for interactions, side effects and medication burden. Optimal communication between specialities is a key factor when providing care for ageing individuals who are HIV positive. Health care providers need to be cognisant of the ageing process when caring for these individuals.

The mean CD4 count was 380 x10^6/l. Sixty five per cent of respondents were concerned that as they became older any illness may be related to HIV. Fifty three per cent thought their HIV may progress faster with age and that their immune system would not work as well. A comparison of CD4 count, whether the person was taking HIV medications, their concerns regarding ageing and whether they thought HIV would progress faster effecting immune function as they got older showed no association between these variables.

It was assumed that finances would be a marker of whether a person could afford medication and thus affect medication adherence. Comparisons between accommodation, employment and the amount spent on cigarettes were considered as a surrogate marker of socioeconomic status. Seventy six per cent considered the cost of medications could be an issue for the future. Fifty eight per cent thought the cost of medications would influence their ability to keep taking the medications as they got older, with 19% not knowing whether it would be an issue. Although this was not statistically significant, there were a high proportion of people concerned about their finances with regard to medications. As clients age, health care providers need to consider long term strategies for care such as factors which may influence medication adherence including requiring medications for other concurrent diseases, finances and dosing combinations such as fixed dose combinations, which would incur one dispensing fee to reduce cost of medications and pill burden.

Only 25% of respondents were not concerned about the long-term effects of HIV drugs. Younger respondents (<45 years) were more likely to be concerned (Mann-Whitney test p=0.02), which is possibly because they are likely to be on antiretroviral medication for a longer time and may be more likely to experience long-term side effects.

Cardiac issues

Twenty three per cent of respondents had high blood pressure (>140/90 mm/Hg); 45% of the blood lipid values available (n=58) showed raised lipids (total cholesterol >5.5 mmol/l or triglycerides >2.5mmol/l). 24% were on protease inhibitors (PI) excluding Atazanavir; 56% were smokers and 39 individuals were over the age of 45 years. When these results were compared with whether respondents thought they were at higher risk of heart disease and hypertension due to ageing, no correlation was found which was surprising. It was anticipated, since all these factors are considered markers for potential increase risk of heart disease, that there would be an association between those considered at increased risk and what they perceived their risk to be.

Fifty six per cent of respondents smoked cigarettes, which is higher than the national average of 21%

(AIHW 2001). The HIV clinics at Royal Prince Alfred Hospital have previously provided a smoking cessation program. Future consideration will be given to developing health promotion activities for reducing cardiac risk factors leading to focused clinical monitoring of potential cardiac risk factors including lipid lowering agents, antiretroviral treatments and smoking cessation.

Mental well being

There may be changes in mental wellbeing associated with ageing. Social isolation and lack of social supports might have an impact on a person's mental wellbeing. Anecdotal evidence from this population suggests a common fear is that memory deterioration may be related to the development of HIV dementia. It was assumed that individuals would care how others perceived them if they were to experience any memory loss associated with ageing. This was not the case with respondents; the results showed that individuals thought memory deterioration was more due to ageing than HIV. There was no association between respondents stating that memory loss is an issue with ageing and their concern regarding others' perceptions of their mental state.

Sexual function

Male clients attending the outpatient clinics are monitored for testosterone levels and testosterone replacement is provided when indicated to improve the effects of low testosterone levels such as erectile difficulty, loss of libido and fatigue. There was a highly significant association (p=0.008) between concerns about sexual difficulties related to ageing such as sexual dysfunction, erectile problems or loss of libido and the effects of ageing on sexual attractiveness.

Physical supports

As people age there is usually some impact on their physical capability. Some may experience impaired sight and/or hearing or decreased mobility. Although 92% of respondents were concerned about impaired vision, 85% impaired hearing and 86% decreased mobility, only 28% stated they were concerned about any practical support they may require relating to these issues as they age. This was surprising considering the degree of concern stated, but

perhaps the respondents did not personalise their responses when considering potential deterioration of physical ability when considering their future. Vigilant observation, questioning and assessment of clients at clinical appointments, and focusing on physical function as individuals' age, may be helpful to provide strategies for future need and support.

Aged care

Anecdotal evidence from discussion with expert HIV nurses suggested clients were apprehensive when facing the prospect of being admitted to an aged care facility; and also staff of these facilities experienced anxiety regarding potential HIV positive residents. Sixty one per cent of respondents in this study were concerned regarding placement in to an aged care facility in the future. It was anticipated that older respondents would be more concerned about being admitted to an aged care facility however there was no association between age and this concern.

To provide HIV positive individuals with skilled treatment, it is paramount for aged care health workers and geriatricians to become aware of and increase their knowledge about HIV related issues and to work in collaboration with HIV specialists. Concurrently HIV specialists need to be aware of the ageing process to enhance care and treatments to an ageing HIV population.

CONCLUSION

This research has provided valuable information on how this cohort of HIV positive individuals perceives their health needs as they age. These preliminary results have led to changes in current clinical care at the outpatient clinics and to the development of strategies such as monitoring for risk markers of cardiac disease during routine assessment. Enhanced clinical care and improved health outcomes may be achieved by a holistic approach to the ageing HIV positive population using the skills of insightful health care providers. The Advanced Nursing Course Committee (a collaborative partnership of senior HIV clinical nurses based in Sydney, NSW) has recently highlighted concerns about the level of HIV knowledge in aged care

facilities and developed an education package for staff working in this area. A pilot workshop was well received. As this questionnaire was developed as a quality improvement activity more formal research needs to be undertaken.

Limitations of the study.

This study had a small sample size and used an untested questionnaire which needs validating. There was little focus on alcohol and drug issues, mental health issues and hepatitis co-infection, all of which could have major impact on the wellbeing of an ageing HIV population. Women were excluded and future replication of this questionnaire will focus on women's needs.

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Fear of death and putting 'life on hold' when one's spouse is hospitalised in a non-local tertiary centre

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Note
In this study pseudonyms are used.

KEYWORDS

health professionals, hermeneutic phenomenology, semi-structured interviews, non-local tertiary care, acute care

ABSTRACT

Background
There are unique issues for families when patients are hospitalised in non-local tertiary settings. These challenges include facing the possibility of a loved one's death, especially in an environment devoid of familiarity and social support. This paper presents findings that emerged from a hermeneutic study that explored the experiences of supporting spouses whose partner was transferred to a non-local tertiary hospital. During this time research participants faced the fear of death, and put their 'life on hold' amid social isolation from family and friends.

Objective
The objective of the PhD study was to explore the experiences of those whose partner was hospitalised in a non-local tertiary setting.

Design
Unstructured interviews were conducted with individuals. Hermeneutic phenomenological frameworks were used to analyse the transcribed interviews. Interpretations that emerged from these experiences enlighten understanding of similar situations. Initially, the prime researcher (CM) interviewed the research participants twice. However after interviewing the first four participants it became apparent that the participants told their entire story during the first interview and had no further information to offer. Subsequently, participants were interviewed once with an invitation to contact the prime researcher should there be other memories they wished to share.

Participants
Spouses (n=14) of people who had been admitted to a non-local tertiary hospital took part in this research. Overall 10 women and four men took part in this research. Participants were recruited by word of mouth (snow-balling).

Results
During times of non-local hospitalisation supporting spouses faced the fear of their partner's death, therefore putting their own 'life on hold'. Uncertainty was compounded if the supporting spouse was surrounded by other patients who were dying and the supporting spouses began to anticipate and prepare for their own partner's death. These fears were exacerbated during times when the supporting spouse had to make life and death decisions devoid of the direct physical support that would be available from family and friends had the partner been hospitalised in a local setting.

Conclusions
Spouses of patients affected by hospitalisation in a non-local setting often feared that their sick spouse may die during the time of non-local hospitalisation. This fear resulted in them putting their 'life on hold'. Health professionals can use strategies to minimise the effect of this fear on couples. These can include focussing on the patient as an individual, listening to couples and understanding and addressing their concerns.

INTRODUCTION

The discovery of disease that requires hospitalisation is a potential cause of stress for both the patient and their family. This can be accentuated if the patient is transferred to a non-local tertiary hospital where increased technology and specialisation of services are available. There are five tertiary hospitals in New Zealand, which means that people living in regional centres need to travel for specialist services. When patients are transferred from local to non-local tertiary centres to receive specialist treatment, they can become dislocated from social support. When the disease is life-threatening, such dislocation from social support affects not only the patient, but also the patient's partner, who faces an uncertain future. Fearing the patient's death, especially when the patient is hospitalised in another geographical centre, can have a significant impact on the couple.

In 2006, Mercer conducted a PhD study that explored the impact of non-local hospitalisation on supporting spouses. Trevor needed to be stabilised at the local centre prior to urgent transfer to the non-local tertiary centre. He was accompanied by his wife, Zoë. Warren had several trips to non-local tertiary centres for treatment. Each time Alice juggled her time and commitments to support Warren and the children at home. Victoria and Don needed to change arrangements when Don was suddenly hospitalised in the non-local tertiary centre. Therese and Ernie had long ago adjusted to the illness that resulted in Ernie requiring non-local hospitalisations. Despite having long periods of time to adjust, Ernie's condition suddenly deteriorated. The purpose of this paper is to present research about supporting spouses' fears of the death of a loved one while bereft of social support, which resulted in them putting their 'lives on hold'.

RELEVANT LITERATURE

Acute critical hospitalisation causes distress and a sense of uncertainty for relatives, (Appleyard et al 2000; Giuliano et al 2000; Medland and Estwing Ferrans 1998; Mendonca and Warren 1998). In addition, spouses of acutely ill patients may face the possible loss of their partner, or prolonged or poor recovery (Miller and Wikoff 1989; Thompson and Cordle 1988). When a loved one is hospitalised with sudden illness, family members provide support by being at the bedside and maintaining watch (Plowfield 1999; Coulter 1989). Carr and Clarke (1997 pp.713-731) defined this as vigilance and proposed that vigilance demands the family pay constant attention to the needs of the ill family member. Maintaining vigilance also provides family members with a sense of control over the potential illness outcomes and the ability to protect the patient from harm (Agazio et al 2003; Carr and Clarke 1997; Darbyshire 1994) thus allaying the fear that something will happen while they are away from the hospital (Leske 1991 p.225). The need to maintain vigilance is driven by the fear of death, but the opportunity to maintain vigilance is a challenge if family are separated by distance (Mercer 2006 p.115).

The desire to have the best treatment available also needs to be balanced with concerns about distance from the treatment area (Weeks et al 2002; Magilvy and Congdon 2000). Davis et al (1998 p.527) suggest that due to the increased burden of being away from home for six weeks, rural women are significantly more likely to undergo mastectomy than have breast-conserving therapy. These women express concern about the potential effect of their absences on their children and have doubts about their partner's ability to cope during those absences (McGrath et al 1999 p.38). These women may have increased psychological needs, but be reluctant to seek help (Girgis et al 2000; Sullivan et al 1993). Furthermore, the reluctance of rural women to seek assistance leads to increased social isolation and emotional turmoil (McGrath et al 1999 p.40).

Financial situations also influence treatment choices (Davis et al 1998; Strickland and Strickland 1995). For example, poor American minority groups prefer to treat themselves at home, rather than face journeys of up to 300 km to health services (Strickland and Strickland 1995 p.47). Estimated out of pocket expenses are among the determinants that rural

American retirees used in deciding whether to use regional hospital centres or closer private providers (Weeks et al 2002 p.558). Additional costs for Australian rural women seeking treatment for cancer include paying for someone to take their place in managing the farm and household (McGrath et al 1999 p.39).

Fear of a loved one's death, while the supporting spouse was bereft of social support, emerged from a PhD study (Mercer 2006) that focused on the experiences of those who had their spouse hospitalised in a non-local tertiary centre. There is a need for nurses to recognise the impact of non-local tertiary hospitalisation and the possibilities of death that supporting spouses face in social isolation.

METHODOLOGY

The aim of the study was to engage in a hermeneutic phenomenological approach to explore the experiences of having a spouse hospitalised in non-local tertiary centres. Phenomenology offers opportunities to explore experiences that capture individual world-views. Hermeneutic phenomenology is the analysis of expressions, both spoken and unspoken, that describe these experiences. Meanings that emerge from descriptions cannot be presented as arbitrary interpretations (Gadamer 1975 p.238). Rather, understanding occurs when the researcher extrapolates the connections between the descriptions of the experience and previous understandings.

Participants

Fourteen participants were recruited for the study through a snowballing method. In other words, people who volunteered to take part in the study also contacted other potential research participants. Participants were informed of the research by means of friends and associates of the prime researcher (CM) and then made further contact with others who had been in similar situations. This is a very effective process of accessing potential participants (Dempsey and Dempsey 2000; Nieswiadomy 1998). Recruitment for the research was conducted over a six month period and interviews conducted shortly after initial contact. Selection criteria for the study were people in a long term partnership (ie one in which the couple were living together in a committed relationship) with someone who was transferred to a non-local tertiary centre with a life-threatening condition. Research participants did not need to have accompanied the patient to the non-local centre. Overall 10 women and four men took part in this research. When it became apparent to the prime researcher that the same stories were being told, a decision was made not to seek further recruitment.

Ethics

Although the research participants had not themselves been patients in a hospital setting, permission for the study was sought and received from relevant ethics committees. Participation in the research was voluntary. Each research participant was identified by pseudonym to protect their identity.

Data Collection

Unstructured interviews (ie beginning with an opening question and letting the participants tell their individual stories) were used to gather the data. This approach encouraged reflection rather than directed the participants to focus on specific answers to specific questions. Participants were asked to recall the events leading up to their spouse's illness in general, and then focus on finding out that their spouse was to be hospitalised in the non-local tertiary centre. From these reflections, the research participants were then able to describe their experiences. Each interview was audio-taped and transcribed by the researcher to facilitate in-depth familiarity of the data.

Data Analysis

Data analysis began by reading each transcript several times. Unlike quantitative methods that begin analysis processes once all data are collected, when using hermeneutic phenomenology, analysis begins before data collection is completed. This is because analysis requires the researcher to engage in critical dialogue with the text, drawing on key aspects, impressions and interpretations (Benner

1994; Dahlberg et al 2001; Leonard 1994). During the initial analysis, the prime researcher noted words that were used in each transcript, taking special note of the descriptions that captured accounts of the experiences; thus letting the data speak. Letting the data speak involves reading the text, and determining interpretations of the story by seeking partnership with the story-tellers. As the researcher reads the stories some aspect of the experience comes to the fore and generates understanding. This approach requires readers to read individual texts to determine what new interpretations emerge (Benner 1994; Dahlberg et al 2001), enabling an understanding of life to emerge from the experience (Dahlberg et al 2001; Leonard 1994). Hermeneutic phenomenology is not founded on using stories to provide examples of what you want to say; rather it allows the phenomenon to emerge. While the researcher focuses on one part of the description, other components may momentarily recede. These components are addressed in turn. Heidegger suggests that if the causality between two events is interpreted, the phenomenon is interpreted as being alongside another's world (Heidegger 1962 p.88). The extent to which there is convergence between the individual and others' stories validates findings (Burke Draucker 1999).

FINDINGS AND DISCUSSION

Findings that emerged from the study that focussed on the experiences of supporting spouses affected by a partner's transfer to a non-local tertiary setting included fear of the possibility that their partner might die during this time. Four particular characteristics of these experiences that were worth exploring were: putting 'life on hold' because of the uncertainties; awaiting; watchfulness and state of alertness; and anticipation and preparedness for their own spouse's death. Overarching all of these characteristics is the lack of social support particularly when having to make life and death decisions while physically separated from the friends and family that would have been available had the patient been hospitalised in a local centre. Findings from this research are that the fear is especially acute when the couple are separated by non-local hospitalisation, particularly difficult during the time of transfer.

When I got in the plane [the commercial flight to the tertiary centre], it was the first time I had been away from [Trevor, after treatment at the local hospital]. He was getting on that air ambulance and I was wondering all the way up [during my flight] whether I would get there and find that he had died. And I was going to have to turn around and come back and I was going to have to come back on my own. That's what I was worried about. And I think the biggest joy was to see him coming down that corridor in that wheelchair. Yeah, I do vividly remember that now. I was on the plane and I got to [the city] and if he'd died, I would have to come back...It is not like coming home and being recalled and turning around and coming back ten minutes later. I mean, you're an hour or so, or you are up in the air and you've got no communication whatsoever (Zoë).

The hospitalisation resulted in Trevor and Zoë being approximately 400 km from home; an hour by plane or 5-6 hours road travel. Had Trevor died, Zoë faced the challenge of the distance between home and the city of transfer. Zoë's fears during the flight reflected the supporting spouses' state of alertness that was with them the entire hospitalisation stay.

This was compounded if the supporting spouse was staying in the nurses' home that was now converted to relative accommodation. Although adequate, the accommodation consists of a single bed in a room, with shared shower and toilet facilities. Meals can be accessed at the hospital cafeteria. There was little respite from the constant reminder of the seriousness of the partner's illness. Each time they went to the ward, they were not sure what they would find, adding to the sense of waiting for the unknown. For example, Victoria, whose father had died recently, recalled going to the ward and finding Don's bed empty. Because Don was 'missing', Victoria assumed his condition had deteriorated, or worse, that he had died.

...I got there and Don wasn't in his bed, and of course you freak out when you see that he wasn't in his bed.

And I went to the nurse and I said "where's Don?...I don't know if I was paranoid, maybe I was...I think it is because you have in your mind that you almost lost them.

Waiting in the face of uncertainty led to 'awaiting'; a time of waiting for. The constant state of watchfulness and being alert was compounded if the supporting spouse was aware that other patients had died, especially if that patient had also been transferred to the non-local centre:

There was another chap who ended up in the same ward...I ended up realising that his wife was in the nurses' home. And, we ended up becoming friends, and having tea, having breakfast and that together. But, unfortunately, he did die...That was really, really sad...I sort of felt a bit guilty, because here was Trevor beside me, and her husband had died (Zoë).

The other man...he died. That was really hard. [We] immediately bonded with him, because they were both in the same room, both getting prepared for [a transplant]...It was the saddest part (Carol).

While it is acknowledged in the literature that parents separated by non-local transfer have to make crisis decisions alone (Agazio et al 2003; Tan and Simmonds 1998), there is no literature that acknowledges the stresses of couples facing decisions during times of acute health crises. From the interviews with the study participants it became apparent that the couples were forced to make important decisions, including those that involved life and death, without the support of familiar surroundings or social support. For example, one couple had to face the possibility that the medical condition could result in death during surgery. Having been warned that this was a possibility, they then had to decide whether the surgery should be undertaken.

...we had been told [earlier] that they were going to operate and [the operation] was going to [be successful]...And then that night we were told otherwise; that it looks like [the operation might not be successful]... They don't really know until they go in...So we had to make a decision whether

they [should proceed] and there was a fifty per cent chance or even more that he would probably die on the operating table (Alice).

This choice was particularly difficult because Alice and Warren had no other family with them to discuss this life-threatening condition. Another research participant's story accentuated the enormity of the situation.

He was so confused, and I had to make decisions, and things like that for him... That had sort of quite an effect (Therese).

When anticipating the death of a spouse, Carr and Clarke (1997) and Duke (1998) recommend that families plan some change to life activities so that the transition to bereavement occurs over time. Couples facing death are also told they should reminisce in order to have memories once the spouse has died (Waskowic and Chartier 2003; Duke 1998). However although the participants were facing the possibility of their spouse's death, their spouse was not dying. It was the fear of death that these participants experienced. Those who accompanied their spouse were reluctant to predict the possibility of becoming widowed without the immediate access to social support. Those who stayed at home to manage the household were reluctant to predict becoming widowed without the chance of being with their spouse at that time. In encountering death so closely, the research participants experienced what Heidegger (1962) calls a projection of 'being-toward' death. In everyday living, human beings avoid contemplation of the possibility of their own death, reflecting upon the notion that death happens to 'others' (Heidegger 1962 p.296). Findings of this research however, were that it was not un-named others who might die; death was nearby. In contrast the family and friends who could cushion the awaiting were not nearby. The awaiting and dreading death added to the state of putting 'life on hold'.

IMPLICATIONS FOR PRACTICE

Treatment in non-local tertiary centres is likely to increase as services and technology become more sophisticated. Such medical specialisation has

nursing implications when families are affected by the requirements to travel to specialist centres. Recommendations from this research are that although health professionals are not always able to prevent their patients from dying there are strategies that they can use to minimise patients' supporting spouses putting life on hold in the face of death.

Nurses need to acknowledge that what is common and worldly for the nurses in that tertiary setting is frightening for those who have been transferred from their home town. A simple strategy is for nurses and other health professionals to focus on the patient as an individual and listen to the couples to understand their concerns. This is especially important if the couple need to make life and death decisions without social support. Health professionals also need to acknowledge the fears of this client group if surrounding patients do die and those from local settings feel overwhelmed by the non-local tertiary environs in the face of life-threatening illness.

LIMITATIONS

Hermeneutic phenomenology presents individual interpretations of those who experience a phenomenon, in this instance, non-local tertiary hospitalisations. The findings of hermeneutic phenomenology are unique to those who took part in the study. However the individual stories carry lessons and sharing the individual stories with others who have been in similar situations strengthens the findings.

No other study was identified which has explored the experience of non-local hospitalisation from the partner's experience. There is therefore, a lack of international literature, a concern which is noted by Agazio et al (2003) and Mercer (2002). While this lack of international and national research has resulted in limited literature with which the current thesis can be compared, the findings of the current study form a foundation for further research and scholarly debate. Further research that examines the impact of non-local hospitalisation on families based on differing theoretical perspectives would enable comparison between the current and future findings.

CONCLUSION

Having a condition that causes an episode of non-local tertiary hospitalisation can result in the supporting spouse fearing the death of a partner and, in the resultant uncertainty, putting 'life on hold'. Findings of this study were that research participants felt surrounded by and walked alongside other spouses who faced death on a daily basis. The lack of social support, because family and friends were unable to be physically present, resulted in the supporting spouses being constantly alert and watchful. Through effective communication and listening, nurses can facilitate resolution of the uncertainty and minimise fear of the unknown.

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Mental health workers' attitudes toward mental illness in Fiji

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ABSTRACT

Objective
To survey mental health workers' attitudes toward mental illness in Fiji as a means of understanding the attitudes of these staff.

Design
A questionnaire survey using a previously validated scale: Attitudes Toward Acute Mental Health Scale (ATAMHS 33), was modified and distributed to registered nurses and mental health workers at a major mental health care setting in Fiji. The ATAMH (33) is a 33 item measure of attitudes developed specifically for use within inpatient mental health settings.

Setting
A major in-patient mental health care setting in Fiji providing primary, secondary and tertiary care.

Subjects
71 registered nurses and medical orderlies in a mental health setting in Fiji completed the measure.

Main outcome measure
The identification of mental health workers' attitudes toward mental illness in Fiji.

Results
The participants expressed both positive and negative attitudes toward individuals in mental health care. Positive attitudes can be identified in a range of answers to questions including psychosocial causational beliefs and when comparisons were made with physical health issues. Negative attitudes were expressed with respect to alcohol abuse and lack of self control, individuals with mental illness lacking control over their emotions, psychotropic medications being used to control disruptive behaviour, and that mental illness is caused by genetic factors. A number of questions provided mixed responses.

Conclusions
This paper provides a baseline of attitudinal measure of mental health workers in Fiji toward mental illness. It will enable future educational interventions to be evaluated and comparison to be made with other cultures and countries in the South Pacific region.

INTRODUCTION

Attitudes influence both professional and personal behaviour. In particular, stigma and discrimination associated with mental illness and expressed by mental health professionals as well as the general public, results in the under-use of mental health services (Esters et al 1998 in Emrich et al 2003). Contact with individuals who have mental illnesses, and education that replaces myth with fact, can decrease stigmatisation and positively affect attitudes (Halter 2004; Tay et al 2004; Emrich et al 2003; Read and Harre 2001).

For the past fifty years, programs aiming to de-stigmatise mental illness have advocated for medical rather than psychological explanations of mental illness. Biological and genetic factors have been promoted as underlying causes and people with mental disorders were considered 'ill' in the same sense as those with medical conditions. Current evidence however disputes the assumption that this information will result in more positive attitudes toward mental illness. In a survey of first year psychology undergraduates in New Zealand for instance, Read and Harre (2001) found that, contrary to the assumption of de-stigmatisation programs, genetic and biological causal beliefs were related to more negative attitudes toward those with mental illness.

Previous studies also demonstrate that health professionals have negative attitudes toward some aspects of mental illness. Hugo (2001) found that mental health professionals were less optimistic about prognosis and less positive about likely long-term outcomes when compared with the general public. In this study however mental health nurses were generally more optimistic than other health professionals. Jorm et al (1999) also found that compared to members of the Australian public, health professionals (ie general practitioners, psychiatrists and clinical psychologists) rated long-term outcomes more negatively and believed discrimination to be more likely. This may be because health professionals have greater contact with mental illness and individuals who have chronic or recurrent problems

than the public and therefore may be more realistic in their assessment of long-term outcomes. If this is so, according to Jorm et al (1999), health professionals need to be aware of their attitudes and be careful about what expectations they convey to patients and their families. Certainly, negative attitudes toward mental illness appear to worsen the overall quality of life of individuals with mental disorders.

Further, providing culturally specific care involves ensuring that clinical staff are properly educated on underlying issues (Morrison and Thornton 1999). Cultural diversity in knowledge about and attitudes toward mental illness requires that this issue be explored in a wide range of cultures, especially in developing countries such as those in the South Pacific region.

Anecdotal evidence has suggested there may be stigmatizing attitudes toward mental illness in Fiji (Aghanwa 2004), although there have been no studies identified which survey the attitudes of mental health workers within Fiji. Aghanwa (2004) conducted 980 structured interviews with residents of Greater Suva, 25.3% (n = 248) of whom were health workers, to explore the extent of knowledge about mental illness and attitudes toward people with mental illness in Fiji. Health workers were recruited mainly from the general hospital and included all categories of health professionals and ancillary staff. Aghanwa's (2004) results showed that a far greater proportion of health workers than each of the other categories considered the hospital was a source of help for people with mental illnesses; expressed the greatest dislike for 'labelling'; and considered that persons with mental illness were significantly different from other people, "believ[ing] that the way the patients would be perceived would depend on the type of the mental illness" (p.370). This latter finding supports that from an earlier Australian survey (Hugo 2001) of the attitudes of mental health nurses, medical staff, and allied health staff toward depression and schizophrenia where these professional groups believed that people with schizophrenia would be more likely to experience discrimination.

To date, much of the research into attitudes has focused on a broad range of health professionals including medical practitioners and psychologists (eg Feifel et al 1999; Singh et al 1998), and comparisons of their attitudes to those of the general public (Kurihara et al 2000). More recently though, investigators have included or specifically assessed nurses' attitudes towards mental illness (eg Baker et al 2005; Halter 2004; Tay et al 2004; Emrich et al 2003; Hugo 2001; Morrison and Thornton 1999; Munro and Baker 2007). Baker et al (2005) developed, piloted and validated a new measure of attitudes in acute mental health care staff: the Attitudes Toward Acute Mental Health Scale (ATAMHS-33). The original 64-question measure was distributed to a sample of qualified and unqualified nurses working in mental health care units in the North of England. Factor analysis resulted in a final scale consisting of 33 questions. The authors of the ATAMHS-33 claim that the tool has the potential to inform development of strategies to reduce the impact of these attitudes on service user care and evaluate the effects of educational interventions addressing attitudinal issues in mental health care. Their findings identified five components of attitudes to consumers within acute mental health care settings: care or control, semantic differentials, therapeutic perspective, hard to help, and positive attitudes.

Using the ATAMHS-33 (modified - see 'Methods' section below) in the present study with a sample of Fijian nurses and medical orderlies may provide initial evidence that will inform future mental health educational programs in Fiji. In addition, it adopts the recommendations to refine and further validate the tool with more diverse cultural samples, as the Baker et al (2005) sample was drawn from densely populated, inner city units with high levels of deprivation which they noted could influence attitudes (Munro and Baker 2007; Baker et al 2005).

AIMS

The present study aimed to survey mental health workers' attitudes toward mental illness in Fiji as a means of understanding the attitudes of staff. Modification, piloting and validation of the ATAMHS-33 questionnaire (Baker et al 2005) to the Fijian nursing context also aimed to assist future development of an appropriate measurement tool for use in pre-and post-test assessments with future groups enrolled in a proposed mental health nursing postgraduate program commencing in Fiji in 2006.

METHOD

The project design was a questionnaire survey that aimed to provide a snapshot assessment of mental health workers' attitudes toward mental illness in Fiji. The measurement scale for this survey was an existing tool, the Attitudes Toward Acute Mental Health Scale (ATAMHS 33) which combines Likert scales (n=25) and Semantic Differentials (n=8). Six of the thirty-three questions were modified slightly to reflect differences in terminology, English expression, and health care context relevant for Fiji. For example, 'Patients who abuse substances should not be admitted to acute wards' was changed to 'Patients who abuse drugs and alcohol should not be admitted to hospital'. The investigators of this project and a Fijian nurse working in the field, reviewed and modified the questionnaire for content validity. The instrument was not translated into local languages, as the target population was drawn from several ethnic groups and a vast majority of the people in Fiji understand and speak the English language (Aghanwa 2004). The Likert questions were coded: 1-7, with 4 representing the neutral mid point. Seventy percent agreement in a single direction (either 1 to 3 or 5 to 7) was determined as group consensus for a question. The semantic differentials were scored on a 0-10 scale with a score of 5 indicating the mid point. A score greater than five represented a more positive attitude.

Data were also collected on the socio-demographic characteristics of participants, such as: age, gender, education, and occupation. Prior to administration of the survey, ethics approval was sought and gained from the relevant university Human Research Ethics Committee and the Fiji Ministry of Health Ethics Committee.

Recruitment of the sample

Participants were recruited from a group of registered nursing staff and medical orderlies attending a one-day workshop (repeated for four consecutive days) on mental health for staff at the only psychiatric hospital in Fiji which provides primary, secondary and tertiary care to clients throughout Fiji. The hospital has four wards and 190 beds and caters for clients with acute and chronic mental illnesses, as well as clients with intellectual disability and those on forensic orders. Medical orderlies comprise approximately two thirds of the staffing at the hospital and provide much of the day to day care of clients. Registered nurses form the remaining one third. The workshop aimed to provide professional development for the majority of the staff working at the hospital.

Inclusion criteria were: adults (18 years of age or more) who were able to comprehend and write the English language and were working as either a nurse or orderly in mental health care in Fiji.

Data Collection

The questionnaire was administered on one occasion only to a group of registered nurses and medical orderlies attending a workshop at St Giles Hospital in Fiji. An information sheet detailing the purpose of the survey and its requirements. Other relevant information was available to all potential participants as they entered the workshop venue. At the beginning of the workshop the first author explained the details of the project to all potential participants and administered the questionnaire to those who wished to take part. To avoid perceived or actual coercion of participants, local hospital staff were not involved in this process. To assist those participants with literacy difficulties, items on the questionnaire were read to the group when necessary and a Fijian nursing tutor and nurse (SG and SA) were available to assist the co-investigator or participants with clarification of specific literacy aspects. The questionnaire however was self-administered to the extent that participants' literary competence in English language permitted.

Data Analysis

Data were managed and analysed using the Statistical Package for the Social Sciences (SPSS Version 13). A number of statistical tests were performed on the data including initial descriptive statistics and attribution of the data to five previously identified components (Baker et al 2005). Attitudes of the registered nurses and medical orderlies were compared using chi-square test, and nonparametric correlation examined the significance of the association between some socio-demographic and knowledge/attitude variables. The $p < 0.05$ level was used for statistical significance.

Table 1: Participants who completed the ATAMHS (33) (modified)

Variable	Number
Gender	
Male	27 (38%)
Female	44 (62%)
Position	
Nurse	23 (32.4%)
Orderly	48 (67.6%)
Level of education	
Tertiary	21 (29.6%)
Post-secondary certificate	12 (16.9%)
Secondary certificate	23 (32.4%)
Post-secondary certificate and Secondary certificate	12 (16.9%)
Missing	3 (4.2%)
Mental health course/certificate	
Yes	24 (33.8%)
Not stated	47 (66.2%)
Age range	
20-24	6
25-29	10
30-34	13
35-39	5
40-44	13
45-49	13
50-54	7
55-59	4

RESULTS

Of a potential 72 participants, 71 chose to take part in the survey, giving a response rate of 98.6%. This group constituted the vast majority of mental health workers at the hospital. The demographics of the

population can be found in table 1. Participants had worked in psychiatry from between 2 and 477 months (mean 170.3, SD 133.0 or median 132.0).

Ten questions received greater than 70% endorsement in one direction by the mental health workers (table 2). Responses to all semantic differential questions are described in table 3. Those semantic differentials with a mean score less than five are indicative of a poorer attitude toward service users.

Table 2: Questions which received greater than 70% endorsement in a single direction

Question Number	Question	% agreement		Combined Cumulative %	Implication for attitude
		Nurses n=23 (32.4%)	Orderly n=48 (67.6%)		
Question 4	'Mentally ill patients have no control over their emotions'	16 (69.5%)	37 (77%)	75.7% disagree	Positive
Question 11	'Mental illness is the result of negative social circumstances'	15 (65.2%)	38 (79.2%)	75.7% agree	Positive
Question 12	'Many normal people would become mentally ill if they had to live in a very stressful situation'	16 (69.5%)	42 (87.5%)	81.7% agree	Positive
Question 13	'Those with a psychiatric history should never be given a job with responsibility'	21 (91.3%)	32 (66.6%)	74.6% disagree	Positive
Question 14	'Those who attempt suicide leaving them with serious liver damage should not be given treatment'	22 (95.6%)	42 (87.5%)	80.1% disagree	Positive
Question 23	'Psychiatric illness deserves as much attention as physical illness'	20 (86.9%)	38 (79.2%)	74.3% agree	Positive
Question 24	'The manner in which you talk to patients affects their mental state'	21 (91.3%)	43 (89.6%)	91.4% agree	Positive
Question 1	'People who abuse alcohol have no self control'	18 (78.2%)	41 (85.4%)	83.1% agree	Negative
Question 21	'Psychiatric drugs are used to control disruptive behaviour'	21 (91.3%)	42 (87.5%)	91.3% agree	Negative
Question 22	'Mental illnesses are caused by genetic factors'	15 (65.2%)	38 (79.1%)	76.8% agree	Negative

Table 3: Semantic differentials (scoring 0-10)

Semantic differential	Mean	SD	Implication for attitude
Safe-dangerous	4.1	2.7	Negative
Adult-child	7.2	2.6	Positive
Mature-immature	6.3	2.6	Positive
Optimistic-pessimistic	3.9	2.6	Negative
Cold hearted-caring	5.7	2.9	Positive
Polite-rude	4.1	2.7	Negative
Harmful-beneficial	3.9	2.9	Negative
Clean-dirty	4.6	2.9	Negative

There was no statistical difference between attitudinal scores and gender and those who had undertaken further mental health training or certificates. There were statistical differences between registered nurses and medical orderlies for two of the domains 'Care or control' (p=0.021), and 'Therapeutic perspectives' (p=0.036). Secondary certificates compared to tertiary also had a significant difference in one domain 'care or control' (p=0.006).

For overall comparison with the original study, data were clustered into the five domains identified (table 4).

Table 4: Domain scores for the five components (ATAMHS (33) modified)

Subscale	Number of items	Theoretical minimum	Theoretical maximum	Observed minimum	Observed maximum	Mean	SD	Skewness	Kurtosis
Care or control	12	12	84	32	66	47.8	7.64	0.357	0.002
Semantic differentials	7	0	70	13	61	32.7	9.8	0.518	0.588
Therapeutic perspective	6	6	42	9	39	28.3	6.3	-0.603	0.770
Hard to help	4	4	28	5	23	12.3	4.1	0.686	-0.013
Positive attitudes	4	4	31	7.4	29	23.6	4.3	-1.254	2.415
ATAMH (33) modified	33	26	255	104.3	201.4	114.6	18.1	0.572	0.882

DISCUSSION

Overall, there was evidence of both positive and negative attitudes toward people with mental illness by mental health workers in this study, with some differences in attitudes evident between registered nurses and orderlies. Only one of the questions (Question 13 in the domain 'Therapeutic Perspectives'), however is the same as the questions identified in Munro and Baker's (2007) finding of attitudinal differences between qualified and unqualified staff.

In the current study, unqualified staff held more positive as well as more negative attitudes than qualified staff. This is generally consistent with Munro and Baker's (2007) finding and overall conclusion that it cannot be assumed qualified staff will hold more positive attitudes than unqualified staff. It is possible that other variables such as professional development training or other support may have influenced their attitudes. Evidence of positive attitudes from all the mental health workers in this study (tables 2 and 3) can be identified in responses to seven of the Likert questions (Questions 4, 11, 12, 13, 14, 23, 24) and three of the semantic differentials (Adult:child; Mature:immature; Cold hearted:caring). The mean scores for these three semantic differentials were greater than five, which provides further evidence of positive attitudes toward people with mental illness. There is however potentially a methodological flaw with the semantic differential Adult-child and Mature-immature, as all

staff worked within adult mental health services (over 16 years of age). These questions could have been misinterpreted as to working with children. Altering the wording to Childlike:adultlike may have elicited a different attitudinal response.

The current study's finding of positive attitudes by these mental health workers is generally consistent with Munro and Baker's (2007) although direct comparison was not made due to differences in the sample and context of care. The findings are also, while not directly comparable with Aghanwa's (2004) previous study in Fiji, broadly consistent with his conclusion that education about, and experience working with, mental illness may assist the development of more positive attitudes toward mental illness. In accordance with previous studies with nurses in particular, (Tay et al 2004; Emrich et al 2003; Hugo 2001), it is also possible that further education and training on mental illness and therapeutic strategies could result in the development of more positive attitudes for these mental health workers, including the medical orderlies who have had limited education in mental illness. As Baker et al (2005) identify however, evidence of positive attitudes alone does not indicate whether there is corresponding therapeutic behaviour and quality of care for clients. Research into clients' perceptions of these mental health workers' attitudes could provide greater understanding as to the effect, if any, of their positive attitudes on client care.

Three questions (table 2) provide evidence of these mental health workers' negative attitudes toward people with mental illness (Questions 1, 21, 22). This is in keeping with the findings of several other studies, although there are particular differences. In the Singh et al (1998) study which aimed to evaluate the impact of a psychiatric placement on 4th year medical students post placement, 92.7% of the sample of medical students disagreed that psychiatric drugs were used to control behaviour. However, 91.3% of mental health workers in the current study agreed with this statement. This conflict in agreement could provide evidence of the reliance on medication within mental health settings to manage difficult and challenging behaviour. This could be the experience of staff; given that these mental health workers work within inpatient settings, a notion of 'ill health' pertaining to clients admitted is probably common. However this appraisal does contribute directly to a poorer attitude toward service users. It is clear that a biological or genetic perspective of illness (Question 22) contributes toward a negative attitude and that a vulnerability perspective of mental illness is preferable to a biological one (Read and Harre 2001; Read and Law 1999; Cho and Mak 1998). Interestingly, more orderlies (79.1%) agreed with this statement than the nurses (65.2%). Two other questions (Q12 and Q13) in table 2 showed major differences in opinions between nurses and orderlies. Fifteen Likert questions appeared to show evidence of divided opinion.

This study presents new research into the attitudes of healthcare staff within Fijian mental health services. The data provides a baseline for future educational interventions which aim to improve both knowledge and attitudes of registered nurses and medical orderlies in Fiji. It will also enable comparisons to be made with other cultures and countries in the South Pacific region. With the introduction of a specialist postgraduate course for mental health nurses in Fiji, there is also opportunity for education on additional theoretical perspectives to that of the traditional biological explanation for mental illness. This brings a concomitant opportunity to explore therapeutic nursing strategies to address disruptive behaviours and symptoms of mental illness which complement and/or extend those of medication administration.

Limitations of the study

The limitations of the study include a relatively small sample of health workers working within one mental health inpatient setting in Fiji. The design of the questionnaire was originally influenced by the need to survey the attitudes of acute mental health nurses who worked with service users encountered within the UK. The scale as such may not have been transferable to a different country/culture. The amendment of some questions was required in order to more appropriately reflect Fijian mental health care contexts and use of language. There is also difficulty in comparing the attitudes of qualified and unqualified workers within this setting due to their differing roles and professional responsibilities.

Notwithstanding these limitations, this paper does present new data on the attitudes of mental health workers in Fiji. There is now a need to undertake a larger survey of attitudes toward mental illness by mental health workers. Further analysis of the formation of attitudes contained within the measure used in this study could use qualitative methodologies to explore in greater detail the development of attitudes.

CONCLUSION

Whilst this study has taken a cursory look at the issue of attitudes of mental health workers within Fiji, it has provided some important indications of registered nurses' and medical orderlies' perceptions of mental illness and people who have mental illness in Fiji. The attitudes of mental health workers in Fiji have not been sought previously. This important area of work is currently under-researched and further work could improve our understanding of the attitudes that mental health workers maintain and how these influence the quality of care consumers receive.

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Nursing care model for children victims of violence[1]

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KEYWORDS

violence, institutionalisation, nursing, care model, children, therapeutic play

ABSTRACT

Introduction
Evidence exists that child abuse has occurred throughout human history however the magnitude of the increased incidence of violence toward children, as well as its complexity, deserves reflection and consideration.

Objectives
The objective of this study was to explore a nursing care model for child victims of violence who resided in Homes Houses[2] using therapeutic play; and to investigate the potential of using therapeutic play to create connections between the child, the nurse, and their surroundings in the Homes Houses.

Methodology
During completion of the Master's Program in Nursing at the Federal University of Santa Catarina, Brazil (UFSC), a care model using therapeutic play was developed with child residents of Homes Houses who had suffered physical violence. This is a qualitative assistential convergent research study, conducted with four children from July 2004 to July 2005.

Results
The results provide evidence that the proposed care model is adequate for application in this situation.

Conclusion
The model proposes a new field of practice, not only for the nursing profession, but for caring for child victims of violence generally.

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[1]   *Therapeutic playing and institutionalised victims of child abuse: proposing a care model in nursing*. Master's thesis presented to the post-graduate program in nursing at the Federal University of Santa Catarina (UFSC), Brasil, 2005.

[2]   In Brazil, Homes Houses are houses where children and adolescent victims of violence are housed under judicial order and as a result of a judicial process (Oliveira 1999). Some of the homes are philanthropic organisations.

INTRODUCTION

Nursing practice is grounded in theories and models (Budo and Saupe 2005), which originated in the United States of America, later expanding to other countries (Carraro 2001).

Nursing care models provide the systems and science to support nursing care. They are instruments for the scientific planning of nursing actions and assist in our perception of nursing practice as a dynamic, mutational and creative process, rather than a set of procedures. Thus, care models form the basis for action; they justify action taken to address identified problems and direct the activities of each team member. Beyond this, they are a method for documenting nursing actions; an important aspect in contributing to the continuity and visibility of nursing care (Fawcett et al 2004; Carraro 2001).

The stages for developing a care model consist of planning, development, implementation, and evaluation (Davidson et al 2006). In the planning stage, the conceptual framework is developed, which, through its concepts and assumptions, forms the basis for the construction of the methodological proposal. The concepts of the conceptual framework are elaborated from theories, pre-existing concepts, or are drawn from current literature. The assumptions are defined from beliefs, values, and the positioning of the author around the theme.

The increased incidence of child victims of abuse demonstrates an urgent need to develop a care model based on a theoretical-methodological framework. For children who suffer from physical abuse and are out of the hospital environment, such as child and adolescent shelters or 'Homes Houses', there is an opportunity for nursing to develop a significant role, through caring for the health, psychosocial and interactive needs of such children and adolescents.

Homes Houses guarantee the rights of the children, favour family ties (when permitted by judicial decree), avoid undoing the family structure, and re-introduce the child to society. Homes Houses count on a multi-professional team, though currently nursing is not part of this team. Thus, there is an opportunity for nursing to contribute to the promotion of health for these children, through the development of a theoretical-methodological framework and through the use of therapeutic play.

Therapeutic play, which is based on a philosophy of care, has a non-directive approach. It gives the child the freedom to express him/herself verbally and non-verbally, and offers a means through which the child can share their fears and concerns, assisting the nurse to identify their needs and feelings.

The present study's objective was to develop a nursing care model for children who are victims of violence, using therapeutic play, and to understand the contribution of therapeutic play toward the establishment of a therapeutic bond between the child, the nurse, and their surroundings.

The child has had various roles throughout human history. Up until around the 17th century, children were generally treated as 'miniature adults' with similar expectations of contributing to the household. Rather than an education and a childhood, they were required to work both inside and outside the home and to contribute to the running of the home. They usually had no separate bedtimes, participating in the same night time activities as their parents, often sleeping in the same bedrooms as adults (Ariès 1981).

Modern society however has developed a different set of family values with respect to children (Ariès 1981). But even with the child becoming the centre of the family, childhood continues to be violated. This is manifested in diverse ways, such as child labor, excessive discipline, physical and sexual abuse, and neglect. Today it constitutes a grave problem for health care (Dong et al 2003).

Violence is the outcome of a set of conditions that makes violence possible (Prado 1998 p.41). There are more than 900,000 children, or 13.9 children of every 1000 who suffer mistreatment in the United States of America every year. Of these, 53.5% are neglected, 22.7% suffer physical abuse and 11.5% suffer sexual abuse (Slep and Heyman 2004).

The damage to the children who suffer from violence is difficult to quantify. Beyond the physical trauma which results from the moment of aggression, there is associated psychological anguish over time, which has ongoing psychological, physical, social, and economic effects (Slep and Heyman 2004).

METHODOLOGY

This study consisted of qualitative assistential convergent research (QACR). QACR is research that requires the active participation of its subjects. This participation is necessary in order to discover realities, resolve or minimise problems in practice, introduce innovations in specific situations and thus permit theoretical construction in the context of assistential practice (Trentini and Paim 2004).

The stages of the QACR are conception (developing the idea); instrumentation (developing the instrument); scrutinisation (collection of the data); and analysis and interpretation. Each stage comprises a sub-process with several consecutive and inter-related steps (Trentini and Faganello 2005).

The stage of conception is related to the choice of the subject; the direction of the guiding question; the establishment of the goals of the research; the review of the literature on the subject chosen; the development of the concepts and assumptions; and the construction of the conceptual framework. The stage of instrumentation is the drafting of the methodological procedures; so in this phase the choice of the research space, selection of participants and determining the technique for the collection and analysis of information are included. The phase of scrutinisation includes the collection and recording of data which should not only provide information to inform scientific research but also lead to improvements in nursing care. The analysis phase of the QACR is divided between analysis and interpretation. The analysis is the process of discovery of the research results, while the interpretation phase consists of synthesis, development of the theory and re-contextualisation (Trentini and Faganello 2005).

The objective of the study was to develop a conceptual framework to support the care given to institutionalised child victims of abuse. Four concepts were identified: Children victims of violence; Nursing care for children victims of violence; Therapeutic playing; and Institutionalisation.

The study was developed in Homes Houses in Florianópolis, Santa Catarina, Brazil. Four children, aged ten to twelve years, participated in the study. Two were male and two were female; all had suffered sexual abuse, physical abuse, or neglect. They all presented with aggressive, introspective, anti-social behaviour, associated with anxiety, hostility, or interpersonal difficulties.

The children's legal guardians gave free and informed consent to their participation in the study, by signing the consent form.

This study was approved by the Ethics Committee of the Federal University of Santa Catarina (UFSC), Brazil. Anonymity of the children was guaranteed, as well as the names used by the children during play with particular toys or games.

The conceptual framework of care offered by the toys was based on the technique of the dramatic therapeutic toy cited by Borba (2002), associated with the proposed steps of Green (1974), and the principles of care offered by Morse et al (1990).

The technique of dramatic therapeutic play consists of using representative figures; inviting the child to play; giving alternatives for the location of the game; permitting that the child play in a free fashion; and observing and registering all the behaviour manifested during this playtime (Borba 2002).

The therapeutic play sessions used the toy as a mediator in creating a relationship between the child and the nurse. The available toys were: an old couple, adults, children, a baby, a nurse, a doctor, electric wire, pieces of wood, a puzzle, a soccer ball and drawing materials.

Green's seven steps: observe, examine, analyse, confirm, determine, plan, and evaluate, were used for the structure of the therapeutic play sessions, however for this study, the seven steps were adjusted to three: observe, analyse, and plan (Green 1974).

The principles of care proposed by Morse et al (1990) were used in order to identify the children's care needs: care as a human characteristic; care as a moral imperative; care as affection; care as an interpersonal interaction; and care as a therapeutic intervention.

DATA ANALYSIS

The data was collected through open interviews with the children and through participant observation during the play sessions. The sessions were recorded in a field diary and on audio cassettes. The study was carried out from July 2004 to July 2005.

After application of the care model, data analysis occurred in four processes: apprehension, synthesis, theoretisation, and re-contextualisation (Trentini and Paim 2004).

In the apprehension process, the data were organised into a table which included the child's fictitious name, the interview notes, and the observational notes. Synthesis consisted in subjectively examining the associations and variables found in the apprehension process.

A theoretical framework was developed from the synthesis process in the theoretisation stage. In this stage, the contribution of the therapeutic play toward the children's care was verified.

Re-contextualisation sought to offer significance to the findings and conxtextualise them in similar situations.

RESULTS

Nursing Care Model

The nursing care model was structured in stages which at times occurred simultaneously and at other times did not. The stages were titled: "Taking in, Playing, and Finalising".

First Stage: Taking in

Steps: observe, analyse, plan.

The first stage of this model is composed of one or more therapeutic play sessions in order to engage with the child. Its objective is to establish a connection between the child and the nurse.

Second Stage: Playing

Steps: observe, analyse, plan.

In this stage, the nurse creates a connection with the child and uses the principles of care in an expressive form. It is during this stage that almost all the process is developed. There is no predetermined number of sessions in this stage.

Third Stage: Finalising

Steps: observe, analyse, plan.

This is the final session of play for the child, which occurs when it is observed that the emotional needs of the child have been met and their care deficits resolved, or it is determined that there is a need to direct the child to another professional, such as a psychiatrist or psychologist.

A need for contextualisation, using observers and social workers, may be identified during the process. Contextualisation can occur during all stages of the care model, from the time the child begins to play and continue throughout the entire care process carried out by the nurse. The objective is to evaluate the efficacy of the play sessions; observe alterations in the child's behavior; confirm the analyses; explain and work through concerns or doubts; and evaluate the process.

The proposed care model below demonstrates how the steps of this process should be developed (table 1).

The objectives of this study were met, for a nursing care model was developed using therapeutic play for children victims of violence living in Homes Houses. It became clear that therapeutic toys acted as a facilitator in the care process, as well as in the interaction between the child, the nurse, and their surroundings.

This is my dream, ma'am, because someday I'm going to be a football referee. But it's hard here because of the schedules, and also I don't have any money (football player)

I promised my mom that I wouldn't get married, so I wanted to make a story that tells of everything here, a story where the husband cheats on the wife, the daughter is dating, and her father beats

her. I wanted to make a story like that, you know?!! (memory game)

That day I didn't say anything to my mom because I thought he would kill me. (memory game referring to the day he/she saw his/her sister being molested)

It was verified that care goes beyond a procedure that is simply concrete or objective. Care can be abstract or subjective, and is also based on sensibility, creativity, and intuition (Prado and Souza 2002). It was further verified that subjective care, such as that of enrolling a child in football lessons, providing friendliness and compassion, giving a hug, or offering encouragement or a reward can be as important as objective forms of care. Often the results of subjective care can only be verified over time, however it is proposed that this type of care can minimise the consequences for children of violence they have experienced.

Table 1: Nursing care model for institutionalised child victims of violence using therapeutic play

CARE MODEL		
TAKING IN		
Observe	**Analyse**	**Plan**
Verify how the child perceives his/her relationships with other children, with family, with the institution, and others. Verify how to develop the play and how it is positioned before the situations Observe if the child is happy; sad; introverted; and their body language. Note the setting up of the play scenario, the toys that are used, if sounds are imitated, if he/she differentiates the voices of play personalities and others. Note the expectations of the child for the next session.	Use the data from observation and the participant observer recording achieved during the play session. Reflect on what the child expresses verbally and non-verbally. Observe the care principles during the analysis, together with the data offered by the child, thus verifying the existence of the child's care deficit. Discover the meaning of the toys chosen by the child and the child's explanations; the meanings of his/her commentary; and the feelings that he/she may be expressing. Verify the efficacy of the play and the intervention. Verify the connection between the nurse and the child. Determine the continuity or not of the process in order to plan the next session.	Plan the care within the principles of care according to the child's care needs and deficits. Plan activities for the next session. Verify the need for referral to another professional. *Methodological recommendation:* The nurse may, through analysis, elicit a list of questions about the history of the child, his/her behavior, and other issues. Later, these items may be clarified in other sessions.
PLAYING		
Observe	**Analyse**	**Plan**
Beyond was has been observed in the first stage, the nurse will observe the following: Verify how the child responds to the care offered. Verify and describe the care offered. *Methodological recommendation:* If it is verified in the analysis of the previous session that the process with this child can be finalised, the nurse schedules another session where she/he will prepare the child for conclusion.	Determine whether the process will advance to finalisation; if there is a need for contextualisation; or if there is still a need to remain at the same stage. Ensure the care offered is within the care principles. Assess the connection between the researcher and the child. Determine the continuity or not of the process for planning the next session.	Plan the appropriate care for the child using the care principles. Complete planning for the third stage when the child does not present further need for the therapeutic play; or contextualise, seeking to verify how the child is behaving with respect to Homes Houses after the beginning sessions; or continue the care.
FINALISING		
Observe	**Analyse**	
Observe the child's behavior when it is explained to him/her that it will be the last session. Observe verbal and non-verbal expression.	Verify if the care deficits have been met for the moment. Analyse the child's behavior regarding the finalisation of the process. *Methodological Recommendation:* It is possible to initiate a new care process with the child, if necessary, due to some adverse event.	

CONCLUSION

Children victims of violence suffer discrimination in society when they demonstrate inadequate behaviors for social interaction as a result of the violence they have experienced, especially if that violence remains unresolved.

Unconditional love between parents and their children can be but a myth. Institutionalised children victims of violence are children who need specific care, including attention, tenderness, and affection, because there may be a lack of these things in their own homes.

Therapeutic playing can be used to facilitate interaction between the nurse and the child to determine his/her care deficits. The therapeutic toy and playing takes the nurse into the imaginary world of the child, and the more the nurse is able to understand the thoughts and feelings of the child, the more she/he is able to offer adequate care. The proposed care model of therapeutic play allowed such results to be achieved.

The proposed nursing care model for children victims of violence is an important contribution to nursing practice. It is a dynamic, open, and continuous process, which offers the opportunity for children to have a healthier institutional experience and which contributes to buffer possible trauma. Beyond that, the developed care model was shown to be concise and practical, easily applied by nurses in their day-to-day practice.

The care model supports care provided by nurses; the evaluation of the health of the child and the violence they have experienced, as well as planning future actions for the promotion of health for children victims of violence.

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The effectiveness of clinical supervision in nursing: an evidenced based literature review

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KEY WORDS

Clinical supervision, nursing, occupational stress, colleague support

ABSTRACT

Objective
Clinical supervision (CS) is attracting attention in the Australian nursing context with efforts underway to embed CS into mental health settings and to extend it to the general nursing population. The purpose of this paper is to review the available evidence regarding the effectiveness of CS in nursing practice in order to inform these efforts.

Method
Relevant literature was located by first accessing research articles in peer-reviewed publications that related to CS and nursing. A total of 32 articles were retrieved. In selecting articles for review, the following criteria were then applied: the article reported an evaluation of the effectiveness of CS; the participants in the study included qualified nurses (not students or generic health care workers); the approach to CS was clearly described; and, the method of data collection and analysis, either quantitative and/or qualitative, was explained in detail.

Results
Of the 32 studies identified in the literature 22 studies met the inclusion criteria. One feature that differentiated the studies was research method, for example, pre-post design; and, articles were initially grouped by method. The reported outcomes of the studies were then categorised according to Proctor's three functions of CS. The results of the studies demonstrated that all three functions, restorative, normative and formative, were evident. The restorative function was noted slightly more frequently than the other two functions.

Conclusions
There is research evidence to suggest that CS provides peer support and stress relief for nurses (restorative function) as well a means of promoting professional accountability (normative function) and skill and knowledge development (formative function).

INTRODUCTION

Currently in Australia, there are efforts underway to increase the use of clinical supervision (CS) in the nursing practice arena. There are signs that clinical supervision has been growing in the speciality of mental health nursing as evidenced by the establishment of standards set by the Australian and New Zealand College of Mental Heath Nurses (Winstanely and White 2002). Originally developed within the mental health care context and traditional psychotherapies (Yegdich 2001), CS is now being implemented for nurses in other clinical contexts. Whilst the practice of clinical supervision is established in other developed countries, such as the United Kingdom and the United States of America, at present it is underdeveloped in the Australian context.

The purpose of this paper is to review selected research studies that have focused on evaluating the effectiveness of CS in nursing. Available evidence about CS outcomes and effects has been accessed and analysed. The main purpose in presenting the review is to provide empirical evidence about CS, especially to inform those nurses who are considering its adoption or contemplating its continuation. As CS requires both fiscal and human resources to be sustained, evidence from the review can be used to offset uncritical adoption of CS or unrealistic expectations of its effects.

What is Clinical Supervision?

Clinical supervision is a process of professional support and learning in which nurses are assisted in developing their practice through regular discussion time with experienced and knowledgeable colleagues (Fowler 1996). During clinical supervision nurses employ the processes of reflection in order to identify and meet their need for professional development. The purpose of clinical supervision is to improve nursing practice and therefore needs to be focused on nurse-patient interaction (Van Ooijen 2000).

The primary cognitive process of clinical supervision is reflection, that is, thinking back on clinical experiences in order to recount them and deepen understanding and/or identify areas for further improvement. Reflection is particularly relevant to professional growth in a practice-based discipline such as nursing. That is, nursing knowledge is embedded in experience, and learning through experience is essential to the practice of professional nursing.

Clinical supervision enables nurses to discuss patient care in a safe, supportive environment. Through participation in CS nurses are able to provide feedback and input to their colleagues in an effort to increase understanding about clinical issues. In this sense CS is designed to serve a peer-educative function. The opportunity to discuss general issues in relation to patient care also opens a window of opportunity to develop consistent approaches toward individual patients and their families. In this sense, CS provides nurses with an opportunity to improve patient care in particular for a given patient and in general in relation to maintaining standards of care. In addition, CS provides an avenue for nurses to demonstrate active support for each other as professional colleagues. Through sharing and understanding they come to realise that they are 'not alone' in their feelings and perceptions, thus providing reassurance and validation.

The above description of CS is consistent with Proctor's functions of clinical supervision (Proctor, 1986). The functions are threefold; first is the formative function, an educative activity which was the original basis for CS; second is the normative function in the sense that clinical supervision enables the development of consistency of approach to patient care (ie follows 'norms' or standards of practice), third is a restorative function, which promotes validation and support for colleagues through peer feedback. Although presented as separate, the functions overlap and intersect in practice. As differentiated, they provide a useful organising schema for this literature review.

METHOD OF LITERATURE REVIEW

Clinical supervision in nursing was assessed through a systematic review of the nursing literature since

evaluative literature emerged in 1993. Searches of Medline, CINAHL, PsycINFO and Cochrane database were undertaken. The searches were limited to reports of research published in peer-reviewed journals. Studies were selected for review on the following basis: the article was an evaluation of the effectiveness of CS; the participants were qualified nurses (not students); the approach to CS was clearly described; and, the method of data collection and analysis included either quantitative and qualitative data, or both. There were no other restrictions in terms of setting, clinical speciality or whether CS was undertaken in a group or a one to one basis.

RESULTS

A total of 32 articles were initially located: of those studies, 22 met the criteria for inclusion in this research. Studies were first grouped by three different types of research design; four studies were considered to be comparative, three were pre-post evaluation studies and fifteen were post-only evaluation studies. Therefore in the majority of studies, CS was evaluated after it had been implemented. There maybe several reasons for this: first, is the lack of a well-validated and reliable measures of CS effectiveness; second, in nursing there is strong interest in qualitative research and in addition, there is a lack of funding for well-designed trials of CS; and finally, the opportunistic nature of post evaluation. Sample sizes varied and ranged from 10 to 660 in one of the post survey evaluations (Magnusson et al 2002). Mental health nurses and aged care nurses are dominant in the samples studied.

Table 1: Reported Outcomes categorised to Proctor's model

Normative: Professional accountability		
Change of action	Professional identity	Risk taking
Moral sensitivity	Confirming uniqueness of role	Job satisfaction
Problem solving	Change organisation of nursing care	Professional solidarity
Commitment affirmation	Improve individual's nursing care	Confirmation of nursing interventions
Confirmation of actions and role	Critiquing practice	Nurse patient cooperation
Identify solutions	Improving practice	Less patient resistance
Improve nursing practice		Improve patient relationship
Increase understanding of professional issues		

Formative: Skill and knowledge development		
New learning	Competence and creativity	Improved idea time
Improved knowledge	Professional development	Idea support
Professional development (deeper knowledge)	Confirming patient uniqueness	Creativity and innovation
Self confidence	Gaining knowledge	Communication skills
Self-awareness of thoughts and feelings	Competence	
Improved knowledge of human rights	Trust in self	
Recognizing family needs more	Knowledge	
	Insight into therapeutic use of self when relating to patients	

Restorative: Colleague/social support		
Listening and being supportive	Lower perceived anxiety	Improved relationship with nurses
Improved coping at work	Understanding colleagues	Trust
Accessing support	Increased interest	Reduced conflict
Better relationship amongst staff	Relief (discuss thoughts and feelings)	Reduced tedium
Engagement in the workplace	Relief of thoughts and feelings	Reduced burnout
Safe group environment	Empathy	Personal accomplishment
Sense of security	Sense of community	Personal development
Satisfaction with nurses	Catharsis	Coping
	Self understanding	

The selected studies were grouped into three types: comparative studies in which CS was implemented at one site, with pre test and post test measures obtained at that site and matched site (in clinical terms); pre test and post test evaluation studies in which CS was introduced as an intervention without comparison to a control group; and, post evaluation studies in which participants were asked to appraise their experiences of CS. The outcomes of the studies were recorded and then categorised in relationship to Proctor's (1986) three-function model of CS. Terms used to describe the outcomes of the studies were grouped according to Proctor's functions and listed in table 1. Reported outcomes of the studies were then categorised according to Proctor's (1986) model and are shown in table 2 (comparative studies), table 3 (pre-post test studies), and table 4 (post evaluation studies).

Table 2: Comparative Studies

| Author | Type of CS and sample | Other intervention | Focus of study | Outcomes* | | |
				N[1]	F[2]	R[3]
Berg et al (1994)	n = 19 experimental ward, n = 20 control ward, nurses working in residential dementia care Supervision focused on one patient at a time, patients history described, nurses spoke of emotions evoked in themselves and they pointed out difficulties they have experienced CS group met every third week during the first 6 months, and then every fortnight in the next 6 months, each session lasted 2 hours	2 day course on dementia care, plus another 2 days during the year Individualised care	Burnout, tedium and creativity of working climate		x	x
Edberg et al (1996)	n = 20 control group, n = 19 intervention group, registered nurses in dementia care Group discussion focusing on feelings and reflections about residents and their experiences, as a basis for the provision of individualised care CS group met x 2 hours every third week during the first semester, then every fortnight in the next semester. CS lasted for 12 months	Individualised care 2 day training session on dementia care	Morning care observations with evaluation of nurse-patient cooperation	x		x
Hallberg and Norberg (1993)	n = 19 experimental ward, n = 19 control ward, aged care nurses in dementia care CS group focused on emotional reactions, reflections of primary and secondary appraisal of harmful situations CS group met x 2 hours every third week during the first 6 months, then every fortnight in the next 6 months, for a total of 30 hours Individualised care planning group discussion 2 hrs per week for a total of 34 hours	2 day course on dementia care Individualised care	Strain in nursing care scale, and emotional reactions in nursing care scale	x		
Palsson et al (1996)	n = 21 experimental group, n = 12 comparison group, sample were district nurses CS group met every 2 to 4 weeks, for 1.5 hours up to 34 hours in total	None	Karolinska scale of personality, burnout measure, empathy construct scale, sense of coherence scale	x	x	x

*Outcomes = according to Proctors model
[1]N=normative; [2]F=formative; [3]R=restorative

Table 3: Pre-Post Studies

Author	Type of CS and sample	Other intervention	Focus of study (outcome measures)	N[1]	F[2]	R[3]
Berg and Hallberg, (1999)	n = 22 psychiatric nurses CS group met x 2 hours every fortnight for 1 year for a total of 56 hours Individualised care planning group discussion 2 hrs per week for a total of 34 hours	Individualised care	Sense of coherence scale, creative climate questionnaire, work-related strain inventory, satisfaction with nursing care and work questionnaire		x	x
Begat et al (1997)	n = 34 registered and licensed practical nurses in medical wards CS group to individualise care and implement a primary nursing model to move from collective to personal responsibility Groups of 5 nurses met 1.5 hours per week for one year for a total of 75 hrs	Introduce a primary nursing model, which centralises knowing the patient	Nurses' satisfaction with working milieu, questionnaire regarding psychosocial environment of ward, nurses' views of CS through questionnaire at baseline and at 9 months		x	x
Segesten (1993)	n = 21 in two orthopaedic wards Group supervision to assist with role confusion following introduction of a modified primary nursing system. CS discussion about responsibilities, delegation, quality of nursing care, improving care plans and documentation, problems with physician cooperation, and working with the terminally ill CS group met x 2.5 hours every fortnight for 4 months, with two different supervisors, for a total of 34 hours	Introduction of a modified primary nursing system (nurses working as a team for a group of patients)	Questionnaire included nurses' self description completed before and after CS	x		x

*Outcomes = according to Proctors model
[1]N=normative; [2]F=formative; [3]R=restorative

Table 4: Post Studies

Author	Type of CS and sample	Other intervention	Focus of study	N[1]	F[2]	R[3]
Arvidsson et al (2001)	n = 10 psychiatric nurses Group discussion, using narratives, provided pedagogical and supportive method for reflection on nursing care CS group met fortnightly for 2 hours, for a total of 32 hours supervision	None	Phenomenological interviews two years after CS implementation		x	x
Berg and Welander Hansson (2000)	n = 13 dementia care nurses Group CS nurses discussed individual patients, nurses feelings and emotions discussed; session ended with a decision on how to provide further care 2 hour sessions every third week during the first 6 months, then every fortnight in the next 6 months, for a total of 30 hours	Education session on dementia Individualised care	Unstructured (prompts and points of clarification only) interviews focusing on nurses' experiences 9 months after implementation of CS Questionnaire on view of the effects of CS	x		x
Berggren and Severinsson (2000)	n = 15 registered nurses from 2 medical wards CS group discussion focused on analysis of care based on holistic caring model which places the nurse-patient relationship at the centre of care CS group (5 nurses per group) met x 1.5 hours every week for one year for a total of 75 hours	Introduction of a holistic nursing model of care	Interviews to determine the influence of CS on moral reasoning and clinical decision-making	x		

Table 4: Post Studies *continued...*

Author	Type of CS and sample	Other intervention	Focus of study	Outcomes*		
				N[1]	F[2]	R[3]
Bowles and Young (1999)	n = 201 registered nurses working in mental health care Mean experience ranged from 13.1 months to 30.7 months of CS Majority were one to one sessions with CS supervisors selected from outside own clinical area	None	11 Semi structured interviews to develop questionnaire 21 item questionnaire based on Proctor's functions	x	x	x
Hyrkäs (2005)	n = 569, mental health nurses CS view based on standardised Finnish understanding as systematic actions after vocational education, aimed at developing knowledge and skills, as well as supporting, clarifying and strengthening professional identity and practice	None	National survey Manchester CS scale Maslach Burnout Scale Minnesota Job Satisfaction scale	x	x	x
Hyrkäs and Paunonen-Ilmonen (2001)	n = 62 Multidisciplinary team/ group CS, including registered nurses, doctors, and all members of the health care team; the supervisors were all nurses CS group met x 1.5 hrs every 3rd week for x 3 years, for a total of 78 hours	None	Phenomenographic group interviews (CS teams) 4-6 months post CS implementation to explore how CS affected quality of care	x	x	
Hyrkäs et al (2002)	n = 10 supervisors, average experience of 15 years Group supervision in a multidisciplinary team with a focus on clarifying, collaborating and solving related problems; outside person as supervisor CS group met x 1.5 hrs every 3rd week for x 3 years, for a total of 78 hours	None	Semi-structured interviews based on guided conversation to gain supervisors' roles and perspectives on CS	x	x	
Hyrkäs et al (2005)	n = 32, first line nurse managers Group supervision, focus on how teams are built and work climate created, a nurse manager in a time of change CS 2 hours once a month for 32 hours in total	3 study days on team building and change	Empathy based stories were written by participants. Themes included leadership, communication skills, self development, self knowledge and coping		x	x
Jones (2003)	n = 10 registered nurses (hospice nurses) Group supervision support to encourage discussion about issues related to their professional practice CS 1 hour per week, over 12 weeks	None	N=5 purposive sample interviews and questionnaire to all the nurses n=10. Outcomes were interpersonal learning, identification, catharsis, family re-enactment, group cohesiveness, self understanding		x	x
Lantz and Severinsson (2001)	n = 8 ICU nurses CS as a form of support in stressful circumstances, based on reflection that integrates theoretical knowledge with practical experience Group CS x 2 hour for 10 sessions over 1 year, for a total of 20 hours	None	Interviews with participants using narratives of family interactions as illustrations of effects of CS on perception of family needs, role clarity, creativity and clarification of moral values	x	x	

Table 4: Post Studies *continued...*

Author	Type of CS and sample	Other intervention	Focus of study	Outcomes*		
				N[1]	F[2]	R[3]
Magnusson et al (2002)	n = 660, psychiatric nurses, district nurses, and mental health care workers, 50.9% who receive CS Types of supervision described as "process orientated supervision psychiatric care, clinical nursing supervision, psychotherapeutic supervision, other types of supervision, more than one type" (p.39)	None	Descriptive, correlational, cross-sectional survey, developed for the study, to determine ways in which clinical supervision enhances the nurses' ability to provide care by increasing confidence in their decision-making	x	x	x
Palsson et al (1994)	n = 23, district nurses and 9 cancer nurses CS group used case presentations to provide systematic support to nurses working in cancer care facing emotionally demanding situations CS ongoing x 1.5-2 hours every 2-4 weeks	Training program to increase awareness of how women handled breast cancer	Semi structured interviews - how did CS influence handling of difficult situations?	x	x	x
Severinsson and Kamaker (1999)	n = 158, general nurses Systematic clinical supervision conducted: "In a mentoring style that will encourage reflection of moral dilemmas and ethical decision-making" (p.83)	None	Questionnaire designed for this study which explored work environment, commitment to career, moral sensitivity and individual and organisational characteristics	x		x
Teasdale et al (2000)	n = 211, qualified general medical/ surgical nurses CS defined as: "having a meeting with a designated supervisor or a supervision group at least every 8 weeks to talk about issues arising from your clinical work" Critical incident: Details of a recent situation that they were sufficiently concerned about to have discussed in CS or within their informal support network	None	Managing critical incidents, burnout and perceived workplace support Questionnaires included the Maslach Burnout Inventory and Nursing in Context Questionnaire (developed for the study) Written reports of critical incidents, defined as a recent situation that created sufficient concern to have discussed in CS or within their informal support network			x
Walsh et al (2003)	n = 6, community mental health nurses, plus 1 leader Development of a model for CS that incorporated the necessary ingredients of safety, impartiality, support, trust and respect: CS group discussion focused on case review by one member each month; Rotated role of facilitator for each month Group met x 1.5 hrs each month for 6 months, for a total of 9 hours	None	Focus groups to clarify CS and develop a vision/model to establish group norms and process Questionnaire developed for the study, after 6 months to explore aims, adherence to norms, personal objective, supervision functions overall usefulness	x	x	X

*Outcomes = according to Proctors model

[1]N=normative; [2]F=formative; [3]R=restorative

DISCUSSION

Although the results of studies indicate that all three of Proctor's functions are evident as outcomes of CS, the restorative functions are reported marginally more often. In part this is a reflection of study design and outcome measures. That is, when only burnout and tedium were measured in relation to CS then only restorative outcomes are possible. Nevertheless, in studies where outcomes were open-ended, for

example through unstructured interviews (Ardvidsson et al 2001; Berg et al 2000) the results indicate that the restorative nature of CS still predominates. In light of the fact that the origins of CS were formative, the results may serve to reinforce the stressful nature of nursing work and the subsequent need for colleague support.

The Restorative

Since the inception of CS in the psychotherapies, the notion of managing emotional response to patient care has been paramount. Understanding the self through exploring emotions evoked by patients and the outward expression of emotion has been identified as being a critical part of development as a therapist. Given this history of CS the focus of its evaluation has centred on measuring the intensity of emotional labour. Considerable use of stress related measures of human behaviour are spread throughout the literature, in turn delivering a strong sense and support of the restorative effects of CS. The concepts of being able to ventilate ones own thoughts and feelings; reduce levels of anxiety and conflict; develop better interpersonal relationships; and improve coping ability are identified in the CS literature. These ideas are also identified in the effects of counselling therapies such as Egan (1990), Rogers (1951) and Corey (1991). Carl Rogers, whose work forms the basis of nursing humanistic philosophies, stressed the need for the counsellor to become a fully functioning human being. Whilst the benefits of ventilating ones thoughts and emotions have been reported to be effective, the CS process is not too dissimilar to debriefing which has received some criticism (Rose et al 2001).

The Normative

The normative component attempts to develop strategies to manage the professional accountability and quality issues in nursing. The themes that emerge in the normative outcome such as changing organisation of care, confirmation of nursing interventions, problem solving, and improving and confirming practice may lead to changes in how nursing care is delivered. Developing a stronger sense of professional identity and job satisfaction has been associated with improvements in stress and burnout in other industries (Murphy 1996). The quality activities generated from or undertaken in CS may lead to greater patient safety and better patient outcomes, although formal studies of patient outcomes in relation to CS are lacking.

The Formative

The Formative or skill and knowledge development area of CS is well documented in the outcome literature although marginally less than the other domains. The primary outcomes in this domain are knowledge increase and notions of increased self-awareness, creation and innovation. The formative component has been associated with years of nursing experience. Bowles and Young (1999) found that less years of nursing experience was associated with a higher rating of the formative domain being dominant in CS.

Study Limitations

The study was not inclusive of all studies of CS, as some did not meet the criteria for this review. Some of the outcomes in unpublished works and conference reports offer more support for CS. The interpretation of the outcomes of the studies and their relationship to Proctors (1986) model may be biased from the authors understanding and reading of the literature.

CONCLUSION

Considerable evidence for CS in nursing exists in the literature and there is sufficient empirical argument for CS to be implemented in nursing. Evidence exists around the three core domains of Proctors model of CS, providing peer support and stress relief for nurses (restorative function), as well as a means of promoting professional accountability (normative function), and skill and knowledge development (formative function). The nursing literature dominates with speciality groups such as mental health nurses and aged care nurses. More research is needed to evaluate the effectiveness of CS in other specialties of nursing. Further study needs to explore the differences between similar forms of supervision, such as action learning sets and mentorship groups.

Future studies should also focus on the relationship between patient outcomes and CS.

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The experiences, challenges and rewards of nurses from South Asia in the process of entering the Australian nursing system

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ABSTRACT

Objective
This study aims to explore the experiences, challenges and rewards of a group of nurses qualified in other countries in their journey through interview, selection, arrival, registration and integration within the Australian nursing system.

Design
The study uses narrative analysis to tell the stories of the recruited nursing staff who took up the opportunity to travel to Australia. It relies heavily on the expressed and subjective experiences of the recruited nurses and the data are captured in narrative text. Thematic analysis was used to group the experiences into clusters that reveal a variety of positive and negative experiences.

Setting
All of the nurses at the time of the study were working in an Australian public mental health facility.

Subjects
Most participants were married and at the time of interview, their families were either with them in Australia or in the process of immigrating to Australia. They ranged in age from twenty six to forty one. Of the participants, fourteen were female and two were male. Their combined nursing experiences included medical, surgical, emergency, neonatal intensive care, orthopaedics, obstetrics, midwifery and psychiatry.

Main outcome measures
The main outcome measure of this study was to explore, identify and document, in the words and expressions of participants, the lived experience of immigration, living and working as a nurse in a foreign country. The study offers insights into the individual's experience.

Conclusions
Each story was as unique as the individual telling it however, several broad themes emerged from the narratives as insights to the experience. These themes were, Trust and fear; English language requirements; Immigration issues; Belonging, integration and family and Living and working in the West

From these insights, recommendations for future recruitment activity of this kind have been deduced and included at the end of this report.

INTRODUCTION

The issue of worldwide nursing shortages is not new. For some time, for a variety of reasons, such as: more career choices for women, an ageing nursing workforce, inadequate availability of education places, and the continued poor status and image of the profession (Gerrish and Griffith 2004), countries like Australia have struggled to keep adequate numbers of nursing staff as well as consistent and high quality nursing care to patients.

As a result, a number of organisations have implemented recruitment and retention policies and strategies to address this growing concern.

Our organisation had experienced difficulties attracting suitably qualified nursing staff to one area in particular, within the mental health service arena, and in keeping with our recruitment strategy advertised locally and interstate without success. Therefore, we advertised on the internet and, following an expression of interest from India, in late 2002, a colleague and I travelled to South Asia in search of twenty nursing staff to complement our existing psychiatric nursing workforce. We returned two weeks later having offered twenty positions and by mid 2003, nineteen of our new recruits had arrived in the country. One recruit had failed to register her application to the Nurses Board of Victoria and take up the offer of employment.

The study is part only of an overall view of the issues and challenges our new recruits encountered before and after arrival. Issues such as the educational needs of these new recruits have been documented in another study and fall outside of the ambit of this particular study.

LITERATURE REVIEW

Much research has been conducted on topics such as the current international nursing shortages and a great deal written about recruitment from various countries (Pearson 2004; Armstrong 2003; Buchan et al 2003; Cowin and Jacobsson 2003; Kline 2003; Stilwell et al 2003; Pacquiao 2002; Buchan 2001; Kingma 2001; Carlisle 1996).

In particular, various governing bodies such as the World Health Organisation (WHO) and the International Council of Nurses (ICN) hold particular ethical positions in relation to developed countries recruiting nurses from countries considered to be developing countries. These guidelines also document the right of the individual nurse to choose to migrate and the need for equity for all nurses in relation to wages and conditions (ICN 2001; ICN 1999).

Walters (2005), Gerrish and Griffith (2004), and Bohen and Balantac (1994), studied the educational or adaptation needs of nurses educated outside Australia. Parish (2003) highlighted the difficulties professionals qualified in other countries have in relation to language requirements. Bola et al (2003), Hawthorne (2001), D'Cruze (1996), McMillan (1996), Teschendorff (1995), Menon (1992) and Martin and Belcher (1986), studied the integration of nurses qualified in other countries and a few studies (Venamore 2003; Gonda et al 1995; Virdi 1984) highlight the advantages of a multicultural nursing workforce.

The lived experiences and the stories of nurses qualified in other countries, particularly those from developing countries migrating to developed countries, is however not well documented. This study will add to the work of DiCicco-Bloom (2004) whose American study highlights themes of displacement and the racial and gendered experiences of a small group of nurses from Kerala, South India; and the work of Omeri and Atkins (2002) and Jackson (1996) who studied the lived experiences of immigrant nurses in Australia, finding that issues of professional negation, marginalisation and a 'sense of otherness' were the prevailing subjective concepts.

METHODOLOGY

Narrative analysis emphasises the story based nature of human understanding and learning. It is a highly subjective research methodology, distinguished from other qualitative research methodologies by its attention to the structure of narratives as a whole and not as a fragmented text (Rice and Ezzy 1999).

Narrative analysis extends the notion of text to embrace in-depth interviews, life histories, historical memoirs and creative non-fiction (Patton 2002).

Patton (2002 pp.115-116) considers that narrative inquiry: "honours people's stories as data that can stand on their own as pure description of experience" and expands this concept by stating: "The central idea of narrative analysis is that stories and narratives offer especially translucent windows into cultural and social meanings". As new workers in a new country and new culture, the benefits of telling these subjective stories in narrative, with all the ambiguity of a good story, is worthy of capture, as distinct from scientific investigation "designed to convince of truth through… repeatable scientifically constructed empirical tests" (Rice and Ezzy 1999 p.119).

Truth, in essence is subjective, and as a pragmatic investigator, the author's application to truth in this study is to endorse Patton's (2002 p.578) notion of: "What is useful is true".

METHOD

Selection of Participants

The selection criteria included recruits who had successfully passed either the Occupational English Test (OET), or the International English Language Testing System (IELTS), who had also completed the mandatory six week Supervised Practice Program and subsequently been registered by the Nurses Registration Board of Victoria, Australia as registered nurses (Division 1 in Victoria).

Out of the nineteen new recruits from South Asia, seventeen met the selection criteria at the time of the study. Sixteen were invited to participate; one potential participant was not in the country at the time of this research study.

Participants had all been qualified registered nurses in their country of origin and most had considerable years of experience. Some of the nurses had also worked in the Middle East.

Participants were given a Participant Information Sheet outlining the study.

Confidentiality

An independent research assistant undertook the participant interviews and transcribed the taped data. The independent research assistant also ensured that participants were able as much as possible to tell their stories without fear of offending the recruitment personnel. Confidentiality of the content of the interview was reinforced to participants at the commencement of the interview. To ensure confidentiality, the tapes were immediately erased after transcription. Individual interviews were assigned a number to safeguard their anonymity. The numbers were assigned in random order.

Ethics

Austin Health Human Research Ethics Committee approved the research study, which was also endorsed and funded by the Nurses Board of Victoria, Australia.

Data Collection

Initially it was intended that the participants take part in focus groups for the data collection. However due to concern that some participants might feel intimidated in a focus group setting and to ensure that participants did not feel compromised and to safeguard the quality of the information given by the participants, the idea of focus groups was abandoned in favour of individual interviews. Permission was sought from each participant to tape record the interview.

Data were collected using semi-structured interviews with participants over a four week period. Each participant was interviewed once only. At the beginning of the interview, the interviewer reiterated the aims and processes of the research and invited participants to share their experiences of the recruitment procedure, their subsequent arrival into Australia and their experience of the Australian health care system. The interview questions were designed to be used as a guide only and the interviewer was instructed to let participants deviate from the prescribed questions. The study was designed to capture the participants' stories and it was expected that participants would digress from the questions as they focussed on what was important and relevant

for them as individuals. It was reinforced prior to each interview that genuine responses to questions were sought rather than answers that were given to please the interviewer and/or investigator.

Interviews were conducted during work time and within the workplace setting. Participants were interviewed in the order they were available to attend the interview. Permission for participants to attend the interview in work-time had been obtained from the nursing unit managers, and, in addition, permission was sought from the shift-leaders during whose shift the interviews were scheduled. Interviews varied in length due to the responses of participants and the speed with which they spoke. The duration of interviews ranged from twenty five to fifty minutes.

Data Analysis and Interpretation

Data analysis and interpretation occurred at three levels: during the interview; immediately following the interview by the interviewer; and later in reviewing the transcripts using data analysis methods. During the interview, the interviewer sought clarification of certain points considered ambiguous. A note was also made of body language, such as: nods, shrugs or facial gestures; and emotional responses such as: tears or laughter. Data collected were transcribed as soon as possible following the interview in order to capture, as much as possible, the true essence of the story. The interview transcripts were read many times and to identify themes. Although each story had its own unique features, the following broad themes were identified:

- Trust and fear
- English language requirements
- Immigration
- Belonging, integration and family
- Living and working in the West

Trust and Fear

Many of the participants expressed concern regarding the authenticity of the recruitment interview process. Some participants had previous negative experiences with both foreign recruiters and agents supposedly working in their best interests. Some participants

travelled two or three days to attend the recruitment interview. There was a lot at stake. Understandably, they experienced ambivalence and uncertainty:

I was a bit scared for I had never attended any interviews for (working in another country). This was my first interview. I was working in Hyderabad, so it was 16 hours journey by train to reach my place. So my father rang up the last night … and said: "tomorrow morning by nine o'clock train you have to start." And the interview was the next day so it was … a shock for me. And I said, "I am not prepared for the interview"; they said it was for psychiatric services and I was working in a neurology ICU so I didn't know any psychiatric drugs. So I said: "I don't think that I will get this chance or opportunity." But somehow I attended and some of the questions were from psychiatric, a bit of neurology and of general medicine. So somehow I got it (Participant 2).

Because they are a lot of different agencies, they are conducting interviews and selecting families and asking some money from them. Then they will, with this money they'll run away from there, they'll abscond from that place. Then there won't be any address of those people afterwards. … So we read this sort of things (in) every newspaper here. A lot of people are cheated by agents. … During that interview process, so many people got cheated like that. Even one of my friends also (was) cheated like that, so I was also bit confused. What to do … because I shouldn't be cheated by somebody (Participant 16).

Lots of agents … will ask a lot of money as their fees; after that, after we give the money they will say your visa will come next month - one year, like that. So we will have to … find out whether this is a true one (Participant 3).

(These interviewers) looked very friendly, rather than others. They … made us feel a little bit relaxed, rather than we strictly sit in the chair. Yeah, is really friendly, relaxed as well, compared to other interviews which I attended; as well as the process of immediate feedback to the group. After the written test, within half an hour … they announced the result. For the failures they also gave some positive reinforcement:

"Don't worry you will get in the next time", like that. So that's another different thing (Participant 3).

I attended three interviews for England and two for USA, in all I passed the written test, and there is - after that, nothing from them. So, I consider this (is) also the same? When it happens, I'll believe. That was my feelings at that time. And I said that to my husband, but he - the results of the written test was an excitement for my husband because this is his first experience even though I am his wife. When he knew that I passed ... he said, "You've done it well", and I said, "It is always like that. Don't (get) excited, we'll see whether we'll get anything after that." ... Everybody has this type of bitter experience from all the interviews (Participant 3).

They called me for the seminar. It was about the rules and the regulations, the conditions and what it could be - like that, all those things. It took about one hour ... then they give the contract, to sign it. And I thought, it's strange, with the previous interviews nothing was there like that. So I thought maybe it could be the right one for me ... the interview was in November, if everything is okay I can go there by the end of February. So these ... promises are also strange compared to other interviews. So, maybe I thought - maybe happen - or maybe not (Participant 3).

First of all I was very happy, because it is a chance, a challenge, to come to Western countries. But when I asked some of our friends, they thought, maybe they are cheating, it is not a true way, or something like that. So we asked one of our friends who (knew of the hospital) in Victoria (Australia). So we became confident in that. So after the interview, I went back to my old place - that is in one of the Middle Eastern countries. I went back there and I resigned. But still I was in a dilemma whether it is true or whether to postpone or whether to cancel the resignation or what. But finally by the end of January I was sure about this. I came to India. They told (me) by March we will be able to fly to Australia, but (it was) prolonged one month, by May we came here (Participant 5).

English Language Requirements

All the participants arrived prior to passing the Occupational English Test (OET). This test is a requirement of the Nurses Board of Victoria (Australia) and participants in Supervised Practice Programs for Overseas Registered Nurses need to have passed the OET prior to commencing supervised practice. On one hand, this created a degree of distress for participants as they were mindful of studying for their English test and very much needing to pass. On the other hand, participants had been employed by the organisation in nursing assistant roles and as such, conversations with co-workers and patients and the reading and writing involved during the orientation and education program, gave maximum opportunity to practice the skills required to pass the test. In India, education from junior to tertiary level is conducted in English. In Malaysia, most education is conducted in English although there is a strong emphasis on Malay. Having struggled with the English test before they arrived in Australia, most participants thought that learning English was much easier in an English speaking country:

They arranged for my English exam over here (in Australia), ... but still I didn't know whether I'll get through the English and I'll get through the nursing board and I'll get the four year visa. So that's a lot of answers. ... I was just taking the risk. Me and my husband decided that if things don't happen, we come back (to India). We have got nothing to lose. It is just a good experience. It all depends on the English. ... So I was still not quite sure. The first time I have no confidence in myself, so I just was hoping that I'll get through it. ... So I didn't have that much confidence in myself until the day I got my registration. Getting the registration was not a problem at all. I passed my OET the first sitting, and I did my supervised practice and I got my registration within a week (Participant 7).

We came here May 12th ... and (attended) two days a week theory class and the rest practical. That theoretical class was very helpful for us (for) OET and we all passed OET and after that six weeks supervisory practice program we got registration. We were happy (Participant 8).

First time we were very scared ... because we don't know that language, the accent, what they are talking,

what they are asking us, but now we … (have) no problem with that. So we are adjusting. … Still not fully adjusted, but still we are learning. Sometimes … it is difficult to understand some patients and some relatives (Participant 8).

About the nursing registration, they told (us), before coming here (to Australia): "once you come here, you have to pass the OET (Occupational English Test). Either you pass the OET exam here, or you need to pass the IELTS (International English Language Testing System) exam in India." So most of them they tried for IELTS; they all failed. … I was away from there so I couldn't attend for that, so I came here (to Australia), and they told (me): "You need to pass the OET, only then you can apply for … registration. … Through that they are also trying to improve our language, because the accent is different … and with the first chance, with the first time we passed it, though not all (Participant 5).

Oh I was not successful the first time … I failed in my reading part and I was very upset because I haven't - till this part of my career, I haven't failed any of my exams, and I think that this was a sad moment for me. … But anyway we had to wait for a month to write the exam … so (the) second time I got through the exam, just in reading. So … I was really in tears when I passed the exam. I was happy also. … When I found out, it took a long time for me to think that I was successful because first time when I came to work in the ward … language was a problem area … (Participant 12).

Actually I have never spoken to any person from (another country), like European countries, or any places. But … was the first person to whom I spoke or I listened to. I think she must have understood prior coming to the interview that the Indian language or Indian English is not as, not as good as Australian or may be that fast as Australian. So she, I think she was trying to do her best there; she was trying to speak very clearly and slowly, so that all of us should understand (Participant 2).

She talked to us very clearly regarding … all the procedures or terms and conditions. … I didn't find any difficulty with talking (to) her. … I did find it a bit

difficult with her in the first stage and with others also. But now, she is very clear to me and I am also clear to her (Participant 2).

Immigration

Visas were a particularly contentious issue. Participants needed to submit a variety of documents in order to progress the visa application. Sometimes, for a variety of reasons, these documents were hard to produce and authorities in South Asia even harder to negotiate with. Some participants had resigned from their jobs in their home country in anticipation of a speedy response from immigration. This brought social and financial hardships. All participants had applied for a four year working visa with hospital sponsorship, however only a small percentage of participants were granted the four year visa on initial application. Most applications were turned down and given a three month visa. Three months did not give time enough for participants to complete their English test and supervised practice program. Mid-program there was a need to apply for a bridging visa which brought with it uncertainty regarding tenure, and nursing registration, and a need to re-apply for the four year visa, accompanied by another full set of health checks. This added additional complexity and something else for the participants to worry about.

Actually our agents … it was the first time actually, they organised it. So I felt (there were) some misunderstandings … there was communication gaps … there were some errors, but we can expect that from everyone who is starting new, so we can't blame. … They asked us (for) some things, especially our birth certificate that was actually unnecessary, because our secondary school certificate is enough for that to show our date of birth … but they told us particularly they want birth certificate. So when I am going there (to get my birth certificate), they said they actually can't find that register where my name is, so they … just gave me a letter that it is missing. They told me, if you want to issue the birth certificate, you have to go back to your church where you (were) baptised. … Near about two months I took to get my birth certificate, and many times I walked for that. They asked for me to come after two days. Whenever

I go after two days … they will say: "that staff is on leave, you come another day." That's - our culture is like that. They won't do their work properly, especially if they are government staff. So … then I asked our agent … what is the other alternative? Then he told me: "you just make an affidavit." … So anyhow I just made an affidavit and that was expensive. For everything we have to give some money you know. And some times if they come to know that we are trying to (go to) Western countries, then they will ask (for) more money. They will take more money from us. When they know we are going to Western countries. They will know that we have enough money or we will get enough money, so they want to take some advantage of that. They will take more money. They will tell: "this is our charge; that is our charge, if you want, you do like this." So, to get our things ready, definitely we will have to give money. … So, actually that was an unnecessary procedure which they asked us to do; there was no real - no need for that certificate (Participant 16).

They submitted our documents in our [---] immigration department here in India. But some problems … delayed our processing. … We all resigned from our jobs, so we are jobless that time. So it was not a good time for us. … Almost, I think, eight months we waited. … Then also we got only three months visa, we didn't get four year visa. So, it was not good (Participant 13).

One participant felt that the immigration office in her country did not recognise her central role as leader in her family's visa application:

So I talked to my whole family; we applied for the visa for the four of us and then for the medical exam. I think this was (the) first case where a person - a female bringing the family rather than the male bringing the family. … So the visa was in my name and the lady who was in charge, the case manager from the immigration office - actually she did not understand the process itself. When I tried to explain to her … she keep on telling us she had to wait for directions from Australia. So we did all the paper work and I told her I need to be here by a certain date; she told me three months visitor's visa and nothing for my family. That

was okay for me, because I was not bringing my family. So from the day I got three months visa my husband kept going back and reminding them to process the three others. And last month that was January, this is from May last year until January, so only last week my husband got the (…) visa. It took that long for the lady to realise - you know, the proper procedure - and she went on Christmas leave and she was away and when she came back, (the) case manager was away, so all this delayed (everything). … The immigration in Australia was also delayed during the Christmas (period). … So now all of us have the (…) visa and they can come and go anytime time (they) want and there is no problem (Participant 10).

Belonging, Integration and Family

When the participants first arrived in the country, they were advised they should leave their families at home until they were established in independent accommodation; had completed the educational requirements; and were registered. This was possibly not the best option for some of the participants as they struggled with their emotions in being apart from family, especially their children. Those who had brought families in the early stages were less emotionally vulnerable but struggled financially, at least initially, as their families could not stay in the low cost hospital accommodation on offer to the participants who had arrived without family. All participants saw Australia's offer of family visas to be a big draw card.

My husband was working in Goa, and myself and my daughter we were in Kerala. If I want to join my husband, I have to wait until he becomes 58 years old. He can't join us now. Before this I was in Muscat. When my daughter was eight months old I left her to go to Muscat. So my husband, he was in Goa, I was in Muscat. All the time she (my daughter) was with my parents. So actually I was looking forward to having a family life, you know. I was knowing that in Western countries it is possible … so actually for my family life I attended this interview (Participant 15).

And my family came here; my family is with me now. I've got one daughter. My friends they (are) all happy, they all want to come here (Participant 5).

The first thing I inquired was whether I can take my family. I have my husband and two kids, so I never thought of leaving them anyway. So the first thing I inquired from that, can I take my family. They said, yes you can take them. That was amazing really, because some people, they are not allowing (you) to take (your family) - they will tell us to wait for three months, for permission. That was very good. But unfortunately I came ahead of them because of some problems with the visa processing and all. I came two weeks, but they came after two weeks (Participant 14).

I didn't apply anywhere because I am very close to my husband and my family, so I don't want to separate from them, that's why I did not apply. But still we were in need of money. Sometimes we thought we can go abroad, we can earn money, but because of him I didn't apply anywhere. The main reason I applied for Australia is the agent told me: "They will give family visa." That's why I applied. That day I was so happy, and I went - I told my friends that I have been selected for Australia, they didn't believe. Everyone was very jealous of me, but they didn't apply (Participant 9).

I'm away, so there are two males in the house now, my son and my husband. So they felt their loss. My husband told me over the phone, that my son - he cries, and - see, I am crying now. ... The first came I came he was okay at the airport. No tears, nothing ... I think he did not feel the loss, but the second time, when I came for holidays, he really cried, and the tears were tears for me. He is 18 years old. So, you know, he is feeling the loneliness. ... I think he is needing a mother, and to cover up - oh, I feel guilty leaving him, so I thought I (would) buy him a car, and that will - I don't know - being a mother - I was a bit sensitive at the time. I feel really bad now, especially as it is going to be a year in April (Participant 10).

And that time, I came with five (others), you see, and they all came with their family and only I was alone ... I was married in February and I came here in May. So my husband left to (go to) Ireland and I came here alone. And I came to the hostel here ... so I was very homesick, I was crying with my husband's

photographs the whole day. ... He is with me now. He joined me last September, so it's nearly four months now. ... It was a very bitter and dire experience for me. Bad experience actually I should say. ... Things are very different from - and the things and the life style actually, everything was entirely different for me, but now, I'm getting used to it (Participant 2).

Belonging at work was an important concept for most participants:

The patients, you know, like family members here. One day I went with one of the patients. It was for a one-day procedure. And you know, after the surgery they just called me to look to him! You know, I felt so - I don't know what was the feeling ...we do everything for them, they can't speak - we have to speak for them, they can't do, we have to do it for them. First of all I was so afraid. But it is now like family, like some of our own. ...It's good, I like it here (Participant 4).

Living and Working in the West
Participants highlighted a wide range of issues both positive and negative about their experience of Australia and Australians. A few selected narratives appear below that capture the essence of the majority:

I am here and in a good place. And I am enjoying. For my kids also they can have a good and bright future. I hope so. And also we can learn new things other than from our country - and we can learn the different culture. That is a good thing (Participant 1).

You can trust people: that's the thing I found. In (name of country deleted) we can't find anybody like that. So it's - it's what I found the change from there and here. And fear, I don't think there is much, nothing to fear much - once our family are there - living in Australia (Participant 12)

I like the situation here. I like the country - I like the work place - all the people who are working here, really I can say even if they are seniors ... everybody is given equal dignity and respect and whatever questions or queries we ask them, they are ready to help us in any way. In (name of country deleted) it is not like that, the managers will be managers, we

can't even go and speak to them. We have to go in line of authority. Here we can go talk to them - tell our complaint and if they want to make comments to us they do. ... And the workplace I like it very much, because it is a mental health setting. That was what I was longing for and I got it. I am very happy about that (Participant 12).

When we came out here, really homesickness was there, sure. ... Australia is a strange country for us. Strange people, I mean, you know, strange people, strange culture - everything was strange. We had no friends out here, you know. When we came out here, the initial time; that was very difficult to cope with, this culture, like this - all these things. ... The major problem is communication problems, you know. Australia is very different, really difficult. But, you know, when we (got) used to it - that (has) become easy now. ... The Western culture is very different from Eastern culture. ... We are trying; still we cannot accept that culture - which is the Australian way. Western culture, still we cannot accept (Participant 11).

You know when we came here, one patient I used to pass, "black, black, you black," (sic) he used to call me. First day when I heard, I was so upset. ... I felt very bad, then I realised he is a psychiatric patient. He's got brain injury. That is, because of his illness he is calling me. It is nothing - so I adjusted (Participant 15).

Information participants had received about Australia prior to arrival was limited. Most participants had considered working in another country, in countries such as the Middle East, USA and UK, but not Australia. The following account depicts how participant 15 first became aware of possibilities in Australia:

So this lady [patient] ... came to me and she said: "I see you are very busy, you are running up and down. ... Why don't you come to Australia, there nurses are well respected." ... I don't know anything about it, because I didn't know anything about this outside life. ... Everyone in my family said (it) was (a) really very good place, better than America, they said. And here ... crimes are very less compared to

other countries. It is a very good country. People are very nice, like that, different people, different ideas (Participant 15).

DISCUSSION

From the collected data, it became obvious that many aspects of the recruiting process were done extremely well. It appears that the face-to-face interviews conducted in South Asia were well received and organised. The immediate feedback to applicants, and the seminar to those successful, gave an opportunity for participants to explore the offer further and to ask questions related to any concerns or doubts they were experiencing.

Some participants had travelled for up to three days to attend the interview, which indicated the high level of desire or commitment to secure a position in Australia. This obvious motivation came in spite of the fact that information about Australia and the Australian lifestyle is limited in some parts of South Asia. Narratives frequently revealed that participants experienced feelings of displacement and being different once in Australia and exposed to living and working in a foreign country. Whereas this could be seen as a normal reaction to immigration, more information could have been given at interview and/ or in the time lapse from interview to arrival.

Many of the narratives exposed the extent to which nurses in South Asia, seeking opportunities abroad, were vulnerable to exploitation. Some participants had previous negative experiences from agents seeking a livelihood from susceptible nurses, and in some cases, from hospitals promising employment and then failing to fulfil their offers. Many participants expressed their reticence to believe the agent engaged for the purpose of recruitment and also the interviewers themselves. It appears that the immediate feedback and offer of employment by way of a contract to sign gave some authority to the recruitment process although many participants remained sceptical until they were actually on their way to Australia.

All participants struggled initially with the language requirements and in particular, the Australian accent.

For several, the supervised practice component of their education and therefore their nursing registration was delayed while they studied for the Occupational English Test. Although more difficult to achieve in countries where English is not the primary language of verbal communication, to facilitate a quicker and less stressful transition through the visa and nursing registration processes, participants indicated that passing the English requirements prior to arrival would have been an advantage. Pre-emigration access to intensive English classes involving people with Australian accents could prove very valuable.

Once the supervised practice program was completed and competency assessed, participants were very positive about their response from the Nurses Board of Victoria (Australia). All were registered within a few days to one week. This enabled participants to immediately work to their capacity as registered nurses.

Relocating from one country to another would, no doubt, be stressful for most people. This issue during recruitment is compounded if the agent and recruiters are inexperienced and having no prior models of recruitment from developing countries to draw on. This can result in some information being given erroneously which in turn can lead some participants on a needless pursuit of certain documents that are not in fact necessary or could have been substituted by other documents. Participants expressed particular distress at the time lapse from interview to arrival and the resultant loss of face in their community and financial hardships as many had resigned from jobs prematurely to take up the offered position.

Feelings of belonging and family togetherness filtered through most narratives. Some narratives highlighted the experience of living apart from families, sometimes for many years, whilst participants lived and worked in gulf countries and somebody else raised their children. There is little doubt that family visa and sponsorship were main pull-factors toward Australia for these participants. Balancing emotions for those separated from families was far harder for some than others, however accommodation was a problem for families who arrived together. Those who arrived a little later, when nursing registration had been completed, had the advantage of an immediate income.

Overall, comments about Australia and Australians were positive. Participants stated that Australians are trustworthy and Australia safe, free from terrorism and that crime rates are low. One participant had been the recipient of derogatory racial comments. Several participants felt they were still in an adjustment phase and many were trying to balance the Eastern/Western lifestyle differences. Participants have an awareness of the extent to which Australian culture will influence their children but the overriding sense was one of optimism and opportunity for themselves and their families.

CONCLUSION

Nursing shortages are estimated to increase over the next decade and it is possible that Australia might see an influx of nurses from countries in South Asia and a reactive need to provide education and integration for this potential recruiting source. The following recommendations are offered for consideration in future recruitment initiatives.

RECOMMENDATIONS

Interviews for qualified nurses from other countries should be conducted face-to-face in the source country or via phone or video conferencing.

Information regarding Australian lifestyles, culture and working conditions should be conveyed in a timely manner or at interview to enable selected candidates to make informed choices and decisions. Information could include visual aides such as photographs and videos.

Selected candidates should be informed as soon as practicable following interview and given realistic time frames for visa processing and position commencement, in order for candidates to appropriately manage their departure activities.

Recruitment agents selected to assist the recruitment process should be highly scrutinised and have a clear recruitment history and expertise in the source country.

Potential candidates should have passed the OET or IELTS prior to arrival in Australia.

On arrival, candidates should be supported with accommodation, settlement needs such as establishing a bank account and employment requirements such as applying for an Australian tax file number.

Ongoing support should be available to facilitate maximum integration with Australian work and life.

Nursing registration, following supervised practice and competency assessment, should be completed as a priority.

Candidates should delay the arrival of their families until nursing registration is complete and a position secured.

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When parents refuse a sick teenager the right to give informed consent: the nurse's role

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ABSTRACT

Objective
To outline the case for child patients who are
minors to be allowed to participate in the medical
decision-making process and make significant choices.

Setting
The paediatric oncology department of a major
teaching hospital in Israel.

Subject
A 15-year-old boy from a strictly religious Jewish family
was diagnosed with acute myeloblastic leukaemia.
Relying on their rabbi's advice, the parents agreed to
a chemotherapy protocol but refused an immediate
bone-marrow transplant using a central vein access
device to ease suffering and increase safety and
rejected extracting and freezing some of the boy's
sperm (the chemotherapy would cause sterility). They
refused to let the boy take part in the discussions with
the medical staff, or even to know he had cancer.

Primary Argument
The authors consider that two principles are
decisive - the patient's best interest and informed
consent. A teenager who has emotional maturity
and understanding is entitled to a doctor-patient
relationship based on mutual trust; on their right to
know; and their capacity for autonomy (to be judged in
light of the severity of the treatment required).

The nurse's role is to bring the parents to acknowledge
their child's rights; to identify where information is
needed; to help the parents express their needs and
wishes to the medical staff; to act as case manager
and patient advocate; and coordinate between all
care-givers. An ethical-problem-solving worksheet is
offered to nurses.

Conclusions
Nurses must be specifically trained for this mediating
role and be appropriately represented on local ethics
committees. Systematic decision-making protocols are
needed.

INTRODUCTION

The case study

A 15-year-old boy from a strictly religious Jewish family was diagnosed with acute myeloblastic leukaemia. The physician, a nurse from the paediatric hemato-oncology unit and a social worker gave the parents as much clinical data as was available, discussed possible treatments and made three recommendations: (a) a known chemotherapy protocol common in all Israeli hospitals; (b) a bone-marrow transplant, including examining the boy's five siblings for donor compatibility (a bone-marrow transplant is a relatively innovative treatment involving some risk, yet carries a good chance of recovery; it was suggested that the boy have an immediate transplant using a central vein access device (Port-A-Cath) to ease suffering during treatment and increase safety); and (c) that some of the boy's sperm be frozen, since the aggressive treatment he was about to receive would almost certainly cause sterility. The physician suggested inviting the boy to take part in the discussion.

The parents' reaction was total shock and the first thing they requested was: *"Don't tell the boy anything"*. After a while they turned to the nurse and asked her for clarification concerning the treatment: *Where will it take place? For how long? Will he lose his hair?* After the urgency of treatment had been made clear to the parents, they left for consultation.

Three days later the parents arrived for a second appointment with the physician without the boy. They announced their consent to the chemotherapy and also to an alternative treatment but, having consulted their rabbi, refused consent to the PAC transplant and freezing his sperm. On the bone-marrow transplant and examining their other children, they asked for more time for consultation. They would not sign a consent form for the treatment they had agreed to until all their consultations were complete.

Thus a 15-year-old boy, able to be party to a doctor-patient relationship, was denied this by his parents. The parents refused consent to treatments proposed by the boy's physicians; chose to withhold

information from their son; and imposed this decision on medical staff. Relying on their rabbi's advice, they refused the transplant using a Port-A-Cath, raising arguments such as: '*It will always remind him that he is ill'*. They were against 'useless surgery' and everyone knowing the boy had cancer. As for removing and freezing his sperm, the parents also refused, claiming their son was too young (they were informed of a commonly used technique for taking sperm donations from young people). They refused to let the boy know the seriousness of his disease. The word cancer was not to be mentioned. According to the parents, the rabbi they consulted had already talked to the boy, who had agreed to abide by whatever his parents told him to do.

Literature Review

Today, the almost universal approach to minors' consent emphasizes the need to find ways to consider their wishes (Carmi 1998) but there is more than one approach to locating the right level of consideration. The extreme approach of the movement for child emancipation argues that children should have all the autonomy of adults. A more conservative approach sets a fixed age limit, beyond which the child is able to take responsibility and enjoy adult privileges. An intermediate approach would decide each case on its own merits, looking for an optimal balance between the child's maturity and ability to take rational decisions and current legal statements and restrictions on his decision-making rights. Many Israeli hospitals take this approach (Morag 2005; Almog 1997).

Another approach bases competence to give informed consent on the gravity of the patient's state of health and the severity of the treatment required. The competency test is made increasingly stringent as the potential results of treatment become more severe (Pahlman et al 1996; Case 1988).

That parents have the right to give consent to their minor children's medical treatment is an almost universal norm. Few national legal systems recognize the minor's right to decide independently of the parents (Frizler 1994). Nonetheless, Zohar (1998) and Langham (1984) claim that parental consent to

medical treatment negates one of the most important values of medical ethics - patient autonomy. A second danger is that, in claiming that the child 'belongs' to the parents, an 'ownership' notion is established, enabling the parents to act according to their own interests as parents and not according to the child's best interest. Brody (1976) questions the source of informed consent, (who is the patient?) and the tendency of health care systems is to see the parent as the customer or patient. It is the parent who is given information about the illness and its treatment, its dangers and probabilities and who makes the final decision. But Brody and Aronson (1978) argue that the patient has three fundamental rights - to receive the best treatment; to know about their condition; but also not to know. Golan (2004) concurs, stating it is an adolescent's primary right to know that their parents, doctors and nurses will never lie to them and never exploit their weakness relative to doctors and parents. Decisions concerning a child's treatment must not be made by adults alone.

The medical staff's ethical responsibility to a minor patient derives from the same obligation society imposes on parents. All have a duty to provide the child with the best care possible. Yet, when the child is ill, the physician may be thought to be more capable of providing for the child's needs. Toward the parents, the physician has an obligation to pass on all necessary information and receive their consent to the treatment proposed, but the physician also has a direct commitment and duty to the child (Truman and Bran 1984).

A particularly problematic issue that physicians face, especially in paediatrics, is around experimental treatments. In the field of oncology, the borders between experimental and conventional treatment are often unclear (Van Eys 1987). Many treatments are based on protocols that are still under experimental study. It is beyond question that obtaining informed consent to innovative treatment requires the physician to give not only a detailed explanation of the treatment but also of the study's design and goals.

DISCUSSION

When parents and medical staff disagree

When parents and medical staff disagree, complex philosophical, ethical, and legal problems are confronted. To what extent is it possible to scrutinize the 'way devoted parents should act' when discussing a boy ill with cancer and at high risk both from the disease and the proposed treatment? Are there standard criteria at all? The solution to these complexities can perhaps be found in the concept of the patient's best interest. This is the standard that must guide the course of the entire treatment. Brody, Golan, Aronson and others argue that the first and principal right of a juvenile with cancer is the right to know. He has the right to be told the truth by physicians, nurses and parents. Decisions concerning him should not be made only by adults. A second guiding principle is the principle and values of informed consent (Tabak 1993). Together, the two principles should establish the nature and goal of the relationship between nurse, patient and the family.

Who is the patient? In current Israeli law, the parents are the staff's partners in the informed consent process and they are the child's representatives. In practice, it is the child who will or will not, receive treatment and therefore they are the patient. The clinicians' role is always to acquire the patient's trust and such trust can only be based on integrity and not on the withholding of information. A teenager who has emotional maturity, clear understanding and the competence to make choices should be entitled to all the rights of an adult. The doctor-adolescent patient relationship must stand on the two pillars of mutual trust and the adolescent's capacity for autonomy (judged on the severity of the treatment required).

The contemporary approach is to take each case on its individual merits and look for the optimal balance between the child's ability to take decisions and current legal restrictions on his right to do so. If this means asking adolescents to cope with long-term and life-threatening data and situations, then this is

their right. Cancer and chronic disease bring minors into maturity far earlier than their healthy peers, to the point that they are mature enough certainly to share in making, if not to make alone, the necessary hard choices.

Parental rights over their children are not absolute but subject to: a) the child's growing up and b) society's developing understanding of children's rights and abilities. Both children and parents need to know the limit of a parent-guardians' rights and responsibilities. In this case the limits are set by two key concepts - the minor's best interest and the norms and values of society. After all, the concepts involved in this controversy - the rights and obligations of minors and parents and a patient's best interest - all stem from society's ruling values and these values develop over time. Society clearly has a legitimate voice in the argument and doctors and nurses represent that voice (as do hospital ethics committees and the law courts). In refusing to acknowledge their son's right to a significant degree of autonomy the parents themselves open the door for society to intervene. At age 15, it is to be presumed, until demonstrated otherwise, that an adolescent can think for himself. Of course, one of the problems of this case is that not one but two sets of societal norms are in competition: those of the larger society and those of the strictly orthodox community to which the boy and his family belong. But even in Jewish law, the boy came to manhood at bar-mitzvah (age 13 years) and as such, has the personal responsibility of any Jewish adult for obeying Jewish law.

The parents cannot protect their son from the disease so they try at least to protect him from the news. Yet, health professionals who take care of the child see the situation differently: The child is on the verge of becoming an adult and being prevented from realising his rights and interests. In the present, he is denied the basic right to know and decide and the right to enjoy a better quality of life during his illness. As for the future, by refusing freezing of his sperm, the boy is potentially prevented from procreating. Sperm donation and freezing is a relatively simple and safe procedure which however made the parents feel

uneasy and required them to share the information they have been given with their child. They derive their right to refuse from the religious authority their rabbis represent. The question arises as to whether the boy's subordination to his parents - in this specific case - is in his best interest.

Another relevant issue tends to the same conclusion. The parents report that their son has agreed to abide by his parents' wishes and guidance - presumably either without knowing or having been misled as to the implications of his illness. If the child has indeed chosen not to know there is a clash between his best interest and his right not to know and in such cases the decisive weight is given to his best interest.

The Nurse's Role

The medical staff's role is to bring the parents to acknowledge their child's rights over his present and future. Within the hospital team nurses have the right to autonomy of judgement and decision and in conflicted situations, such as the one described here, they have specific roles to fill. But these roles must be performed within an institutional context and within a multidisciplinary team of doctors, nurses, social workers and other carers. The nurse is required to behave rationally and professionally so that patients benefit optimally from her decisions. As in every service profession, the nurses' first duty is not to cause harm or allow harm to be caused by others.

Nursing can solve problems only within an inter-disciplinary framework of mutual dependence. In a case like that presented in this paper, doctor, nurse, social worker, psychologist, rabbi and legal advisor are all involved. In such a scenario, one role of the nurse is to act as the coordinator between all these care-givers, act as case manager and keep the balance between the physicians' and parents' authority and minor's best interest.

The nurse's particular position gives her more opportunity than others to play a mediating, coordinating role between all parties. In a conflict situation as described here, when informed consent is not forthcoming, Case (1988) stresses the nurse's important role in working for an alternative decision.

The nurse can help the parents understand the situation; ensure they appreciate the consequences - positive and negative, short-term and long-term - of their decisions and actions; and show them what parental obligation is and is not and how to give the child the information he ought to have. The nurses is able to take the time to sit with the parents and set out in detail the context and consequences of their choices and of the alternative choices, and assist them to a rational decision (Rotenberg 1988). The nurses' role is to identify where information is needed and help the parents express their needs and wishes to the medical staff.

Another role of the nurse is that of 'patient advocate', professionally assessing a patient's maturity and competence to understand and cope with hard decisions and then defend their autonomy against the authority of physicians and parents.

The nurse owes a duty also to her profession's own code of ethics. In Israel this code makes no mention of the patient's age: in other words, to adults and minors alike the nurse owes the same duty to give the best possible care and show respect for the patient's rights and dignity (Israel Nurses Association 1994). In such problematical, complicated situations as outlined in this case study, the nurse is expected to modify her response as she evaluates the inputs from all the many participants. This decision-making duty is a key element of her emotional and behavioural burden. Situations and disputes like the one described here are bound to be stressful and the nurse has a first choice to make between two opposing modes of action, to accept others' decisions or to intervene to modify them. Clearly, the authors consider the nurse has a duty to intervene.

There is great importance in the socialisation of nursing to this role of mediating and balancing between the parties and it is a role requiring special training and understanding to help cope with the resulting clash and stress. Clash of interest and worldview between the professionals, the child patient and the alternative decision-maker have been mentioned (Rushton 1993). Another clash may occur between the nurse's obligations toward the patient and her loyalty to the physician.

The authors offer the following work sheet to help nurses cope in such situations:

The Central Issue	Telling the truth to a minor - his right to make a free choice.
The Specific Problem	Telling the truth to an adolescent before performing experimental treatment, going against the parent's demands to withhold information from their son and their opposition to freezing his sperm.
Nurses' Beliefs	Personal belief - a 15-year-old boy in today's society has the capacity to understand and it is his right to be part of the decision-making process over his body. He must be part of the informed consent process together with his parents.
	Professional belief (nurses' ethical code) - "The patient has the right to receive information concerning the diagnosis, the treatment and its consequences, including the risks, the chances of success, and alternative treatments." Creating a basis for informed consent is one element in the quality of care.
Patient's Free Choice	The patient has the right to reject experimental treatment and is free to make decisions concerning all aspects of his treatment.
Alternative courses of action for nurses in this case	1. Withhold information; 2. Reveal true information about the treatment; 3. Limit the parents' authority: decide according to the child's best present and future interest; 4. Appeal to the courts against the parent's authority; 5. Weigh the child's best interest against his rights.
Decision	Give the child true information for his best interest and in order to obtain his consent to donate sperm for freezing; Set up an interdisciplinary team to work with the parents and secure their cooperation.
Points for discussion	Children's rights, child's best interest, protecting the child.

CONCLUSIONS

When Israeli nurses are confronted with a complex ethical dilemma their usual practice is to meet together and use a problem-solving model to try to reach a solution. They set out the problem and, making explicit the distinctions between their personal and professional codes, suggest a range of possible solutions. Each suggestion is analysed for its advantages and disadvantages. After general discussion the best option is chosen for action and the relevant physicians are informed of the nurses' choice. At the end of such a decision-making process the nurses usually try to generalise from the particular dilemma so the results of their discussion can serve them in similar future difficulties. In the specific case reported here, the problem-solving model brought the nurses to the conclusion they should try to persuade the boy's parents to bring their rabbi to discuss the case with the head of the Paediatric Oncology department.

RECOMMENDATIONS

Nurses need to learn and develop the skills needed in obtaining informed consent, in removing obstacles, resolving conflicts and building up understanding.

The nurse's advocacy role should be promoted by devising and applying systematic decision-making protocols and by making the appropriate modifications to the nurse training syllabus and professional ethics. To achieve this end, nurses need to be appropriately represented on local ethics committees and nursing-policy-making bodies.

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