

FROM THE EDITORS - Margaret McMillan and Jane Conway

A DIVERSITY OF INTELLECTUAL AND PRACTICE ENDEAVOUR

Former Associate Professor Judith Townsend is an RN and midwife with experience in nursing practice and education. In this issue's guest editorial she draws on her experience as an educator, a clinician, and person who has experienced illness to raise a number of questions about the nature of the relationship between nurse education and nursing practice.

While Townsend asks why nothing has changed in relation to the complexity of managing the education/practice interface, the papers in this edition of *AJAN* present a diversity of intellectual and practice endeavour, demonstrating that a great deal of change has occurred in other aspects of nursing over the 30 years that Townsend draws upon.

In this *AJAN*, Roberts reflects on the way in which former nurse clinicians have adapted to the university environment and the extent to which they have acquired university values. She concludes that it is research and the development of skills in analytical thought and writing that led to an increase in scholarly enterprise in nursing. She argues this scholarship needs to be fostered early in a career if the scholarly productivity of nurses is to improve dramatically.

Cummins et al focus on the issues facing nurses who are working with clients who are trying to manage the symptoms of HIV/AIDS. The paper reveals the extent to which nurses have aligned their roles and functions more closely to the typical behaviours of their clientele. Of particular interest to nurses in this area of practice are patterns of adherence to medication regimes and the extent to which this impacts on quality of life. In this area of practice, the nurses' functions centre on an intermediary, facilitative education role, as a necessary response to a change in the context of practice, disease patterns and symptom management.

In contrast to the focus on clients, Campos and Jalaludin's study centres on the extent to which nurses engage in preventive self-care. They questioned the values behind nurses' unwillingness to accept immunisation for influenza. They examine the theory of reasoned action and planned behaviour, and ask questions about the beliefs and perceptions and the benefits and costs of changing health behaviours of patients when health professionals exposed

themselves to the risk of contracting influenza in the health service environment.

Clearly, one of the major developments in health service is the reliance on evidence to support changes in practice. In this edition, Evans highlights the growing interest in the synthesis of interpretive research in systematic reviews. He argues that whilst further methodological development is needed, there is potential for meta-evaluation to meaningfully contribute to the shape and form of evidence for better care that is oriented to consumer needs.

Another significant change in nursing has been the use of technology in health care. Anderson et al question the extent to which the human dimension is part of technological interventions. In their study, they examine the experience of a person who is reliant on a cardiac pacemaker. It is important to explore the ways that people respond to technological interventions. They suggest that nurses and other health professionals need to be more aware of client reactions to and expectations about illness modalities. While many health professionals assume that cardiac pacemaker implantation is a routine and trouble free procedure. For the client such an encounter with technology is potentially life changing, complex and emotionally charged event.

Recognition of the factors nurses continue to consider when providing care are typified in the paper by Rogers Clarke. She argues that along side the trauma related to diagnosis of breast cancer, the context in which clients live can pose extra problems for symptom management, particularly if they live in a rural setting and have limited access to health service personnel and a social support network that can identify with their needs.

The range of papers in *AJAN* draws attention to both the diversity and complexity of contemporary health service delivery and nurses' roles within it. Furthermore, the papers exemplify the multiple manifestations of nursing care activities. Perhaps the ongoing challenge for nursing is to determine how the continued need to manage and deliver care proactively through activities such as those described in this edition, while still meeting the expectations of clients that nurses be highly visible in the health care team.

GUEST EDITORIAL - Judith Townsend, BAppSci, MA, MHE, RN

Judith Townsend is currently a full time doctoral student at The University of Southern Queensland and previously the Director of the Centre for Enhancement of Learning and Teaching, The University of Western Sydney, Australia.

HEALTH-EDUCATION PARTNERSHIPS: A REFLECTION ON PROFESSIONAL AND PERSONAL PAST

In 1984 I joined the University of Western Sydney, Australia, as a scared, but proud and committed nurse academic. Three things became immediately evident. Firstly, there were few programs for university staff to ease their transition from clinician to academic. Many faculty staff remained confused and distressed about their primary roles, their loyalties, their own identities - that had been established over many years. They grieved for their loss of standing and certainty as clinicians and were uncertain of the expectations of their new institutions. I suspect considerable confusion remains.

Secondly, there was considerable ignorance among health and community agencies regarding their roles and responsibilities towards students during clinical practicums. There was a resistance to engage with the new programs that led to poor cooperation and antagonism by all parties. Tension between those who educate and those who provide clinical service about roles and responsibilities still exists and does little to achieve the espoused goals of both sectors.

Thirdly, nursing and health services leaders could or would not embrace a new style of graduate that necessitated changes to their values, processes and structures. New graduates were frequently perceived as threats. There was a pervasive sense that they needed to be disabused of their lofty ideals and inducted into a conservative workforce as quickly and completely as possible.

A scan of many submissions to the recent Australian Government commissioned *National Review of Nursing Education* has caused me to wonder to what extent the workplace has welcomed change in nearly 20 years of nursing in the higher education sector. It seems to me that the rhetoric is unchanged in 2002. University submissions continue to use phrases like 'unrealistic employer expectations' and employers speak of 'lack of work readiness'. Much has been written about the need for nursing leadership and its potential to achieve highly desirable goals. Indeed, the Institute of Nursing Executives of New South Wales and the Australian Capital Territory recently argued that:

Effective nursing leadership and management is essential to promote a culture in which there is a consistent philosophy, shared professional values and systems of support and communication. Therefore we need to devote significant energy into management development that moves managers away from their current contemporary (aggressive-defensive)

management styles that influence poor recruitment and retention of nurses and promotes a negative organisational wide culture. A culture within nursing and healthcare of mutual respect, teamwork and positive reinforcement must be promoted.

Despite this, my perception is that the conditions I met in 1984 remain in force in 2002. Unexpectedly, I recently spent several weeks in a large Sydney teaching hospital being prepared for the removal of a pheochromocytoma. As a clinical RN for 20 years and a nurse academic for the next 10, I took a professional interest in the standard of my own care.

Over these weeks the reality of the care context became obvious. As I was prescribed alpha- and beta-blockers, I was increasingly unsteady and bed bound and had ample opportunity to observe and reflect on my experience.

I found that while conversations with my physician were illuminating and the medical students were hungry to learn and listened to me attentively, the expert caring I believed had made me a good clinical nurse was a distant memory.

On the two occasions when students and their supervisor came from one of the assigned universities, they were still treated as a race apart - they still felt like interlopers and outsiders. They too were hungry to learn and were extraordinarily grateful for my patience and attention. Their pensiveness and thoroughness were certainly not interrupting any other nursing care. And, at the end of each day, their supervisor expressed heartfelt thanks. They didn't know I was a nurse and academic. I was simply another patient, but the supervisor and several of those students visited me postoperatively in their own time, both to see how I was and to complete their own learning.

However, except that someone gave me medication umpteen times a day, I would not have known there was an RN on the ward. I experienced the impact of a highly casualised workforce that struggled to maintain its ideals within an uncompromising system. Where was the core nursing workforce? Where was my continuity of care? Where was the nurse who could sit down and talk with me, listen to my real fears, explain what I might expect in intensive care postoperatively?

Submissions to the recent *National Review of Nursing Education*, suggest there is general agreement among nurse clinicians and nurse academics, and among universities and health service providers that initial

registered nurse education should properly remain in universities. But there is also strong feeling that there is a need to strengthen the partnerships between universities and health agencies, to enhance communication and strategic collaboration, and to improve the clinical focus of educational programs in ways that promote work readiness. Why has nothing changed?

Earlier this year, Australian Reserve Bank Governor Ian Macfarlane issued a plea to the political class to halt the decline in Australia's intellectual reserves. Macfarlane warned that university policy is not just about access but excellence. He talked of the need to overthrow long held conventions, presumably anti-elitism, 'more rife than ever'.¹ Although Macfarlane was talking about the wider economic and educational systems, the sentiments apply equally well to nursing practice and nursing education. Eighteen years after nursing education began its transition to the tertiary sector, issues arising from miscommunication across the learning/practice divide seem little closer to resolution.

After all this time, why is the need to effectively manage the nexus between education and practice so frequently spoken of as essential, but so poorly understood

or implemented? Does it have something to do with Macfarlane's notion of anti-elitism? Are university programs and nurse academics still perceived as living in ivory towers, divorced from the 'real' world? Are health care providers, organisations and individual nurses still not convinced of the efficacy of university education? Is there a perception of intellectual snobbery by universities? Is it inverse snobbery by clinicians? Is it patch protection by both sides? Is it economic rationalism? Is it a media beat up? Or is it that health and education are different political portfolios and will compete forever for the attention of their separate ministers, and for funding from the ever-shrinking public purse? Whatever the external happenstance, the only genuine form of resolution will come when we join forces, stand up to be counted, and put our own houses in order.

We have so much to lose by keeping our hands at our sides and our eyes averted. But so much to gain by breaking out and joining forces for the benefit of all - ourselves, our colleagues and our clients.

REFERENCES

Kelly, P. 2002. *Weekend Australian*, 6-7 April 2002. 17.

SCHOLARLY PRODUCTIVITY: ARE NURSE ACADEMICS CATCHING UP?

Kay (Kathryn) L. Roberts, RN, PhD, is Professor of Nursing, Northern Territory University, Australia

Beverley J. Turnbull, RN, RM, M Nurs, is Lecturer, Northern Territory University, Australia

Accepted for publication February 2002

Key words: scholarship, scholarly productivity, journal articles, publishing, nurse academics, nursing faculty

ABSTRACT

The aim of this study was to document the amount of recent change in Australian nurse academics' scholarly productivity and to investigate the influence of demographic factors such as gender, academic rank, qualifications, increase in qualifications, state of residence, university and university size. Scholarly productivity was calculated from an audit of journal articles. The findings of this study indicate that, while there has been a slight increase in scholarly productivity in the last five years, nursing still lags behind other disciplines. Scholarly productivity was found to be positively associated with highest academic qualification, academic rank and promotion. The study indicates the continuing need for senior nurse academics to provide mentoring to colleagues and foster the development of skills associated with scholarly productivity.

INTRODUCTION

This study was undertaken to provide insights into ongoing patterns of scholarly productivity amongst Australian nurse academics. Scholarship is defined as the 'creative intellectual activity that involves generation, evaluation, synthesis and integration of knowledge based on theory, research and practice' (Roberts 1995). Scholarly productivity was defined, for the purposes of this study, as authorship of journal articles only, although it is recognised that there are other forms of scholarly productivity such as authorship of books and presentation at conferences. The study utilised a scholarship rating adapted from the then Australian Commonwealth Department of Employment, Education and Training Cumulative Research Index. This comprised a rating system whereby sole authorship of a journal article was equivalent to one point, with collaborative authorship attracting a lower score.

In contrast to traditional academic disciplines, mainstream nursing education (in Australia) has been located within the tertiary environment for less than two decades. During this time, many nurse academics had to adjust to a college of advanced education environment with very different expectations from the hospital based schools of nursing. With little time to adapt to the college ethos, they were then transferred into the university sector and expected to acquire university values. As part of this assimilation process, it has been necessary for nurse academics to substantially increase their academic qualifications, undertake research and publish. Scholarly productivity is viewed by academia as an indicator of the strength and rigour of the discipline.

A gap has remained between nursing and the traditional disciplines in regard to scholarly productivity (Roberts 1997). With the approach of the millennium the authors deemed it appropriate to determine what changes if any had occurred in the level of scholarly productivity and establish a benchmark for future studies or directions as the discipline of nursing continues to evolve. It was hypothesised that there would be an increase in scholarly productivity in the last half of the last decade of the 20th

century. It was also hypothesised there would be a positive association between scholarly productivity and highest academic qualification, membership of a professional college academic rank and promotion.

PREVIOUS FINDINGS

The literature on scholarship shows that nurse-academics are not well published. In Australia, Roberts (1996) found that only 7% of nurse-academics were published in journals listed in the Cumulative Index of Nursing and Allied Health Literature (CINAHL) and of that 7%, most published in Australian refereed journals. In another study, Roberts (1997) found that nurse-academics published the equivalent of 0.9 refereed articles per year on average, but that figure included books and conference proceedings as well as journal articles. She found that approximately one-third of respondents did not publish at all, while those who did publish averaged 1.4 journal articles per year and 6% published the equivalent of three or more refereed articles in a one-year period.

The findings for Australian nurse-academics' scholarly productivity were similar to those of overseas nurse-academics of a decade earlier. American nurse academics with doctorates had a scholarship index of just over 1 - as calculated from a finding of one refereed and one non-refereed article (Megel, Langston and Creswell 1988) - and Canadian nurse-academics published an average of 1.3 publications per year (Ostmoe 1986).

A comparison of nurse-academics' scholarly productivity with that of academics from other disciplines is difficult as the Department of Education, Training and Youth Affairs (DETYA) currently does not keep data that would facilitate such an analysis. However, a previous study found that the scholarly productivity of other disciplines in the early 1990s was 4.1 for social science, 4.1 for humanities, 1.5 for agricultural science and 1.1 for engineering (Roberts 1997). These figures are based on narrow DETYA criteria that exclude the type of conference presentations that make up the majority of nurse academics' scholarly productivity.

In terms of demographic influences, neither gender nor state or territory of employment has an influence on scholarly productivity (Roberts 1996; Roberts 1997). However, scholarly productivity rises with academic rank and postgraduate qualifications (Roberts 1996; Roberts 1997). Qualifications have also been found to affect scholarly productivity overseas (Acorn 1990; Ostmoe 1986).

In summary, scholarly productivity for nurse academics in the mid-1990s was less than that of other applied disciplines such as engineering and similar to that of overseas nurse academics of a decade earlier, and was influenced by academic rank and qualifications.

METHODOLOGY

Design of the study

The design of this study was descriptive and correlational. It aimed to describe the scholarly productivity of nurse-academics employed full time in Australian university schools or faculties of nursing. It further aimed to investigate the influence of demographic variables such as qualifications, academic rank, state, size of university and gender on scholarly productivity.

The sample

A database of all full-time Australian nurse academics was used to construct a sampling frame for this study. This database was derived from a database constructed in 2000 to investigate the professional characteristics of nurse academics in the approach to the millennium, which is more fully described elsewhere (Roberts and Turnbull 2002).

The sample was stratified by academic rank with the intention of weighting it so that professors (Level E), associate professors (Level D), and senior lecturers (Level C), were over-represented. This was done because a random sample would have yielded a predominance of lecturers (Level B), and associate lecturers (Level A), who it is known from a previous study (Roberts 1997) publish proportionately much less than the higher academic ranks.

The selection process was as follows. All professors and associate professors, half of the senior lecturers and 20% of lecturers and associate lecturers were included in the sample. As 50% of senior lecturers were being chosen, they were selected by a coin toss. The associate lecturers and lecturers were selected by means of a random number generator as only one in five was being chosen.

The demographic characteristics of the authors were already on the database and included gender, academic rank, academic qualifications, increase in qualifications, state, and university.

Universities of authors were further broken down into categories on the basis of the number of staff. The categories were: small (25 staff or less), medium (26-39) and large (40 or more). Thirteen universities were small (for example Southern Cross University), nine universities were medium-sized (for example Griffith University) and seven universities were large (for example University of Western Sydney).

Data extraction and analysis procedures

The productivity of the sample was calculated firstly by analysing articles published by the sample in a two-year period 1998-1999 and secondly by calculating a scholarship index score for each nurse-academic in the sample based on the number and type of articles published during that period. This was the same scholarship index used in a previous study by Roberts (1997).

The articles were identified by means of an audit of CINAHL and exploration of relevant staff lists on

university websites. In searching CINAHL, the researchers entered the author's name and selected articles on the basis of author affiliation, or where none was given, the researchers checked the origin of the article with the author. Care was taken to distinguish between articles by authors who had the same name.

A database was constructed that contained all articles. This is more fully described in another article (Roberts and Turnbull, under review). The type of article was entered, eg whether refereed or not. Information about the authorship was also entered including each author by authorship rank.

Scholarly productivity for each author in the sample (as per Roberts 1997, and derived from the DETYA index) was calculated from the database of articles, using number of articles, type of article, and number of authors per article. These classifications are shown in Table 1.

Authorship	Score
Sole author, refereed publication	1.0
First author, refereed publication	0.75
Second or later author, refereed publication	0.5
Sole author, non-refereed publication	0.2
First author, non-refereed publication	0.15
Second or later author, non-refereed publication	0.1
Editorial or book review, very short article	0.2
Letter to the editor	0.1

Those who had a scholarship index of more than zero were classified as published authors for the purposes of this study, and the remainder as unpublished.

Demographic data for the sample was also transferred from the population database. This included gender, size of university, highest academic qualification, academic rank, whether or not they had been promoted and/or increased their academic qualifications in the last five years, and movement, ie, new, transferred or none.

Descriptive statistics and frequency distributions were used to describe the characteristics of authors and their scholarly productivity. As the data were strongly skewed owing to the stratification of the sample, non-parametric analysis of variance (Kruskal Wallis test) and Mann-Whitney U-tests were used to investigate the effect of demographic factors on scholarly productivity.

The interaction and strength of the effect of the independent variables was tested by means of logistic regression. Two models were run to predict factors that influenced scholarly productivity: one on the dependent variable published/not published and one on the high/low scholarship index. For the purposes of this exercise, the dependent variable scholarship index was recoded to a categorical variable: high for those achieving over 0.5 and

low for the remainder. While 0.5 is not high in absolute terms, or in comparison with other traditional disciplines, it is approximately double the average scholarly output shown in the results of this study.

In order to determine the mean scholarly productivity for the whole population, the effect of stratifying the sample by academic rank was removed. The mean scholarship index for the population was calculated by multiplying the scholarship index for each academic rank by the number of that rank in the population, adding the total and dividing by the total number in the population.

Ethical aspects

The authors received permission to conduct this study from the Northern Territory University Human Research Ethics Committee. Consent was not required for information in the public domain such as that on websites, CINAHL or professional journals. Informed consent was obtained from the few participants who were contacted by telephone to clarify authorship and asked to provide copies of their articles. Ethics clearance for the material on the 1999 nurse-academics' database was renewed.

RESULTS

The sample

The sample comprised 302 nurse academics, most of whom (86%) were female. Females comprised 83% of the population on the database from which the sample was drawn; therefore females were slightly over-represented in this sample. In terms of academic rank, this sample comprised: 17% professors; 15% Level Ds; 36% senior lecturers; 31% Level Bs; and, 1% associate lecturers. Of these: 8% had a bachelor's degree; 4% had a graduate diploma; half (52%) had a master's degree; and, just over a third (36%) had a doctoral degree. However, since this sample was not proportional to the population in terms of academic rank or highest qualification, comparisons with the population on these characteristics were not done.

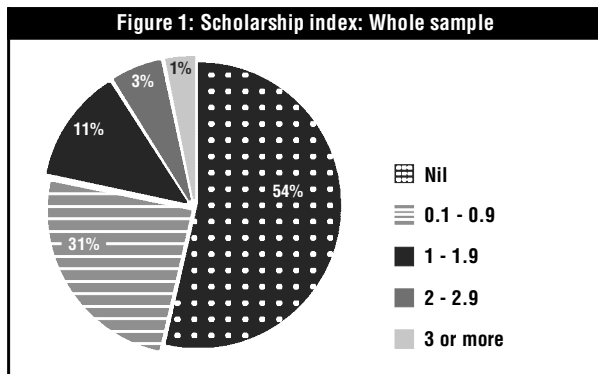
Of the sample: 41% were employed by large universities; 37% were employed by medium-size universities; and, 23% were employed by small universities.

Published and unpublished authors

Almost half (46%) of the nurse academics in the sample had published in the period under investigation (figure 1). Figure 1 shows the scholarship index for the sample.

The mean scholarly productivity regarding journal publications of the whole sample was 0.28. This was the equivalent of sole authorship of just over one quarter of a refereed journal article or one non-refereed journal article, as per table 1.

Figure 1: Scholarship index: Whole sample



For the published authors the mean scholarship index was 0.4. Two thirds scored between 0.1 and 0.9 on the scholarship index, one-quarter scored between 1 and 1.9, a few scored between 2 and 2.9 and almost none scored 3 or more (figure 2).

Figure 2: Scholarship index: Published authors

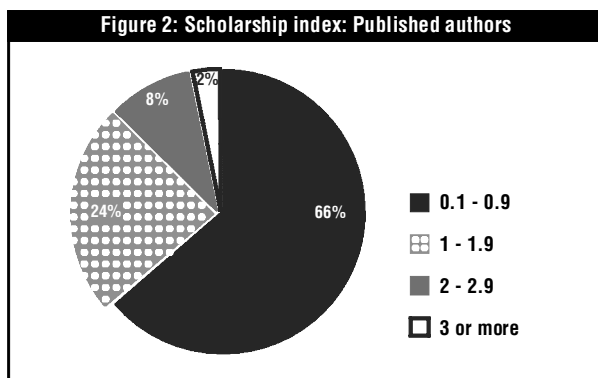


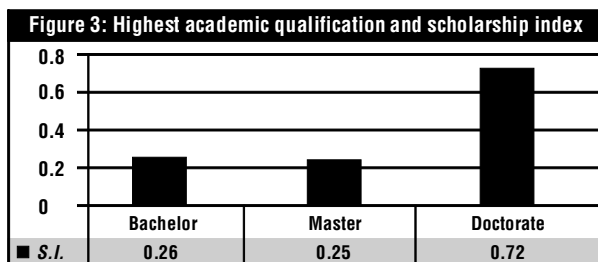
Figure 2 indicates that the majority of published authors published less than one journal article per year and almost none published three or more.

Demographic variables and scholarly productivity

Qualifications

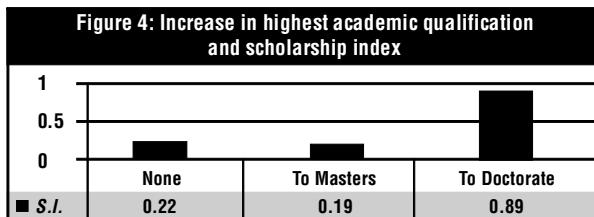
There was a positive association between scholarly productivity and highest academic qualification (figure 3). Nurse-academics with doctorates had a scholarship index three times greater than those with a masters or bachelor's degree ($p=0.0001$).

Figure 3: Highest academic qualification and scholarship index



There was also a positive association between scholarly productivity and increased qualifications (figure 4). Those who increased their qualifications during the previous five years had a scholarship index that was double those who did not ($p=0.04$).

Figure 4: Increase in highest academic qualification and scholarship index



Furthermore, those who acquired a doctorate had a scholarship index almost triple that of those who acquired a masters or who did not increase their qualifications ($p=0.0003$).

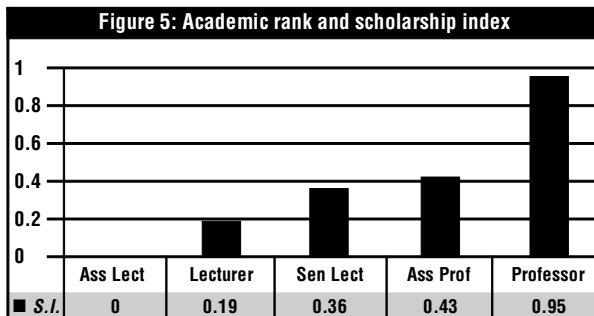
Membership of professional colleges

Nurse academics who held a fellowship in a professional college such as the Royal College of Nursing, Australia, (RCNA) or the New South Wales College of Nursing (NSWCON) had a significantly higher scholarship index (0.53) than those who held a membership (0.27) or did not belong to a college (0.36) ($p=0.32$). Nurse academics who held fellowships in both colleges had a significantly higher scholarship index (0.67) than those who held membership in the RCNA only (0.42) or the NSW College of Nursing (0.2) or neither college (0.36).

Academic rank

There was a positive association of scholarly productivity with academic rank (figure 5).

Figure 5: Academic rank and scholarship index



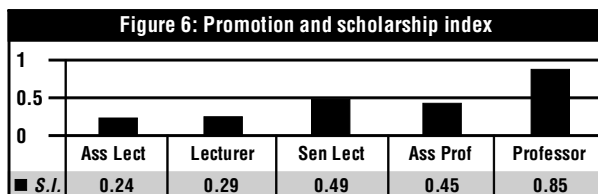
Associate lecturers are not publishing journal articles at all. Professors are publishing twice as much as associate professors or senior lecturers and five times as much as lecturers. ($p<0.0001$) There was no significant difference in the scholarship index for lecturers and senior lecturers.

There was a strong positive association between scholarly productivity and promotion. Those who were promoted within the previous five years had double the scholarship index of those who were not ($p=0.001$).

There was also a positive association between scholarship index and the level to which the nurse-academics were promoted (figure 6).

Those who were promoted to professor published significantly more than those who were promoted to lesser academic ranks ($p=0.007$). People who were promoted to

Figure 6: Promotion and scholarship index

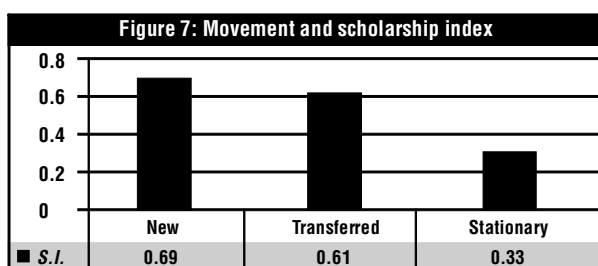


professor published almost twice as much as those who were promoted to senior lecturer or Level D and almost a two thirds again as much as those who were promoted to Level B or who were not promoted.

Movement

There was a positive association between scholarly productivity and movement into and within the system (figure 7).

Figure 7: Movement and scholarship index



Those who remained in the same institution during that period had a scholarship index of approximately half of those who were new or who had transferred to another university within the last five years ($p=0.003$).

Other demographic variables

There was no association of scholarly productivity with gender ($p=0.6$), state ($p=0.8$) or size of university ($p=0.8$). There was also no association with number of clinical certificates ($p=0.9$), type of clinical certificate ($p=0.4$), possession of functional diplomas such as a diploma of nursing education ($p=0.6$), or type of functional diploma ($p=0.5$).

Impact of factors

In order to calculate the effect of the group of variables, two logistic regression models were run. In the first, factors affecting whether or not the nurse academic was published or not were investigated. The only factor that was significant in predicting whether or not the nurse-academics published was a doctoral degree. However, the whole group of variables only accounted for 2% of the variance. For high and low publication rates, no factor was significant.

In summary, scholarly productivity in general was low. Scholarly productivity was related to level of academic qualification and acquiring a higher qualification and college fellowship. Positive associations were demonstrated between academic rank and mobility, both within the system in terms of promotion, and to movement

into the system. Scholarly productivity was not related to state of employment, gender, size of university, clinical certificates or functional diplomas.

DISCUSSION

In this study, most nurse academics who published produced the equivalent of one refereed article or less. This is in agreement with the earlier findings of Roberts (1996) five years previously. For this sample, the mean scholarship index was 0.28, less than 0.9 found in an earlier study (Roberts 1997); however, that study included other forms of scholarship such as book chapters, and conference presentations.

Nevertheless the present findings suggest that there has been a slight improvement in scholarly productivity in the last five years. In the earlier study, articles in nursing journals accounted for 23% of a scholarship index of 0.9, ie 0.25 (Roberts 1997). This indicates that the scholarly output for journal articles has risen slightly in the last five years to 0.28, particularly given that the scholarly output in the previous study may have been an over-estimate due to reporting bias. The slight increase in scholarship index observed in the present study might be linked to the 'downsizing' of the system if the group who left contained a disproportionate amount of the less productive nurse academics. That the rise is only slight might be explained by the continuing need for nurse-academics to upgrade their qualifications, which frequently precludes other scholarly activities.

The relatively low scholarly productivity demonstrated by this study could be related to lack of mentoring, with which it has been found to be associated in previous studies (Megel, Langston and Creswell 1988; Roberts 1997). The oral tradition of nursing has not lent itself to development of research and writing skills, and the applied nature of the discipline has traditionally valued practical skills rather than scholarly development. The skills of scholarship take time to develop and are more likely to flourish in an atmosphere of positive support and guidance. Collaborative writing also facilitates a greater variety of perspectives and insights as well as providing a positive environment for scholarly development.

The relatively low rate could also be related to nurses not yet having adopted the 'publish or perish' mentality that is prevalent in universities. Scholarly output is the benchmark by which we are judged in academia because it provides evidence of research. If we do not publish, then our work is unknown and our academic credentials are not fully established. Consequently, colleagues from other disciplines such as traditional university disciplines, medicine and allied health may consider our claim to be equal members of the university faculty and the health care team as spurious.

The slight improvement in scholarly productivity does not bring nurse academics within reach of the other

disciplines such as social science and humanities or even agricultural science or engineering. As stated earlier, the scholarly productivity of those disciplines was 1.5 and 1 respectively and this was based predominantly on research journal articles. This suggests that the productivity for nurse-academics at this time is approximately one quarter to one third of that of engineering a decade ago.

An explanation for this may be that nursing, as a relatively new academic discipline, has not yet fully developed the sort of research groups that are found in the other academic disciplines. These groups work on interwoven projects and membership in these research teams is associated with scholarly productivity. As is done in other disciplines, nursing needs to inculcate the value of research in its undergraduate programs if we are to develop nursing graduates with foundation skills in research and writing skills in addition to clinical competence. Traditional disciplines do this successfully by building on this foundation through honours or postgraduate pathways, thus instilling the philosophy of scholarship.

Higher qualifications and a rise in qualifications during the previous five years were clearly linked to scholarly output. The finding of the positive association between qualifications and scholarly output supports the earlier studies of Acorn (1990) and Ostmo (1986) for North Americans and the earlier studies of Roberts (1996; 1997) for Australia. The finding that the doctoral degree was the single predictor of scholarly productivity indicates that it is crucial for nursing academia to produce more doctorates if scholarly productivity is to increase. This can be promoted by mentoring, scholarships and preferential allocation of professional development leave.

The pathway for nurse academics has frequently been a long and arduous route through the various degree levels. As more nurses undertake honours degrees they may be able to complete their doctoral studies earlier. This would lighten the load of self and institutional expectation, and allow them more time to inculcate and hone the required skills in research and writing. It is the training in research and the development of skills in analytical thought and writing that lead to progress through scholarship. If this can be accomplished at an earlier age, the nurse academic will have a longer career period to be productive in terms of nursing scholarship.

For this sample, membership in a professional college was associated with scholarly productivity, particularly holding fellowships in both the RCNA and the NSWCON. It is likely that those who are committed to the profession are inclined to demonstrate that commitment both by publishing and belonging to one or both professional colleges. The finding that nurse academics who belong to both colleges have a higher scholarly productivity can perhaps be explained by the fact that professors are more likely to publish prolifically (Roberts 1997) and

to belong to colleges (Roberts and Turnbull 2002). The latter may relate to the higher remuneration given to professors.

Academic rank was also linked to scholarly output, as was found earlier by other studies of Roberts (1996; 1997). Professors publish considerably more than those of other academic ranks, which is not surprising since they are more likely to focus on scholarly development. The lower scholarly productivity at lecturer rank can be explained by the expectations of nurse academics at this level not necessarily being conducive to scholarly development. They are urged to maintain their clinical skills, demonstrate excellence in teaching, contribute to university governance, undertake community service, and engage in research, often studying for higher qualifications at the same time. Given such expectations, it is hardly surprising that scholarly output is low in a discipline still developing a tradition in research.

A rise in academic rank was also linked to scholarly output. It is not possible to know which is cause and which is effect, because a good publication list is one of the criteria for rising in academic rank, particularly to the rank of professor. However, it is important to note that qualifications were found to predict scholarly productivity better than academic rank.

In this study, those who had moved from one institution to another or who had newly joined the system published more prolifically than those who 'stayed put'. There may be several reasons for this. Firstly, as with promotion, to get a job at another institution, which may in fact be linked with promotion anyway, requires a superior publication list. This study did not distinguish between movement with and without promotion. However, a previous study (Roberts and Turnbull 2002) established that for Australian nurse academics, these factors were strongly associated. Secondly, those who did not move may be more engaged in governance activities since they are likely to have a great deal of corporate knowledge. This would reduce the opportunities for writing and publication. Finally, those who are not moving may tend to be nearer the end of their careers and thus less likely to publish.

In this study, no positive association was found between scholarly productivity and gender, state of employment or size of university. The findings for gender and state and territory support the earlier findings of Roberts (1996; 1997). It was surprising that size of university did not affect publication rates. Given the critical mass factor it might reasonably be expected that the larger universities would demonstrate higher scholarly productivity than smaller universities, yet this was not the case, at least for journal articles. It is easier in large universities to develop the type of research groups in which there is more potential for specialisation and thus specialised and prolific research output.

The strength of this study is that the data were taken from public documents and therefore represented a complete data set for which return rate was not an issue. Another strength was that it compared each individual's present demographic data with that of five years ago. A weakness was that it only determined scholarly productivity for journal articles and thus did not account for all of the nurse-academics' scholarly output. However, this approach had some advantages in that it facilitated comparisons with other disciplines because it conforms more closely with the DETYA criteria by which scholarly output is measured in the university system.

CONCLUSION

This study has contributed to the literature on nurse-academics' scholarly productivity by documenting it at the turn of the millennium. It has demonstrated that a doctoral qualification is the single strongest predictor of scholarly productivity, but that scholarly productivity is also associated with movement, academic rank, rise in academic qualifications or academic rank, and membership in professional colleges. This study has

shown that while scholarly productivity is still low compared with other, more established academic disciplines, it is nevertheless rising despite a decade of diminishing resources within universities. It is to be hoped that it will continue to rise.

REFERENCES

- Acorn, S. 1990. Scholarly productivity of university nursing faculty. *Canadian Journal of Nursing Research*, 22(2):7-13.
- Megel, M., Langston, N. and Creswell, J. 1988. Scholarly productivity: A survey of nursing faculty researchers. *Journal of Professional Nursing*, 4(1):45-54.
- Ostmoe, P. 1986. Correlates of university nurse faculty publication productivity. *Journal of Nursing Education*, 25(5):207-212.
- Roberts, K. 1995. Research, theoretical and clinical scholarship, connections and distinctions. In Gray, G. and Pratt, R. Eds. *Scholarship in the discipline of nursing*. Melbourne: Churchill Livingstone.
- Roberts, K. 1996. A snapshot of Australian nursing scholarship 1993-1994. *Collegian*, 3(1):4-10.
- Roberts, K. 1997. Nurse academics' scholarly productivity: Framed by the system, facilitated by mentoring. *Australian Journal of Advanced Nursing*, 14(3):5-13.
- Roberts, K. and Turnbull, B. 2002. From apprentices to academics: Are nurses catching up? *Collegian*, 9(1):24-30.
- Roberts, K. and Turnbull, B. 2002. Under review. A slice of scholarship: At the millennium (working title).

NON-ADHERENCE TO HIV ANTIRETROVIRAL MEDICATIONS: 'THE DRUGS ARE WORKING AND I'M A CONTINUING SUCCESS STORY'

Denise Cummins, RN, is a Clinical Nurse Consultant HIV/AIDS, Central Sydney Area Health Service, Australia

Garry Trotter, RN, is a Clinical Nurse Consultant HIV/AIDS, Royal Prince Alfred Hospital, Australia

Kristine H.J. Millar, RN, is a Trials Nurse, Immunology Department, Royal Prince Alfred Hospital, Australia

ACKNOWLEDGEMENTS

To our clients for sharing their experiences and their time. Geoff Turnham (CNS) for his assistance in recruiting clients. Karen Smith and Denise Neagle, Quality Assurance Department, Royal Prince Alfred Hospital, Camperdown, for their assistance in the statistical analysis. Jane Overland, Research Consultant, Nursing Research Centre for Adaptation in Health and Illness, Central Sydney Area Health Service and The University of Sydney, for her invaluable assistance in statistical analysis and editing.

Accepted for publication May 2002

Key words: HIV/AIDS, antiretroviral medication, adherence, nurse

ABSTRACT

Non-adherence to antiretroviral (ARV) regimens has been associated with HIV drug resistance. Anecdotal evidence in our client group, people living with HIV/AIDS infection in Central Sydney Area Health Service (CSAHS), suggested that non-adherence was an issue. Eighty three participants completed an anonymous questionnaire; with a 98% response rate. The mean age of respondents was 44 years with 68% over age 40 years. 68% of respondents missed doses of ARV, 54% because they forgot. 54% stated they did not report the non-adherence to their doctor. They were more likely to miss the lunch time dosage (n=49, p<0.05). The results demonstrate that non-adherence with medications is a significant issue and further research into strategies for interventions to aid adherence is required.

INTRODUCTION

Antiretroviral drug resistance has emerged as a result of Human Immunodeficiency Virus (HIV) gene mutations. Multi-drug resistance HIV (MDRHIV) has drawn attention to the issue of adherence to antiretroviral (ARV) regimes. HIV can rapidly mutate at the reverse transcriptase gene and protease gene and develop resistance to standard medication. It has been stated that a 95% compliance to drug regimens results in a viralogic failure rate of 20%, with the failure rate increasing even further as compliance rates decrease (Patterson et al 1998). The development of resistance to one ARV drug can lead to cross resistance with other ARV medications or the class of medications, therefore greatly limiting the future choice of effective treatment. For those with HIV, non-adherence may result in deterioration in health and lead to an increase in opportunistic diseases resulting in hospitalisation.

Although it would be reasonable to assume patients with a potentially fatal condition would be compliant with medication, previous research has shown this is not the case. For example, Rovel and colleagues (cited in Cramer 1996) found that the leading cause of organ rejection and failure in transplant patients was non-compliance with immunosuppressant medications. It seems that regardless of the illness or disease that is diagnosed - acute, chronic or terminal - it cannot be assumed that the client will be adherent to their prescribed medication regimen (Cramer 1996).

Anecdotal evidence in our client group, people living with HIV/AIDS infection in the CSAHS, suggests that non-adherence is a common problem. We therefore aimed to investigate the frequency and cause of non-adherence in our population. To this end, we surveyed patients with HIV/AIDS who accessed the outpatients' clinic at the Royal Prince Alfred Hospital, Sydney, NSW, and those who were seen by the HIV/AIDS Community Health Service (CSAHS).

METHOD

Setting and sample

The study was conducted within the CSAHS and was approved by the Institutional Ethics Review Committee. All clients living with HIV/AIDS and attending the outpatient department of the Royal Prince Alfred Hospital, a major teaching hospital, and those accessing the services of the HIV/AIDS Community Health Service over a two-month period were considered for this study. Inclusion criteria included that the subject be at least 17 years of age, be receiving related care within CSAHS, have a diagnosis of HIV/AIDS but were not newly HIV/AIDS diagnosed and did not have a known diagnosis of an HIV related dementia.

Instrument

A questionnaire was developed by the researchers that took into consideration factors found to be related to non-adherence in previous research in order to determine patient self reported adherence to medication as well as reasons for non-adherence. Although the questionnaire collected information from all clients, this study only reports on those currently prescribed ARV medications. The Likert score system was used for the subject to rate their confidence in taking medication as prescribed, confidence that the medication was working, drug and alcohol intake, social activity and educational issues regarding HIV and adherence.

Study design

Clients were approached to participate in this study during their outpatient visit or during a community visit. The anonymous self-administered questionnaire was completed voluntarily by the clients and returned to the researchers at that or subsequent visits. A total of 85 questionnaires were distributed.

Statistical methods

Statistical analysis was performed using the SPSS-X version 9.0 number and Number Crunching Statistical System 6.0 software package. Attempts were made to normalise non-parametric data. Where this was not possible, non-parametric tests were used. Continuous data were analysed by t-test and Mann Whitney tests. Categorical data was analysed by c2 test. Logistic regression was performed to determine independent predictors of non-adherence, eliminating non-significant variables for a base model, which included all variables with a significance of 0.1 on initial analysis. Results were regarded as significant at the 0.05 level (two-tailed). Results are expressed as mean and standard deviation (SD) for parametric data and frequency and percent, median and inter-quartile range (IQR) for non-parametric data.

RESULTS

Eighty-three questionnaires were completed, representing a 98% response rate. Five respondents were community based and were excluded from further analysis

as this group was underrepresented in the sample. Ten respondents who were not prescribed ARV medications were also excluded from analysis. Therefore the following results refer to the remaining 68 respondents taking ARV medication at the time of the survey.

The respondents were predominantly male (97.1%). The mean age of respondents was 44 (SD: 9 yrs), which is much older than other studies on HIV adherence (Singh et al 1996). The majority of respondents (68%) were over age 40.

Overall, 68% of subjects reported missing medications at some time. Those in the 36-45 age group were more likely to miss medications than other age groups (72.7% vs 27.3%, 32.83%; $c2(df-2) = 1$; $p=0.044$). The majority (77%) of respondents taking 10 pills or less reported missing pills at least occasionally. Adherence was greater in individuals prescribed more medication (between 11-30 pills per day), with only 58% of this group reporting missing medication ($c2(df-1)=1$; $p<0.05$).

The timing of the dose of medication was found to be a significant determinant of missed medication, with 62% of individuals reporting missing their lunchtime dose ($c2(df-1) = 1$; $p=0.007$). Respondents were also more likely to miss medication if they had consumed alcohol (40% vs 4%, 75.75%; $c2(df-1) = 1$; $p=0.042$).

The most frequently cited reason for missing medication was because the respondent forgot (82%). Logistic regression found that forgetting was the only independent predictor associated with non-adherence, ($p=0.00002$), accounting for 25% of the variance.

Factors considered, but found not to be statistically significant ($p\geq 0.05$) in influencing adherence include age, the use of a protease inhibitor (PI) regimen versus a PI sparing regime, confidence in the medications working, education concerning medication issues, HIV/AIDS virological status, number of HIV/AIDS related hospitalisations, use of other substances including recreational drugs.

The majority of respondents (65%) had difficulty telling their doctors about missing medications. Reasons cited for not reporting missed medication are listed in Table 1.

Reasons	No. of respondents
'did not think it was important because only a few doses were missed'	18
'thought the doctor would lecture me'	8
'I don't want the doctor to think I don't care'	6
'there were more important things to discuss'	4
'I was concerned it would affect how I'm treated'	3
'I don't want to upset the doctor'	3
Other	2

DISCUSSION

This study used a questionnaire design that was based upon findings from a number of previous adherence/compliance studies and the researchers experiences within this clinic (Holzemer et al 1999; Chesney 1997; Cramer 1996). This cohort includes people at different stages and duration of their HIV or AIDS process. Accordingly, this study has captured the diverse experiences these people face daily with taking their ARV medications. The results of this study have identified a number of issues that have been previously shown to be associated with non-adherence.

It has been previously found that the complexity of the medication regimen may affect adherence (Atlice and Friedland 1998; Gathe 1998; Levine 1998; Chesney 1997; Crespo-Fierro 1997; Deyo et al 1981). Regimens that contain a PI usually introduces changes in the number of pills taken per day, increase in frequency of medication and dietary restrictions. In this study, when specifically looking at individual PI medication, the majority of individuals who had soft gel saquinavir (Fortovase Roche®) as part of their regime admitted to missing doses, this figure was approaching statistical significance. We speculated that this could be attributed to the number of soft gel saquinavir pills, as the current recommended dose is 18 pills divided into three times a day. Given that this is possibly a fraction of the pill burden per day, the number of saquinavir may be enough to tip the scales in favour of non-adherence.

Adherence has been shown to be affected by the number of daily medications a person is prescribed. While Cramer (1996) questioned why many women fail to take their daily oral contraceptive pill, others concluded that fewer pills aid adherence (Rabkin and Chesney 1998; Chesney 1997). We identified that individuals taking between 11-30 pills per day were less likely to miss pills. Why this number of pills per day would incur a lesser degree of non-adherence is difficult to identify. For those taking more than 30 pills per day, perhaps the more complex regimens, greater than three types of ARV medications, incur a greater number of pills and may require a more focused approach to the medication regimen.

Individuals were most likely to miss their lunchtime dose, while a lesser percentage was missing their evening ARV doses. Possible reasons for this include commitments - if going out for the day a person may forget to take medications with them or may anticipate getting home in time to take medications but get held up and so miss this dose; a need for privacy -colleagues at work may not know the person is HIV positive and they may have some difficulty taking the medications in private; or forgetting - people become involved in daily events and simply forget their medications. Adherence to medication regimen can also impact on lifestyles and routines and require considerable adjustment of these. Lifestyle and daily routines are issues that should be incorporated into prescribing medication and discussing adherence.

We propose that the client should be encouraged to discuss lifestyle and routines when being prescribed ARV medication. In short, health care providers need at times to be flexible and creative in their education regarding medication adherence.

It has previously been found that a positive effect on adherence could be attributed to a client having confidence in that ARV medication is working (Cadman 1998; Levine 1998; Rabkin and Chesney 1998; Bundura 1982). The more confident the respondents considered they were in being able to take their medication as prescribed the more adherent they were. Future educational strategies need to include empowering the individual to have the confidence in themselves and improving the person's perception that they have the ability to take medications as prescribed.

Education concerning the effects of HIV on the immune system and its implication for disease progression, information on ARV medication including side effect profile, resistance and cross-resistance has been shown to have a positive effect on adherence (Cadman 1998). Ninety eight of the respondents considered they had been well educated by health care workers and believed they had a good to excellent knowledge of side effect profiles, a good understanding of viral load and CD4 levels and of resistance. Yet, 68% stated they missed ARV medication some of the time.

While previous studies have shown that regular medical follow up and support may possibly influence adherence, this was not found to be the case in our population (Levine 1998; Crespo-Fierro 1997; Williams 1997). However, a number of respondents in this study reported experiencing difficulty telling their doctors about missing medications. The main reason for not telling the doctor was that the subject 'did not think it was important because only a few doses were missed'. We have postulated that some people visit their doctors for specific concerns. Therefore, a multidisciplinary team approach may provide more avenues for the client to feel able to disclose and discuss issues concerning adherence.

'Partying' or taking recreational drugs was not found to have any effect on adherence. Alcohol was significant when assessing subjects missing their medication, although it was not an independent predictor to missing medication. Past experiences in our clinic have illustrated that some clients make an informed decision to omit medication when planning a night out that would involve drinking alcohol and/or recreational drugs, so as to avoid undesirable side effects.

In our cohort, 55 people were over 36 years of age, with those in the 36-45 age group more likely to miss medications than other age groups. While age has not been identified in this study as significantly affecting adherence, age has been identified in other research as having some affect on adherence with medication (Holzemer et al 1999; Cramer 1996; Singh et al 1996; Lee and Tam 1979). We did not identify any contributing factor, such as full-time work, as to why this age group

would be more likely to miss medication. On the basis that this population will continue to grow older it is important to identify the reasons for this age group missing medications, as with ageing the development of co-morbidities could incur an increase in the number of medications to be taken.

As shown in this study, forgetting accounts for 25% of the variance. Forty-one clients reported forgetting to take a drug some of the time. Forgetting medication has been highlighted in other studies on adherence; in this study we have identified forgetting as a major contributing factor for non-adherence (Weidle et al 1999; Gallant and Block 1998; Levine 1998; Nissele 1998; Crespo-Fierro 1997; Ungvarski 1997).

We are aware that some of the respondents use reminder devices such as diaries, watch alarms, notes around the house and dosette boxes. When respondents were asked to share experiences regarding HIV and medication, a number of subjects commented on the usefulness of dosette boxes and the need for alarms/watches, preferably those that could be set to alarm a number of times during the day.

There were several limitations to this study including the low number of female respondents thus possibly giving results some gender bias. Community clients were recruited to the study but we were unable to overcome this gender bias. An age bias may also be considered, as 68% of respondents were over 40 years of age. Issues pertaining to medications may be different in women and a younger age group. Newly diagnosed individuals were excluded from this study and may have specific needs initially when taking medications. Further research is warranted for these issues.

CONCLUSION

Non-adherence is individual, it is not disease specific. While this study has illustrated some important aspects associated with non-adherence, it has also highlighted some possible strategies for assisting adherence. Adherence patterns need to be assessed in those who do not frequent specialist clinics for example: community based clients, women and women with children. As a consequence of the findings from this study, nurses have implemented changes in our clinic. We have increased our focus on assessing the clients' daily routine and suggesting memory aids for the individual to assist with adherence. This process also enables staff to support and follow-up adherence and other issues that may be important to the client. This follow-up is carried out in both the outpatient department and in the individual's home. While our education initiatives are more individually focused we need also to develop initiatives for the 35-44 age group

The future holds a number of concerns relating to adherence by people who are HIV positive. It had previously been stated that the risk associated with old age might not be an issue with HIV positive people (Metha et

al 1998), we believe this not to be the case. The consumption of more medication for illnesses such as hypertension and diabetes could open a Pandora's box of issues relating to non-adherence, not to mention drug interactions. Based on this premise, future compatibility of medications, number of medications and medication regimes could become an increasing dilemma for both the patients and health care providers. To assist our clients in obtaining and maintaining the quality of life they are aiming for, the need to assist them with adherence is of paramount concern for the health care provider if we are to make a positive impact on the clients' future.

REFERENCES

- Altice, R.L. and Friedland, G.H. 1998. The era of adherence to HIV therapy. *Annals of Internal Medicine*. 129:503-505.
- Bundura, A. 1982. Self-efficacy mechanism in human agency. *American Psychologist*. 37:122-147.
- Cadman, J. 1998. Obstacles to Treatment Success. *Gay men's health crisis treatment issues*. 12(10).
- Chesney, M. 1997. Compliance: How you can help. With the advent of multidrug regimens, adherence to therapy is more than a challenge, it is a necessity. *HIV Newslite*. www.hivnewslite.com/issues/vol13issue3/comply.html. (3)3.
- Cramer, J.A. 1996. Compliance with contraceptives and other treatments. *Obstetric Gynecology*. 88:4S-12S.
- Crespo-Fierro, M. 1997. Compliance/Adherence and care management in HIV disease. *Journal of the Association of Nurses in AIDS Care*. 8:43-54.
- Deyo, R.A., Inui, T.S. and Sullivan, B. 1981. Noncompliance with arthritis drugs: Magnitude, correlates, and clinical implications. *Journal of Rheumatology*. 8:931-936.
- Gallant, J.E. and Block, D.S. 1998. Adherence to antiretroviral regimens in HIV-infected patients: Results of a survey among physicians and patients. *Journal International Association of Physicians AIDS Care*. 4:32-5.
- Gathe, J. 1998. Improving patient adherence with antiretroviral therapy: Evaluation of once-daily administration of didanosine. *AIDS*. 12 (suppl 3:S23-S26).
- Holzemer, W.L., Corless, I.B., Nokes, K.M., Turner, J.G., Brown, M.A., Powell-Cope, G.M., Inouye, J., Henry, S.B., Nicholas, P.K. and Portillo, C.J. 1999. Predictors of self-reported adherence in person living with HIV disease. *AIDS Patient Care STDs*. 13:185-197.
- Lee, P. and Tan, L.J.P. 1979. Drug compliance in outpatients with rheumatoid arthritis. *Australian and New Zealand Journal of Medicine*. 9:274-277.
- Levine, A. 1998. Antiretroviral therapy: Adherence. 8th Clinical Care Options for HIV Symposium. *Clinical Care Options for HIV Online Journal*. 4(2).
- Mehta, S., Moore, R.D. and Graham, N.M.H. 1997. Potential factors affecting adherence with HIV therapy. *AIDS*. 14:1665-70.
- Nisselle, P. 1998. Compliance: The secret of success. *Australian Doctor*. October 23. 44.
- Patterson, D.L., Swindels, S., Mohr, J.A., Brester, M.K., Vergis, E.N., Squier, C., Wagener, M.M. and Singh, N. 1998. Adherence with protease inhibitor therapy for human immunodeficiency virus infection [Abstract I-172]. 38th ICAAC, San Diego, CA.
- Rabkin, J.G. and Chesney, M. 1998. Adhering to complex regimens for HIV. *Gay Men's Health Crisis Treatment Issues*. 12(4). April.
- Singh, N., Squier, C., Sicek, C., Wagener, M., Hong Nguyen, M. and Yu, V.L. 1996. Determinants of compliance with antiretroviral therapy in patient with human immunodeficiency virus: Prospective assessment with implications for enhancing compliance. *AIDS Care*. 8:261-269.
- Ungvarski, P. 1997. Adherence to prescribed HIV-1 protease inhibitors in the home setting. *Journal of the Association of Nurses in AIDS Care*. 8:37-45. (Supplement).
- Weidle, P., Ganea, C.E., Irwin, K.L., McGowan, J.P., Ernst, J.A., Olivo, N. and Holmberg, S.D. 1999. Adherence to antiretroviral medications in an inner-city population. *Journal of Acquired Immune Deficiency Syndrome*. 22:498-502.
- Williams, A. 1997. Antiretroviral therapy: Factors associated with adherence. *Journal of the Association of Nurses in AIDS Care*. 8:18-23. (Supplement).

PREDICTORS OF INFLUENZA VACCINATION AMONGST AUSTRALIAN NURSES

Werner Campos, MHLthSc(Hons), MPH, is a Physiotherapist, Holsworthy Military Hospital, Australia

Bin B. Jalaludin, MBBS, PhD, FAFPHM, is Deputy Director, Epidemiology Unit, South Western Sydney Area Health Service, Australia

Accepted for publication April 2002

Key words: nurses, influenza, immunisation, preventative health

ABSTRACT

The Centers for Disease Control and Prevention recommend that health care workers receive influenza immunisation annually. There is no available data on factors predicting influenza immunisation or nurses' acceptance of the need for immunisation in Australia. To determine the predictors of influenza immunisation amongst nurses in Australia, a cross sectional survey of nurses in a 200-bed hospital was conducted. 232 of the 290 questionnaires were returned. In a logistic regression model, nurses having had previous influenza vaccination, severity of influenza if contracted, and, knowledge that the vaccine does not lead to clinical signs of influenza, were the factors most predictive of intention of influenza vaccination in the immediate future. Influenza immunisation rates among nurses may be increased by strategies addressing misconceptions about influenza immunisation and reinforcing predictors of influenza immunisation through education programs targeted to nurses.

BACKGROUND

The Centers for Disease Control and Prevention (CDCP) recommend that health care workers (HCWs) be immunised against influenza (CDCP, 2001). The reason for this is that influenza immunisation of HCWs reduces the exposure of the influenza virus to patients (Thomson et al 1999). HCWs are potential reservoirs for transmission of influenza to patients and have been implicated in several nosocomial outbreaks (Coles, Balzano and Morse 1992; Ikeda, Drabkin and Birkhead 1992).

In Australia, during 2000, 2,937 deaths occurred which were attributed to pneumonia and influenza (ABS 2001). In the period of 1999-2000 a total of 2,591 admissions to Australian hospitals were recorded for influenza (Roche et al 2001). HCWs may be at an increased risk of contracting influenza, especially during nosocomial outbreaks. They may serve as vectors for transmitting influenza to others, including high risk patients. Although an important target group for immunisation (CDC 2001), nurses fail to receive the influenza vaccine each year in adequate numbers and this may be related to their beliefs and knowledge of influenza and its vaccine (Harbarth et al 1998).

In a New Zealand study, 45% of nurses did not believe in immunisation and 33% believed that they did not fall into a group in which influenza immunisation would be recommended (Walls 2000). Nurses are more reluctant to receive immunisation than other HCWs. Furthermore, nurses more often ignore the likelihood of contracting influenza and are less convinced of vaccine efficacy (Harbarth et al 1998). However, nurses who have been immunised previously are more likely to receive the influenza vaccine (Watanakunakorn, Ellis and Gemmel 1993).

In the hospital where this study was conducted, influenza immunisation has been offered free of charge to HCWs during the last two years. In the year before this study, less than 10% of all HCWs received the free vaccination (Mikhail 2001 personal communication). There is a lack of information in the scientific literature about the predictors of influenza immunisation uptake in

nurses in Australia. The purpose of this study was to determine possible predictors of intention of receiving the influenza vaccine in the immediate future in a sample of Australian nurses, by way of a cross-sectional survey.

METHOD

The questionnaire used to obtain information about factors that may possibly be predictive of influenza immunisation in the immediate future was based on predictors reported by Chapman and Coupe (1998). Questions asked related to the beliefs and knowledge of influenza and its vaccine. The questionnaire was included with the payslip of every nurse employed in a 200-bed hospital in New South Wales, Australia. The completed questionnaires were deposited anonymously in a ballot box located in each work area. An incentive (participation in a raffle for cash vouchers) was provided for those who completed the questionnaire.

Statistical analysis consisted of contingency tables and the chi-square test for categorical variables. A logistic regression model was used to identify factors independently associated with intention of receiving influenza immunisation in the near future. The results are presented as odds ratios (ORs) with associated 95% confidence intervals (CIs). The analyses were conducted using the SAS V8 statistical software. A p-value of less than 0.05 was considered as denoting statistical significance.

RESULTS AND DISCUSSION

232 of the 290 (80%) questionnaires were returned. 47% of respondents were aged between 21-39 years; 49.6% were 40-55 years old; and, 3.4% were aged 56-65 years. Just over 90% were women. About 23% of respondents had been immunised against influenza in the past.

Intention of receiving the influenza immunisation in the near future was significantly associated with eight factors (table 1). Other than age, the three greatest proportions were associated with:

- perception that if influenza is contracted it will affect the individual nurse severely;
- perception of a high likelihood of contracting influenza if not vaccinated; and,
- previous influenza vaccination.

Intention of receiving the influenza vaccine in the near future was further explored by the use of a multivariate logistic regression model. This model identified three significant independent predictors of receiving the influenza vaccine in the near future (table 2). The predictors identified were nurses' previous vaccination, perceived severity of influenza if contracted and knowledge that the influenza vaccine does not lead to clinical influenza.

This study is one of the first to address predictors of influenza immunisation among Australian nurses. Nichol and Hauge (1997) found previous vaccination in HCWs an important independent predictor of the receipt of the influenza vaccine (OR=5.4). This study found similar results with an OR of 3.5. The difference in the OR in the study by Nichol and Hauge (1997) and this study may relate to differences between the populations studied; 26.2% of HCWs in the Nichol and Hauge study were doctors.

Although the influenza vaccine consists of inactivated killed virus and is non-infectious (CDC 2001), in the present study, a large number of nurses reported that having the influenza vaccine was likely to lead to clinical symptoms of influenza. Further education of hospital nurses about influenza and immunisation may be required to correct this misconception. Knowledge that the vaccine does not lead to clinical symptoms of influenza was an independent predictor to receiving the influenza vaccine (OR=2.3). Heimberg et al (1995) found similar results in their study. However, that study sample included only about 13% of nurses (Heimberger et al 1995). The perception that contracting influenza would significantly affect nurses was another independent predictor of the intention to have the influenza immunisation in the near future (OR=4.6). This factor has not been reported previously in the literature as a predictor of influenza

Table 1: Factors associated with intention of receiving influenza immunisation in the near future

	High intention of receiving influenza immunisation	Low intention of receiving influenza immunisation	p-value
Proportion of nurses who perceived a high likelihood of contracting influenza if not vaccinated	53.2%	20.3%	0.0001
Proportion of nurses who perceived that if influenza was contracted it will affect them severely	60.6%	17.1%	0.0001
Proportion of nurses with previous influenza vaccination	38.5%	8.9%	0.001
Proportion of nurses who perceived the influenza vaccine to be very effective	42.2%	21.1%	0.002
Proportion of nurses older than 40 years of age	61.5%	45.5%	0.011
Proportion of nurses who perceived a high likelihood of contracting the influenza from another person	71.6%	53.7%	0.007
Proportion of nurses who believe that influenza immunisation may lead to clinical symptoms of influenza	21.1%	40.7%	0.002

Table 2: Independent predictors of the intention of receiving the influenza vaccine in the near future from a multivariate logistic regression model

	Adjusted odds ratio* (95% CI)	p-value
Nurses with previous influenza immunisation	3.5 (1.5, 7.9)	0.003
Perception that if influenza is contracted it will severely affect health	4.6 (2.2, 9.7)	0.001
Belief that influenza immunisation less likely to lead to clinical symptoms of influenza	2.3 (1.1, 4.7)	0.02
* An odds ratio greater than one indicates a greater intention of receiving influenza vaccine in the near future and an odds ratio of less than one indicates a lesser intention of receiving the influenza immunisation in the near future		

immunisation uptake in nurses. It is possible that nurses related this factor to previous influenza infection, although this question was not asked in the questionnaire.

Walls (2000) found a 15% influenza vaccination rate in a sample of New Zealand nurses. In this study sample, approximately 23% of nurses had previously received the influenza vaccination in any one year. A possible explanation for the low uptake of influenza may be that nurses do not consider influenza a serious illness. It could be suggested that hospital-based nurses are not aware of the incidence and severity of influenza as these patients are usually managed in a primary care setting.

In the present study, the reported uptake of the influenza vaccine is similar to the findings of Harbarth et al (1998). These investigators reported that 20% of nurses had been immunised against influenza following an education program. Prior to the education program, the rate of influenza vaccination amongst these nurses was 5%. Findings such as this reinforce the authors' suggestions that education programs will improve influenza immunisation uptake.

CONCLUSION

In this study, about 53% of nurses had a low intention of receiving the influenza vaccine in the immediate future. This is alarming as nurses have the closest and most intimate contact with patients and still remain the most reluctant group to accept immunisation for influenza (Harbarth et al 1998). Therefore, there is an obvious need to increase influenza uptake rates in hospital-based nurses.

A number of health behavioural change theories, for example, the health belief model, and the theories of reasoned action and planned behaviour (Nutbeam and Harris 1998) are underpinned by, among other factors, beliefs and perceptions about the benefits and costs of changing health behaviours. Hence, information from this and other similar studies can be used to inform effective health education campaigns aimed at favourably changing nurses' behaviour towards influenza immunisation.

A limitation of this study is the small sample size, however the response rate of 80% was high. The study results and conclusion are valid and generalizable. This is suggested by the high response rate, together with the consistency of our results with other published studies.

REFERENCES

- Australian Bureau of Statistics. 2001. Causes of Death, Australia 2001. ABS Cat. No 3303. Australian Government Printing Service. Canberra:ABS.
- Centers for Disease Control 2001. *Prevention and control of influenza: Recommendations of the advisory committee on immunization practices (ACIP)*. MMWR 50:1-46.
- Chapman, G.B. and Coups, E.J. 1999. *Predictors of influenza vaccine acceptance among healthy adults*. Preventive Medicine. 29:249-262.
- Coles, F.B., Balzano, G.J. and Morse, D.L. 1992. An outbreak of Influenza A (H3N2) in a well immunised nursing home population. *Journal of the American Geriatric Society*. 40:589-592.
- Harbarth, S., Siegrist, C., Schira, J., Wunderli, W. and Pittet, D. 1998. Influenza immunisation: improving compliance of health care workers. *Infection Control and Hospital Epidemiology*. 19:3337-42.
- Heimberger, T., Chang, H., Shaikh, M., Crotty, L., Morse, D. and Birkhead, G. 1995. Knowledge and attitudes of health care workers about influenza: Why are they not getting vaccinated. *Infection Control and Hospital Epidemiology*. 16:412-414.
- Ikeda, R.M., Drabkin, P.D. and Birkhead, G.S. 1992. *Journal of the American Geriatric Society*. 40:1288.
- Nichol, K.L. and Hauge, M. 1997. Influenza vaccination of health care workers. *Infection Control and Hospital Epidemiology*. 18:189-194.
- Nutbeam, D. and Harris, E. 1998. *Theory in a nutshell. A practitioner's guide to commonly used theories and models in health promotion*. University of Sydney, Australia. ISBN:1-86451-383-7.
- Roche, P., Spencer, J., Merianos, A. and Hampson, A. 2001. Annual report of the national influenza surveillance scheme, 2000. *Communicable Disease Intelligence*. 25(3):107-112.
- Thomson, P., Cuddeford, G. and Mitchell, P. 1999. Hospital staff absenteeism following an influenza immunisation program. *Journal of Occupational Health and Safety*. 15(3):231-242.
- Walls, C. 2000. Reasons that health care workers decline influenza vaccination in a New Zealand hospital environment. *Infection Control and Hospital Epidemiology*. 21(4):249-250.
- Watanakunakorn, C., Ellis, G. and Gemmel, D. 1993. Attitude of health care personnel regarding influenza immunization. *Infection Control and Hospital Epidemiology*. 17:17-20.

SYSTEMATIC REVIEWS OF INTERPRETIVE RESEARCH: INTERPRETIVE DATA SYNTHESIS OF PROCESSED DATA

David Evans, RN, PhD, is a lecturer, Department of Clinical Nursing, Adelaide University, Australia

Accepted for publication April 2002

Key words: systematic reviews, interpretive research, qualitative synthesis

ABSTRACT

This paper discusses the synthesis of qualitative data during the systematic review of interpretive research. Current approaches to data synthesis can be broadly classified as either descriptive or interpretive. Descriptive data synthesis is achieved through narrative and tabulation. While a number of different terms have been used, interpretive synthesis is achieved through processes similar to those used by primary interpretive researchers. However, there has been only limited professional discussion and debate of this issue and existing methods are in need of further investigation and the validity and usefulness of the product of this synthesis examined.

INTRODUCTION

With increasing emphasis being placed on the need to base clinical practice on high quality research evidence, the importance of systematic reviews has gradually increased. Issues such as the growing volume of health care literature and variable quality of published research have increased the influence of these reviews (Evans 2001). Systematic reviews identify, appraise and summarise the best available research evidence and because of this, have become an integral component of the evidence-based health care movement. The methods used during systematic reviews have undergone considerable methodological development, and as a consequence, there are now clearly defined processes and procedures to ensure the review is both systematic and rigorous (Evans and Kowanko 2000).

However, current systematic review methods have been concerned with the effectiveness of health care, thus the methodological development has focused on the randomised controlled trial (RCT) (Evans and Kowanko 2000). The reason for this is that systematic reviews have been concerned with cause and effect relationships, and the RCT has provided the most valid evidence. More recently, the focus of these reviews, and that of meta-analysis, has broadened to include observational studies (Blettner et al 1999; Martin and Austin 2000). However, despite this broader focus, systematic reviews are still predominantly concerned with numerical data.

For questions that concern issues other than effectiveness, existing review methods are not always appropriate. This is because research exploring the appropriateness or feasibility of health care often produces narrative rather than numerical data. This means current systematic review methods are unable to synthesise the findings of this research and as a consequence, it has been excluded from these reviews. This exclusion of non-RCT research has important implications for the nursing profession, which has a considerable investment in a

number of different research methods. This is most evident in nursing's rich history of investigation of health care issues using interpretive methodologies. As systematic reviews are increasingly being used to influence health care decisions, the exclusion of interpretive research from systematic reviews also results in its exclusion from the decision making process. This means other equally important views of the world are not taken into consideration during the decision making process, and so the effectiveness of health care continues to be the primary focus of many health care decisions.

SYSTEMATIC REVIEWS AND INTERPRETIVE RESEARCH

There has been a small but growing interest in methods by which the findings of interpretive research can be incorporated into reviews. The basis for this is that isolated interpretive studies do not in themselves contribute significantly to the understanding of phenomena (Jensen and Allen 1996) and that merging the findings generated by multiple studies will increase the robustness and transferability of the results. However, there are major differences between the integration of experimental and interpretive research. Reality for the interpretive researcher, and therefore the interpretive reviewer, is viewed as multiple and constructed (Sandelowski 1993). This conflicts with the intent of systematic reviews being reproducible. This is congruent with the experimental research they summarise. As a consequence, methods used for the synthesis of experimental research, focusing on numerical data and homogenous results, will be inappropriate for interpretive research.

The optimal approach for the synthesis of interpretive data is not clear and existing reviews have used a range of different methods. Meta-synthesis is one such approach and has been used in a number of reviews of interpretive studies (Jensen and Allen 1994; Sherwood 1997; Ogen-Burke et al 1998). In addition to meta-synthesis a number of other approaches have also been used. During one review the method of data synthesis was content analysis (Suikkala and Leino-Kilpi 2001), another collated major findings then visually searched the list for key themes (Neill 2000). A review by Barroso and Powell-Cope described their synthesis process as a constant comparative analysis (Barroso and Powell-Cope 2000), while another used a continuous comparison approach derived from grounded theory methods (Kylma and Vehvilainen-Julkunen 1997). A review by Lemmer et al used NUD*IST data handling software to aid in the analysis of data from individual studies (Lemmer et al 1999). A number of reviews incorporated both quantitative and qualitative studies in the same review (Jensen and Allen 1994; Neill 2000; Suikkala and Leino-Kilpi 2001).

These examples serve to demonstrate the variability that exists in current methods for synthesising data generated by interpretive studies. There is little

consistency between reviews, and the reporting of data synthesis methods is often inadequate. However, in evaluating reviews that incorporate interpretive research, there are two common approaches used:

- descriptive synthesis, and
- interpretive synthesis.

Within each of these two broad categories there are a number of more specific approaches that have been used.

DESCRIPTIVE SYNTHESIS

Two methods commonly used during reviews of interpretive research that are best described as a descriptive synthesis include narrative summary and tabulation. The common theme in these methods is that they aim to describe what has been reported in studies, and make little attempt to re-interpret the published data. The descriptions generated during the review process provide the basis for the conclusions drawn by the reviewer.

Narrative summary: The most common approach used to summarise and present the findings of interpretive studies in reviews has been through a narrative discussion. A narrative summary in the context of this paper refers to a general descriptive discussion of the findings of research. This narrative discussion provides an overview of study findings, major themes and issues of importance. It has been used for topics such as women's experiences of abuse (Sleutel 1998), women's experience with biliary cirrhosis (Fahey 1999) and needs and wishes for food of people with terminal illness (Hughes and Neal 2000). While the narrative approach to summarising research has been criticised when used during systematic reviews addressing effectiveness, for interpretive research, a narrative discussion provides one way by which to summarise emerging themes.

However, as text cannot be summarised concisely as is done with numerical data, details of the studies such as methods used, populations and specific findings of individual studies will be lost in the broad descriptive summary. Additionally, summarising interpretive findings using narrative may also pose a number of threats to the validity of the review. Firstly, there are no clear processes and procedures and as a result, the validity of findings is threatened because of the many subjective decisions made while generating the narrative. That is, it is impossible to determine whether the narrative represents a fair and reasonable summary of the body of research, or more a reporting of the reviewer's personal views and opinions. Secondly, the lack of any clear processes and procedures for summarising data means there is unlikely to be a decision trail which is important if others are to judge the worth of the review. Finally, capturing and documenting the complexities of a topic that has a large body of research is difficult for any type of review. However, these difficulties are greater when a narrative summary is used. While these factors do not automatically

mean narrative summaries are not valid, demonstrating this validity can be difficult.

Tabulation: Tabulation, or presenting the characteristics of studies in tables, is another method used to summarise interpretive studies. With this approach, characteristics such as study population, setting and research methods can be listed. For example, Woodward and Webb made extensive use of tables to summarise a range of methodologically different research addressing women's anxieties surrounding breast disorders (Woodward and Webb 2001). Tabulation provides a descriptive synthesis of data that allows the reader of the review to compare results between studies and to formulate their own views of the body of research. Additionally, differences in study populations, methods of data collection and data analysis are more easily identified. As tabulation reduces studies to their key components, it can be used for topics that have a large body of research. However, tabulation only provides a list of study characteristics and therefore it cannot be used as the sole method of data synthesis.

In summary, descriptive syntheses provide a description of the body of research with minimal re-interpretation of the published data. While a narrative synthesis is often used on its own, tabulation must always be supplemented by narrative. The combination of narrative and tabulation provides the most comprehensive summary of qualitative research as the limitations of one method are complimented by the benefits of the other. Additionally, the combination of narrative and tabulation permits a large number of studies to be incorporated into a review, and as demonstrated by Woodward and Webb (2001), can be used to summarise a range of different types of research. However, while conclusions can be generated from the description of the phenomenon, these methods only provide a description, in that they document what has been reported and make no attempt to generate new understandings from published data.

INTERPRETIVE SYNTHESIS

A number of approaches have been used to re-interpret the data reported in published studies. The terms used to describe these processes include meta-ethnography, meta-synthesis, content analysis and qualitative synthesis.

Meta-ethnography: Noblit and Hare proposed meta-ethnography in 1988 as a framework for the summary of qualitative studies (Noblit and Hare 1988). The term meta-ethnography was used to highlight the fact that it was an interpretive alternative to meta-analysis. Noblit and Hare suggested that meta-ethnography was an attempt to develop an inductive and interpretive form of knowledge synthesis, and so provide a rigorous procedure for deriving substantive interpretations about a set of ethnographic or interpretive studies (Noblit and Hare 1988). Meta-ethnography synthesises findings of research

rather than the aggregation that is used during systematic reviews of RCTs.

Meta-synthesis: The term meta-synthesis has been used in the nursing literature to describe the interpretive data synthesis process (Sandelowski et al 1997). While meta-synthesis shares many similarities to meta-ethnography, it also incorporates some of the components of the systematic review process (Evans and Pearson 2001). Meta-synthesis is a framework for the synthesis of non-experimental studies relating to a phenomenon of interest. Like meta-ethnography, it focuses on the themes and descriptions generated by interpretive studies rather than the numerical data produced by experimental and observational research (Sherwood 1999). As these findings have been generated by multiple studies and therefore involve a range of different populations and circumstances, it creates a composite of descriptions of the phenomenon. It has been suggested that the greater degree of abstraction from the inductive process of comparison and synthesis produces results that are more generalisable to nursing practice (Sherwood 1999).

Content analysis: Content analysis has also been used as a method for synthesising research (Suikkala and Leino-Kilpi 2001). Content analysis has been described as a means to obtain simple descriptions of data (Cavanagh 1997), and to systematically and objectively describe and quantify phenomena (Downe-Wambolt 1992). Nandy and Sarvel note that it is an established research tool and is used to gain knowledge, new insights and a representation of facts (Nandy and Sarvela 1997). Content analysis has been used to describe a large variety of topics in a number of different mediums, such as music videos (DuRant et al 1997), women's magazines (Hill and Radimer 1996), professional journals (Armstrong and Standsfield 1996), and advertising (Pratt and Pratt 1995). In addition to the descriptive analysis, qualitative content analysis is also undertaken and differs from the numerically based analysis of the text (Morgan 1993). The descriptions of phenomena are achieved through the analysis of the meanings of words and phrases.

Qualitative synthesis: Some reviews of interpretive research described the synthesis process as a qualitative meta-analysis (Ogden-Burke et al 1998) or qualitative synthesis (Jensen 1994; Fredriksson 1999). However, these methods of synthesis were informed by the work of Noblit and Hare about meta-ethnography (Noblit and Hare 1988), and Sandelowski about meta-synthesis (Sandelowski et al 1997) and are similar to the previously described methods.

THE SYNTHESIS PROCESS

While the methods used to synthesise the findings from published interpretive research vary to some degree, there are many areas of commonality. Additionally, these methods of synthesis also share many similarities with

those used by primary researchers during the initial analysis of the primary data. Despite the different terms used to describe these methods, approaches to data synthesis involve four distinct phases:

1. gather the sample of studies,
2. identify the key findings of each study,
3. determine how these findings relate to those of other studies, and
4. bring common findings together to generate a description of the phenomenon.

The specific steps in the synthesis of interpretive studies as described in published reviews include:

1. Gather the sample

a Determine the unit of analysis

The type of studies that will be included in the review are determined and then documented in the inclusion criteria of the review protocol.

b Locate the studies

A search of databases and other mediums is undertaken to locate relevant studies.

c Select the sample

Studies that are identified during the search are selected for inclusion in the review using the inclusion criteria. This selection process ensures a homogeneous sample, in terms of the characteristics of studies, is included in the review.

2. Identify the key findings

a Read and re-read study reports

Repeated reading of the reports to develop a sense of the studies as a whole. During the reading attention is paid to both the details of accounts and to what each study says.

b Collect findings

The key findings are collected from each study, and are then listed in a single file. This listing of major results, concepts and propositions reduces studies to their key components.

3. Relate themes across studies

a Identify themes

The list of major findings is searched to identify common themes. Differences between studies are compared and contrasted and similar themes identified.

b Collate themes

The key findings from studies are grouped and categorised into areas of similarity. These relationships between studies are examined for key phrases and explanatory themes.

c Sub-themes

From the collated themes, sub-themes are identified. This process results in a progressive refinement of the understanding of the phenomenon.

d Examine the analysis

The themes and sub-themes are re-examined to interpret the content of each theme, and to identify consistencies and incongruities.

4. Describe the phenomenon

a Create the description

Each theme is written up referring back to the original study to check the accuracy of the description.

b Express synthesis

The findings of the synthesis are written up describing all themes and sub-themes, and supporting each with exemplars from original studies.

DISCUSSION

The description of interpretive data synthesis reported in this paper represents an overview of common approaches used in published reviews. These approaches can be broadly categorised as descriptive and interpretive, with one providing a summary of findings, the other generating a new interpretation from the published data. The usefulness and validity of the re-interpretation of processed data has yet to be adequately investigated. However, it should also be noted that the usefulness and validity of the findings of the descriptive synthesis have also not been fully investigated, despite its frequent use.

Another dilemma arises from the philosophical grounding of interpretive research, where reality is viewed as multiple and constructed, and as a consequence, no two studies produce identical results. Opposing this, systematic reviews use standardised methods to maintain the rigour of the review, and like the experimental research they summarise, systematic reviews are reproducible. In contrast, as with the primary research they summarise, no two systematic reviews of interpretive studies are likely to produce identical results. This potential difference in results challenges commonly held views about systematic reviews. Despite these multiple realities, interpretive systematic reviews will produce a composite of descriptions to capture the essence of the phenomenon. However, it is not clear whether the differences in the realities of the primary researcher and reviewer can be reconciled during the review process.

While the need for further investigation and refinement of existing interpretive review methods is acknowledged, there are a number of potential benefits to be gained from these reviews. The most important benefit is the ability to pool the findings from multiple interpretive studies. This process allows the reviewer to systematically investigate,

compare and contrast multiple accounts of a phenomenon. The synthesis process allows a composite description of the phenomenon to be generated. This description is strengthened because it has been generated from multiple populations, settings and circumstances. In addition to this, the inclusion of interpretive research in reviews provides a means by which this evidence can contribute to evidence-based health care. Through these interpretive systematic reviews another perspective is introduced into the decision making process and so helps shape health care to better meet the needs of the consumer.

The methods for the interpretive synthesis of processed data are still at an early stage of development. To ensure this development continues two major activities must be pursued. Firstly, more reviews of qualitative research are needed as these represent the initial exploration of this area. These reviews allow the exploration of this method, provide a repertoire of approaches and help delineate the boundaries. Secondly, greater critical debate of these reviews is urgently needed. Existing published reviews have generally been accepted uncritically, with the methods used and product of the synthesis remaining unchallenged. This passive acceptance of a process that is still in a developmental stage does little to further this development.

CONCLUSION

In conclusion, while there is a growing interest in the synthesis of interpretive research in systematic reviews, further methodological development is needed. As a number of these reviews have been published using a range of different synthesis methods, these reviews represent the initial exploration of this area. The two broad approaches to the synthesis of interpretive data in published reviews have been through a descriptive or interpretive synthesis. However, the optimal method has yet to be determined. If interpretive research is to have a significant impact on the evidence-based health care movement, then this is an area that warrants further investigation.

REFERENCES

- Armstrong, L. and Standsfield, J. 1996. A content analysis of the professional journal of the British Society of Speech Therapists I: The first 10 years. Spotlight on 'speech' 1935-1945. *European Journal of Disorders of Communication*, 31(2):91-105.
- Barroso, J. and Powell-Cope, G.M. 2000. Metasynthesis of qualitative research on living with HIV infection. *Qualitative Health Research*, 10(3):340-353.
- Blettner, M., Sauerbrei, W., Schlehofer, B., Scheuchenpflug, T. and Friedenreich, C. 1999. Traditional reviews, meta-analysis and pooled analyses in epidemiology. *International Journal of Epidemiology*, 28:1-9.
- Cavanagh, S. 1997. Content analysis: Concepts, methods and applications. *Nurse Researcher*, 4(3):5-16.
- Downe-Wambolt, B. 1992. Content analysis: Methods, applications and issues. *Health Care for Women International*, 13(3):313-321.
- DuRant, R.H., Romes, E.S., Rich, M., Allred, E., Emans, S.J. and Woods, E.R. 1997. Tobacco and alcohol use behaviours portrayed in music videos: A content analysis. *American Journal of Public Health*, 87(7):1131-1135.
- Evans, D. 2001. Systematic reviews of nursing research. *Intensive and Critical Care Nursing*, 17:51-57.
- Evans, D. and Kowanko, I. 2000. Literature reviews: Evolution of a research methodology. *Australian Journal of Advanced Nursing*, 18(2):31-36.
- Evans, D. and Pearson, A. 2001. Systematic reviews of qualitative research. *Clinical Effectiveness in Nursing*, 5(3):111-117.
- Fahey, S. 1999. The experience of women with primary biliary cirrhosis: A literature review. *Journal of Advanced Nursing*, 30(2):506-12.
- Fredriksson, L. 1999. Modes of relating in a caring conversation: A research synthesis on presence, touch and listening. *Journal of Advanced Nursing*, 30(5):1167-76.
- Hill, J.M. and Radimer, K.L. 1996. Health and nutrition messages in food advertisements: Comparative content analysis of young and mature Australian women's magazines. *Journal of Nutrition Education*, 28(6):313-320.
- Hughes, N. and Neal, R.D. 2000. Adults with terminal illness: A literature review of their needs and wishes for food. *Journal of Advanced Nursing*, 32(5):1101-1107.
- Jensen, L.A. and Allen, M.N. 1994. A synthesis of qualitative research on wellness-illness. *Qualitative Health Research*, 4(4):349-369.
- Jensen, L.A. and Allen, M.A. 1996. Meta-synthesis of qualitative findings. *Qualitative Health Research*, 6(4):553-60.
- Kylma, J. and Vehviläinen-Julkunen, K. 1997. Hope in nursing research: A meta-analysis of the ontological and epistemological foundation of research on hope. *Journal of Advanced Nursing*, 25:364-371.
- Lemmer, B., Grellier, R. and Stevens, J. 1999. Systematic review of nonrandom and qualitative research literature: Exploring and uncovering an evidence base for health visiting and decision making. *Qualitative Health Research*, 9(3):315-328.
- Martin, D.O. and Austin, H. 2000. An exact method for meta-analysis of case-control and follow-up studies. *Epidemiology*, 11(3):255-60.
- Morgan, D.L. 1993. Qualitative content analysis: A guide to a path not often taken. *Qualitative Health Research*, 3(1):112-121.
- Nandy, B.R. and Sarvela, P.D. 1997. Content analysis reexamined: A relevant research method for health education. *American Journal of Health Behaviour*, 21(3):222-234.
- Neill, S.J. 2000. Acute childhood illness at home: The parents' perspective. *Journal of Advanced Nursing*, 31(4):821-32.
- Noblit, G.W. and Hare, R.D. 1988. *Meta-ethnography: Synthesizing Qualitative Studies*. 11. Newbury Park: Sage Publications.
- Ogden-Burke, S., Kauffmann, E., Costello, E., Wiskin, N. and Harrison, M.B. 1998. Stressors in families with a child with a chronic condition: Analysis of qualitative studies and a framework. *Canadian Journal of Nursing Research*, 30(1):71-95.
- Pratt, C.A. and Pratt, C.B. 1995. Comparative content analysis of food and nutrition advertising in *Ebony*, *Essence* and *Ladies Home Journal*. *Journal of Nutrition Education*, 27(1):11-17.
- Sandelowski, M. 1993. Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advances in Nursing Science*, 16(2):1-8.
- Sandelowski, M., Docherty, S. and Emden, C. 1997. Qualitative metasynthesis: Issues and techniques. *Research in Nursing and Health*, 20:365-71.
- Sherwood, G. 1999. Meta-synthesis: Merging qualitative studies to develop nursing knowledge. *International Journal of Human Caring*, 3(1):37-42.
- Sherwood, G.D. 1997. Meta-synthesis of qualitative analyses of caring: Defining a therapeutic model of nursing. *Advanced Practice Nursing Quarterly*, 3(1):32-42.
- Sleutel, M.R. 1998. Women's experience of abuse: A review of qualitative research. *Issues in Mental Health Nursing*, 19:525-539.
- Suikkala, A. and Leino-Kilpi, H. 2001. Nursing student-patient relationships: A review of the literature from 1984 to 1998. *Journal of Advanced Nursing*, 33(1):42-50.
- Woodward, V. and Webb, C. 2001. Women's anxieties surrounding breast disorders: A systematic review of the literature. *Journal of Advanced Nursing*, 33(1):29-41.

EMOTION AND CARDIAC TECHNOLOGY: AN INTERPRETIVE STUDY

Carole Anderson, RN, BN, MN(Research)Hons, is a PhD Candidate, School of Nursing, Griffith University, Australia

Dr Wendy Moyle, RN, BN, MHSc, PhD, is a Senior Lecturer, School of Nursing, Griffith University, Australia

Dr Margaret McAllister, RN, RPN, BA, Med, EdD, is a Senior Lecturer, School of Nursing, Griffith University, Australia

Accepted for publication May 2002

Key words: cardiac pacemaker, emotion, nursing, technology, poststructuralism, interpretive interactionism

ABSTRACT

This paper presents a frequently overlooked aspect of advanced technological care - that of the human dimension and emotions. Emotionality is defined as the emotional ways that a client experiences their embodied experience as a recipient of a cardiac pacemaker. One individual's story from a larger interpretive study of clients who received pacemakers is presented and interpreted. Kev's story encapsulates the difficulties of dealing with and understanding cardiac technology. When Kev's heart malfunctions he confronts a new reality; an experience where the 'technological body' is linked confusingly with emotion. This complex interplay between technology, the body and emotionality is discussed to demonstrate the importance of the mediating role that nurses can and should play in clients' adaptation and recovery.

INTRODUCTION

Contemporary western society continues to embrace technology even though the benefits of many technological interventions are unclear (Moynihan 1998). Technology as referred to in this paper is seen to be any activity by health professionals that precludes person-to-person interaction. Technology can be problematic because of its potential to cause harm. However, clients often do not realise they are at risk of damage from technological interventions as they are not encouraged to question the risks and benefits and remain silent and vulnerable in their illness experience.

Long-term problems include the person's interaction with the technology, prevention of iatrogenic complications, and, dependency on technology and medical care. There is a tendency to overlook the human experience of technology that leads to ineffective client education and reinforces ignorance and disempowerment.

This paper aims to explore the consequences of technology and emotionality through the presentation of one individual's story from a larger interpretive study of clients who received cardiac pacemakers. Emotionality is defined as self-feeling, feelings towards the body, or the way that a client situates their embodied experience as a recipient of a cardiac pacemaker.

BACKGROUND

A cardiac pacemaker is a highly technical device capable of controlling a person's heart rate within computerised parameters. The pacemaker unit includes the pulse generator, a lithium battery and electrodes. The approximate size of a matchbox, the unit is inserted into a surgically created pocket in the left pectoral area while the leads are threaded transvenously into the right heart chambers (Wagner 1995). In a medical framework, this is a relatively simple procedure. From an embodied view, the client's humanness is subtly but profoundly transformed - they are now inextricably attached to technology.

This technology has been shown to increase recipient's survival rate (Rasmussen and Mangan 1994) and is

effective in the prevention of sudden cardiac arrest (Bremner et al 1993). However, such literature tends to objectify the human heart as being separate from the body and separate from the non-scientific dimension that locates a person as a socially, culturally and historically influenced being (Merleau-Ponty 1962). Furthermore, this literature concentrates on the importance of the technology in saving lives and does little towards an understanding of the life experience once a person is a recipient of a pacemaker.

There is little literature that explores the embodied experience of being a recipient of a cardiac pacemaker. However, there is literature suggesting that cardiac pacemaker technology precipitates emotional chaos for individuals (Nanthakumar et al 1998; Nercessian et al 1998). Following a cardiac arrest and the intervention of a cardiac pacemaker, survivors have expressed ambivalence as they live a life of anxiety, insomnia and decreased self-efficacy (Doolittle and Sauve 1995) as well as fear of the device and its limitations (Kuiper and Nyamathi 1991).

As the population ages there is the likelihood that cardiac technology use will also rise (Mond 2001). However, discrimination in the use of technology has also become evident. For example, older people are often missing out on the most advanced medical technology because of the assumption that life would soon end (Hanaford et al 1994). Thus, the younger age groups who are deemed more valuable by society receive new pacemakers, while the older, less valued population, receive re-used pacemakers. Although Lind et al (1998) found no increased risk associated with re-used pacemakers, others such as Platt et al (1996) and Brady et al (1998) found that lead malfunction was common and the efficient performance of the device long-term remained unknown. Furthermore, Manez et al (1996) found that more than 70% of pacemakers interpreted external electrical stimuli as the heart's function, causing an inappropriate and dangerous response from the person.

A need for the human dimension

It is argued that the human dimension has been overlooked in this literature and that by examining technology in this way the person is invisible, there is no embodied experience, no human reality, and no lived concepts of everyday life with an implanted device within the body (Leonard 1994). The technology of an implanted cardiac pacemaker offers the possibility to open up the person's life-world, and yet this technology, paradoxically, constrains rather than provides freedom (Sandelowski 1993). As a generalisation, the cardiac pacemaker is at the same time life saving, ominously uncertain, it invades body space, and is a symbol of dependence. The question of whether the benefits of such technology outweigh the risks needs to be considered so that clients are able to choose, with confidence, surgical intervention or non-intervention (Craft and Grasser 1998). Thus, there is a need to explore the ways that people respond, attempt to cope and integrate cardiac technology into their life. This paper focuses on Kev's story, a narrative that encapsulates important insights about technology, the body and

emotions, which were revealed in a larger interpretive interactionist study of eight clients who received cardiac pacemakers (Anderson 2000).

METHODOLOGY

Interpretive Interactionism

The larger study was located within the methodology of interpretive interactionism which draws on poststructuralist thought (Denzin 1989). Poststructuralism encompasses those beliefs, which offer a critique of essentialism, a way of thinking central to modernism. Essentialism assumes identity is monolithic, totalising, fixed and homogenous rather than diverse and multiple. Essentialism tends to erase differences and convinces people to think that things are naturally so, rather than culturally so (Giroux 2000). Poststructuralist research seeks to find, expose, disrupt and expand those sites of resistance and to notice the local, the different and to aspire to changing the status quo.

Interpretive interactionism is a poststructural method that was used to evaluate the interaction between client and provider to determine how effectively the public program of manufacturing, marketing and implanting the human body with cardiac pacemakers performs (Denzin 1989). Interpretive interactionism is concerned with exploring and evoking the personal meanings, revealed in narrative form. In this case, the focus was on the interaction between the private experience of the individual and the public health program in which they were situated. Evoking participants' narratives is an important way of revealing and understanding that person's subjectivity, embodiment, and cultural conditioning.

Narratives are potentially informative for health professionals because they help providers to become more aware of client/provider reactions and expectations regarding illness, treatment, and relationship with health professionals. The study proceeded to search for narratives within the data in order to reveal the person's subjective experience and expose potential alternatives to the status quo, particularly in relation to the interaction between pacemaker recipient and health care professional.

Selecting participants

The sampling method was purposive (Patton 1990) in that participants sought were those who were informed about the research project and had personally experienced pacemaker implantation. The sampling was also homogenous (Sandelowski 1995), a strategy employed to enhance rigour in a resource limited situation and to facilitate deeper insight within a case situation. This was achieved by focusing only on male war veterans from one hospital. Following ethical approval participants were accessed from client medical records from a medium sized private hospital in Brisbane, Australia. Clients selected were war veterans, 65 years or more, male, able to articulate their experience of living with an implanted cardiac pacemaker, and not currently hospitalised. Potential

participants were contacted by telephone and the purpose of the study explained to them. Eight men voluntarily participated. They ranged in age from 68 to 79 years.

Data collection

The study explored the research question 'How does the war veteran experience his body in relation to invasive cardiac technology?' This question arose as a result of a critical analysis of the literature that demonstrated a paucity of interpretive cardiac pacemaker material. The narrative experiences of war veterans who were recipients of implanted cardiac pacemakers were gathered and examined for interactions with broader social milieu. Participants were asked to explore their experience and were requested to provide descriptions of their emotional reaction to the situation. Unstructured interviews were utilised in order to elicit stories about experiences and took place in the private home of each participant. Data were constituted from audio-taped interviews conducted with the participants, who all consented via written protocol.

Data analysis

The analysis process for this study involved an interactive approach using content analysis for comprehension and thematic analysis in order to synthesise and theorise the findings (Morse and Field 1996). Transcripts of each interview were read in an inductive manner, looking for significant statements and epiphanies associated with the hermeneutic objective - to understand the perceptions of the participants about their implantation experience. The notion of epiphanies is important to interpretive interactionism and refers to those experiences, which represent major turning points or moments of insight.

SUPPORTING THE PARADIGM CASE

Kev's narrative has been utilised as a paradigm case that presents the essential elements of emotionality in the cardiac technology experience. A single case orientation, also known as the science of the singular (Simons 1980), has potential to deepen understanding of the particular. It is likely to promote depth of insight, produce thick description and become the basis from which researchers may make interpretation of data faithful to the individual case (Sandelowski 1996).

FINDINGS

The findings relate specifically to Kev's emotionality as he experienced cardiac technology. Findings are presented under the six themes of 'feeling not myself', 'the technology of the medical encounter', 'the cardiac technology experience', 'intensive technology or intensive care?' the 'discharge experience' and 'questioning the cardiac technology experience'.

Feeling 'not myself'

Kev's story picks up the emotional experience of feeling 'not myself' (Leonard 1994; Shilling 1993). Kev is a 68-year-old male, a Vietnam veteran and a recent

recipient of a cardiac pacemaker. He describes his physical and emotional experience with cardiac technology as 'electronic mayhem'. Kev first became aware that something was wrong when he 'lost it' while towing a caravan interstate with his wife beside him.

Kev: I had driven a caravan approximately 30 years, so it wasn't a new ball game to me. All of a sudden I found I had run off the side of the road and I was mowing down the posts. In retrospect I have no recollection of how this happened. It was just, I lost it - consciousness. I corrected and weaved across the road a number of times - rolled and wrecked the caravan.

This momentary loss of consciousness signals his transformed reality from wellness to illness. Kev's subsequent struggle to understand his experience involved becoming caught up in the emotions of loss, confusion and overwhelming shock.

Kev: As a result of that, when we came back, I went to my doctor. He examined me and sent me for a CAT scan. I had the brain scan and that proved there was no problem there. I went back to my own GP and he wrote me a line to go to hospital for a cardio examination. I'm afraid I dallied. Nearly six months before I did anything about it. I wasn't in any fear - I'm too busy.

He contemplates the 'why' of losing the familiar body even for a few seconds. Ultimately, it was this uncertainty and wish to know that brought Kev and his medical encounter together.

Emotionality in the technology of the medical encounter

On his wife's insistence a cardiologist examined Kev. There were no problems with his blood pressure and a previous carotid check displayed no blockage. Kev described an electrocardiograph (ECG) as 'terribly normal' until the cardiologist performed carotid massage, which brought about an asystole reading in the ECG. Kev described this examination as 'checking me out electronically'. The cardiologist informed Kev that he would be admitted to hospital under observation and for monitoring. Kev appeared to experience flashback anxiety in the telling of this encounter. He told the cardiologist 'it's impossible' because his wife was scheduled to have a hip replacement. Kev nervously laughed when he mistakenly referred to the pacemaker as 'not a transplant!'

The meeting between physician and Kev was a time of tension and he experienced fear as he waited to hear the diagnosis of an experience that he had not understood.

Kev: The diagnosis was very quick. It was just like being hit in the face with a wet sponge. That was a bit of a shock. When you go in to see a doctor... you feel like you are the guiltiest person in the world.

Kev perceived he had no physical restriction and set about explaining to the cardiologist that he was fit and healthy. He had been a sailor and was still able to run without loss of breath, he could climb ladders, crawl under cars and perform all types of physical activity. Kev was

pleading for more time to consider the technical solution, the process moved too fast for his comprehension. The cardiologist's response was inadequate, unempathic and dismissing: 'I'll see you Monday'.

Not being able to understand his situation, Kev sought to blame himself for his condition because he viewed himself as 'in charge' of his body. However, Kev's ambivalent state moved to terror when the cardiologist told him that he needed a cardiac pacemaker. Not only did this sound foreign but Kev was also aware of the dangers of such a diagnosis. Kev described his momentary loss of consciousness as an entry into 'an unknown' and now has begun to contemplate more of the unknown by imagining walking out of hospital as a 'bionic man'.

Emotionality in the cardiac technology experience

Kev tries to make sense of this unusual experience by drawing on what is familiar and helpful to him as a war veteran.

Kev: He cut a little pocket in my chest and ran those two electrodes into my heart. They were unsuccessful in implanting this device on that day. I felt I was all full of holes. When I came to there were all holes in me. They had even prepared the other side [of my body] here on the right to do the implants. There was more holes there.

In his experience of moving from old self to enhanced-with-technology-self, Kev felt full of holes. Kev's narrative continues to this point without a single reference to the device as a cardiac pacemaker. He refers to the pacemaker as 'it' or breaks off in mid-sentence, which gives the pacemaker no form at all. Yet the pacemaker is part of him. Indeed it gives him life. The reference to being 'full of holes' evokes images of the body as a battleground, and Kev as the casualty. While his distress is not explicitly stated in literal language, this interpretation of emotional meaning reveals a deep ambivalence that Kev, and perhaps others in receipt of life saving technology, experience. He is at once still the same person and also forever technically altered.

Kev: It could be cowardice (nervous laugh). But definitely I was in severe pain. It just felt as though I had been stabbed in the arm on two occasions.

The notion of feeling cowardly is similar to how soldiers feel during combat when trauma blocks reality (Woolley 1998). In spite of his pain, Kev speaks of his body as not belonging to him. He appears to need detachment from his body in order to cope with the intrusion from mixed emotions of fear, relief and pain. The extreme state became almost a surreal or dissociative state as Kev described his body experience in a manner that placed him outside his own body as if he were an observer. Dissociation is an extreme protective mechanism used to deal with overwhelming experience (McAllister 2000). Kev attempts to express the means by which he detached himself from the cardiac pacemaker.

Kev: I just keep saying, really it was for the fellow in the bed next to me, and they actually put it in me.

Beyond the surgical experience, Kev faces another challenge: finding meaning and acceptance in the intensive care unit.

Intensive technology or intensive care?

Once inside the intensive care unit, Kev's conversation centres around awareness of his interaction with intensive care technology. Kev had not been within hospital walls for 46 years however, as a male and a Vietnam veteran accustomed to military technology, the stark physical environment of the unit seems to sharpen Kev's recall of the invasive power of technology.

Kev: After the procedure they sent me down to intensive care. They said, 'You won't get any sleep tonight because we'll monitor you down there'. Intensive care as you are aware, is a hive of activity. The machine was sounding off and they kept adjusting it.

For Kev, the experience of intensive care precipitated his sleep deprivation as he was confronted with machine alarms 'sounding off' that reminded him of being in a war zone and in a foreign place. The traditional intensive care schema of one-to-one nurse/patient ratios suggests that nurses have a visible presence and are of great importance in the lives of patients. Thus, one might predict that at this point Kev will make mention of the nurses' presence.

Kev: In intensive care, I didn't know what they were doing. They waved this enormous thing over me. Oh! Good God. I reckon it's like half an armored personnel carrier. I was still on the monitor at the time and they wheeled this enormous thing over. I said, what's going on here? He said, I'm going to take an X-ray. I never want to go in for another operation. As he wheeled that in, I could have gone - clunk! Couldn't I? I could have fallen off my perch. The thing that tickled me is they classify it as a minor procedure, not surgery.

Kev does not note a prominent role for nurses. Instead, that place is taken by technology. Indeed, Kev's conversation recollects nurses as an amorphous 'they', the people who attend to the technology of the 'monitor,' 'the machine,' and 'adjusting it'. While Kev hopes nurses will offer him reassurance in his frightened state, they instead attend to the technology rather than to the person or to his emotional needs. Kev's fear extends to terror as he becomes aware of his mortality and the unknown.

The discharge experience and emotionality

Pacemaker technology and its link with fear are apparent also in Kev's post-hospital experience.

Kev: After I came home I was getting severe reactions. The diaphragm seemed to be reacting like this heaving action. It was quite distressing because it was like a hiccough, but it was definitely thumping. I've sat up in the middle of the night in great fear... from this thing bumping.

There is no trust or emotional security in the following description of when pacemakers go wrong.

Kev: I went back to see him [the doctor] and they wired me up. They adjusted this [pacemaker] to a more comfortable level. He said, it was set a bit severely. Apparently, they can adjust you.

Kev described this experience as 'electronic mayhem', and he speaks about the severity and intensity of how 'they can adjust you'. These words denote the power that technology holds over Kev and in the architecture of power relations his body is constructed as docile (Eckermann 1997). By using the second person 'you' Kev removes himself from the experience and gives up his emotional identity and succumbs to being this technological self.

Questioning the cardiac technology experience

Frustration, futility and desperation are evident in the following excerpt:

Kev: I feel I have more light-headedness than I ever experienced before. I feel that if this has been implanted to get rid of any of that, therefore something - well, the wires haven't come together properly. I don't mean my wiring. There's something just not quite right. I wouldn't dare suggest a misdiagnosis, but if I run this past him [the doctor] I'm sure he'll suggest you're going for a test for ingrown toenails or something like that. I'm sure he'll look to something else.

Kev's emotionality stems from doubt and loss of trust in relation to his diagnosis. He is now explicitly questioning the need for his body to be the site for an invasive cardiac pacemaker. Kev is now no longer passively accepting the legitimate, omniscient knowledge of medical expertise. His experience has taught him to be doubtful.

DISCUSSION

The cardiac technology experience

Kev's narrative reveals that the implantation of a cardiac pacemaker does not appear to be as routine, uncomplicated, or immediately successful as patient education literature portrays (Anderson et al 2002). Emotionality in the cardiac technology experience appears to involve struggle as a client makes new sense of him/herself, to accept a new, changed and technically enhanced self and through it all, medical knowledge simplifies, underemphasises and perhaps overlooks the personal struggle. Kev's experience exposes it as a potential nightmare. His talk of things that go bump in the night and cause 'great sweating fear' are language from horror genre. This negative emotionality arises out of a perceived destiny that is controlled by an external circumstance. Denzin (1984) suggests there is a 'they self' where ambivalence, emptiness and inner anger co-reside. The 'they self' epitomises the cyborg division of human and machine.

The medical encounter

Kev's fear as he waited to hear his diagnosis of an experience he had not understood can be likened to the analogy drawn by Joyce (1976) between the individual and

the medical encounter and a confessional interaction with a priest. Both situations are seen to be a state of highly charged emotionality that often follows feelings of blame, guilt, fear and terror. Joyce described how as the penitent awaits the priest, soft noises become unbearably loud and the penitent begs his/her thumping heart to be still. Kev experienced similar feelings as he sought to understand his experience and his new diagnosis whereby the technology became important and he as an individual was forgotten. Lawler (1997) refers to this as a common health care encounter because clients are 'handing over' their body, albeit temporarily.

Furthermore, Kev's description of being a 'bionic man' indicates a fear that technology will take control of his life and transform his reality of himself. The cardiologist appears unhelpful because he does not facilitate successful transition and the nurse is nowhere to be seen in this interaction. While Kev needed more evidence, sensitivity and reassurance the cardiologist seems unmoved and minimizing in his response. It is an encounter in which Kev's deeply confused and ambivalent state is suppressed rather than explored and supported.

Questioning the experience

Kev's narrative also raised concern with whether the negative aspects of the cardiac pacemaker outweigh the benefits or even whether the technology is required. Iskov et al (1997) also raise doubts about this technology because they found that clients during replacement pacemaker procedures for battery depletion exhibited natural rhythm. Subsequently, clients were found to have no further need for the pacemaker during a follow-up period of four years. One can therefore question the taken for granted assumption that the body is territory to be invaded and explored by medical technology no matter whether there are clear benefits or not.

Even the act of the insertion of the pacemaker could not be understood by Kev and he sought to make sense of this experience through other experiences with which he was familiar, albeit war experiences. Rudge (1999) argued that body procedures are at the core of self-identity for clients. Skin, as a first line of defense against invading organisms defines the border between internal and external identity. For the cardiac pacemaker client, skin is manipulated, made more of, its function altered. In the pacemaker procedure skin becomes a receptacle rather than a defense or a cover. No longer is the client able to take their skin for granted, and to see it, feel it, know it in the usual way. Clients' knowledge of skin is potentially fundamentally altered during what is seemingly a routine and simple procedure.

Intensive technology

As a Vietnam War veteran, Kev visualised an armored personnel carrier, with all of its terrifying connotations. He had never seen a mobile X-ray machine. It appears that Kev may have experienced what Stanislavski (1936) described as a wholly new and transformed reality constituted by his emotional chaos that could have been decreased by appropriate and sensitive communication.

Kev referred to nurses being concerned with the cardiac technology and not him or his body, which effectively relegates Kev, the individual, to the background. Kev's body becomes a social and cultural construction as an extension of cardiac technology and the pacemaker. Thus, the cardiac pacemaker may be seen to lay claim to Kev's body, and his body became simply a pocket to hold the pacemaker.

Opportunity for nurses

It is apparent in Kev's story, that where the person confronts technology and the new role it will play in their life and their body lays an opportunity for nursing. Whilst Kev's story is unique and requires individualised responses from health professionals, there is much about the experience that may resonate for other pacemaker recipients and provide direction for nurses. For Kev, the pacemaker implantation involved an emotional struggle and was far from routine. In the medical encounter, Kev was located within a liminal space, a space of uncertainty between health and illness, between risk and benefit, between old self and new. In order to assist successful transition, the interactions in this encounter are crucial and this is where nurses can play a key role. As threshold people, or intermediaries, nurses can facilitate transition in many ways (Buchanan 1997). This is the time nurses can spend with clients, sitting quietly, answering questions, providing reassurance and assistance to make the transition from old self to new.

Without support, clients like Kev may feel abandoned while in a vulnerable and confused state, perhaps not making a successful transition to living well with a pacemaker, trapped in grief for the lost old self and unable to accept the new. It is likely too, that such clients will always remember that no one was there to help them move through this major life transition and cardiac nurses will have missed important opportunities to understand, validate and extend their caring work. Caring for client emotionality requires health care professionals to use psychosocial skills, empathy and compassion. Without a caring compassionate presence, in this situation Kev was left to an unmediated experience with medical technology, leaving him frightened, passive and immobilised.

Nurses can improve the cardiac technology experience for clients if they see their role as a facilitator during times of transition. Nurses can engage with clients as fellow humans, to get to know them and to establish a strong and obvious presence so that nurses can confidently and swiftly identify uncertainties and struggles and provide reassurance for fears and concerns. For example, reducing Kev's fears and concerns may have helped to alleviate some of the discomfort he experienced. Nurses who place their focus on technology rather than people are unlikely to see fear in the person's eyes; anxiety will not be detected if the person is assumed to be asleep; body tension will not be noticed if the person is not touched; and, emotionality will be overlooked if the person receives no sensitive communication. Individuals may have a cultural belief that there is a connection between their heart and soul. Concerns about the heart being occupied

by cardiac technology require nurses to take the opportunity to understand clients' concerns about technology. This experience with cardiac technology evokes concerns about being changed forever; it is about facing one's mortality. Sensitivity to the profundity of these moments is vital and may make all the difference in transforming a crisis into a turning point.

Mistakes can also be made when nurses detect emotional distress and proceed to define the client according to the emotion. Seeing the client as angry, depressed or anxious, risks labeling clients without understanding or assisting them. Nurses can use themselves therapeutically to help clients express distress, to feel calm and to alleviate potential problems. Machines and the noises they emit can be distressing; they can cause sleeplessness and anxiety. Such machines may seem routine to nurses but they may represent profound changes for clients.

If nurses were to remember that the pacemaker technology experience is more than a routine technical procedure, and a bodily experience where the person is forever altered in complex ways, then the client's experience and self is validated. A validating experience is likely to make a difference to successful recovery and adaptation. Competence with technology is also something more complex than the ability to turn dials, read displays and silence alarms. Nurses' roles in using technology competently involves communicating machine's functioning with the client and helping clients to interact more easily with such technology.

CONCLUSION

Rather than assuming that cardiac pacemaker implantation is routine and trouble-free, a poststructuralist perspective has revealed the experience to be complex and emotionally charged. By evoking and presenting a single narrative experience of a medical encounter, health providers are reminded of the tension between what is taken-for-granted by them and what is potentially life changing for the client. The study also highlighted alternative approaches that nurses can make to promote well-being and adaptation. As threshold people, or intermediaries, nurses can facilitate transition by being aware of their attributes and their actions. Sensitivity, patience, empathy and understanding are alternatives to being placatory and efficient. Spending time listening, and asking questions about feelings and emotions are ways of acting that may convey to the client that they are being cared for in their entirety, as human beings. It is argued that technology must be seen as an aid to cardiac care rather than its essence.

REFERENCES

- Anderson, C.C. 2000. *The postmodern heart: Miraculous myth*. Unpublished Masters of Nursing Dissertation. Brisbane: Griffith University.
- Anderson, C.C., McAllister, M.M. and Moyle, W. 2002. The postmodern heart: A discourse analysis of a pacemaker education booklet. *Collegian*. 19(1):19-23.
- Appignanesi, R. and Garratt, C. 1995. *Postmodernism*. Cambridge: Icon.

- Brady, P.A., Friedman, P.A., Trusty, J.M., Grice, S., Hammill, S.C. and Stanton, M.S. 1998. High failure rate for an epicardial implantable defibrillator lead: Implications for long-term follow-up of patients with an implantable cardioverter defibrillator. *Journal of American College Cardiology*, 31(3):616-622.
- Bremner, S.M., McCauley, K.M. and Axtell, K.A. 1993. A follow-up study of patients with implantable cardioverter defibrillators. *Journal of Cardiovascular Nursing*, 7(3):40-51.
- Buchanan, T. 1997. Nursing our narratives: Towards a dynamic understanding of nurses in narrative tales. *Nursing Inquiry*, 4:80-87.
- Burnard, P. 1999. Carl Rogers and postmodernism: Challenges in nursing and health sciences. *Nursing and Health Sciences*, 1:241-247.
- Craft, B.J. and Grasser, C. 1998. The relationship of reciprocity to self health care in older women. *Journal of Women and Ageing*, 10(2):35-48.
- Denzin, N. 1989. *Interpretive Interactionism*. London: Sage.
- Denzin, N. 1984. *On understanding emotion*. San Francisco: Jossey Bass.
- Doolittle, N.D. and Sauve, M.J. 1995. Impact of aborted sudden cardiac death on survivors and their spouses: The phenomenon of different reference points. *American Journal of Critical Care*, 4(5):389-396.
- Eckermann, L. 1997. Foucault, embodiment and gendered subjectivities. In Petersen, A. and Bunton, R. (eds.). *Foucault, health and medicine*. London: Routledge.
- Gaylin, W. 1990. Fooling with mother nature. *The Hastings Center Report*, 20(1):17-22.
- Giroux, H. 2000. *Impure Acts: The Practical Politics of Cultural Studies*. New York: Routledge.
- Hanaford, P.C., Kay, C.R. and Ferry, S. 1994. Agism as explanation for sexism in provision of thrombolysis. *British Medical Journal*, 309:573.
- Iskos, D., Lurie, K.G., Sakaguchi, S. and Benditt, D.G. 1997. Termination of implantable pacemaker therapy: Experience in five patients. *Annals of Internal Medicine*, 126(10):787-90.
- Joyce, J. 1976. *The portable James Joyce*. New York: Penguin.
- Kuiper, R. and Nyamathi, A.M. 1991. Stressors and coping strategies of patients with automatic implantable cardioverter defibrillators. *Journal of Cardiovascular Nursing*, 5(3):65-76.
- Lawler, J. 1997. *The body in nursing*. Melbourne: Churchill Livingstone.
- Leonard, V.W. 1994. A Heideggerian phenomenological perspective on the concept of person. In Benner P. (ed.). *Interpretive phenomenology: Embodiment, caring and ethics in health and illness*. Thousand Oaks: Sage.
- Linde, C.L., Bocray, A., Jonsson, H., Rosenqvist, M., Radegran, K. and Ryden, L. 1998. Re-used pacemakers - As safe as new? A retrospective case control study. *European Heart Journal*, 19(1):154-157.
- Lyotard, J.F. 1983. Answering the question: What is postmodernism? In Hassan, I. and Hassan, S. (eds.). *Innovation/renovation*. Wisconsin: University of Wisconsin Press.
- Manez, R.S., Granell, R.R., Cabedo, S.M., Civera, R.G., Nicolas, J.C., Candela, M.I., Medadas, J.V., Cortes, M.B. and Solana, S.B. 1996. Recurrent syncope in patients with sick sinus syndrome carrying a permanent pacemaker. *Review of Espanol Cardiology*, 49(2):97-103.
- McAllister, M.M. 2000. Dissociative identity disorder: A literature review. *Journal of Psychiatric and Mental Health Nursing*, 7(1):25-33.
- Mond, H.G. 2001. The world survey of cardiac pacing and cardioverter defibrillators. *Pacing and Clinical Electrophysiology*, 24:856-62.
- Morse, J. and Field, P. 1996. *Nursing research: The application of qualitative approaches*. London: Chapman and Hall.
- Moynihan, R. 1998. *Too much medicine?* Sydney: Australian Broadcasting Corporation.
- Nanthakumar, K., Dorian, P., Ham, M., Lam, P., Lau, C., Nishimura, S. and Newman, D. 1998. When pacemakers fail: An analysis of clinical presentation and risk in 120 patients with failed devices. *Pacing and Clinical Electrophysiology*, 21(1):87-93.
- Nercessian, O.A., Wu, H., Nazarian, D. and Mahmud, F. 1998. Intraoperative pacemaker dysfunction caused by the use of electrocautery during a total hip arthroplasty. *Journal of Arthroplasty*, 13(5):599-602.
- Patton, M. 1990. *Qualitative evaluation and research methods*. 2nd ed. Newbury Park: Sage.
- Platt, S., Furman, S., Gross, J.N., Andrews, C. and Benedek, M. 1996. Transtelephone monitoring for pacemaker follow-up. *Pacing and Clinical Electrophysiology*, 19(12):2089-2098.
- Rasmussen, M.J. and Mangan, D.B. 1994. Third generation antitachycardia pacing implantable cardioverter defibrillators. *Dimensions of Critical Care Nursing*, 13(6):284-291.
- Rudge, T. 1999. Situating wound management: Technoscience, dressings and 'other' skins. *Nursing Inquiry*, 6:167-77.
- Sandelowski, M. 1991. Telling stories: Narrative approaches in qualitative research. *Image: Journal of Nursing Scholarship*, 23:161-66.
- Sandelowski, M. 1993. Toward a theory of technology dependency. *Nursing Outlook*, 41(1):36-42.
- Sandelowski, M. 1995. Sample size in qualitative research. *Research in Nursing and Health*, 18:371-375.
- Sandelowski, M. 1996. One is the liveliest number: The case orientation of qualitative research. *Research in Nursing and Health*, 19(6):525-529.
- Shilling, C. 1993. *The body and social theory*. London: Sage.
- Simons, H. 1980. *Towards a science of the singular: Essays about case study in educational research and evaluation*. East Anglia: University of East Anglia.
- Stanislavski, C. 1936. *An actor prepares*. New York: Theatre Arts.
- Wagner, B.K. 1995. Electrodes, leads, and biocompatibility. In Webster J.G. (ed.). *Design of cardiac pacemakers*. New York: IEEE Press.
- Woolley, J.M. 1998. *We fought the battles*. Sydney: Eastwood.

LIVING WITH BREAST CANCER: THE INFLUENCE OF RURALITY ON WOMEN'S SUFFERING AND RESILIENCE. A POSTMODERN FEMINIST INQUIRY

Cath Rogers-Clark, RN, BA (BehavSci), MN, PhD, is Senior Lecturer, Department of Nursing, University of Southern Queensland, Australia

Accepted for publication May 2002

Key words: breast cancer, survivorship, resilience, rural women, postmodern feminist methodology, narratives

ABSTRACT

This paper focuses on rural living as a dimension of women's experiences of living through breast cancer. The findings presented emanate from a feminist narrative research project that examined the experiences of rural women from south-west Queensland who were long-term survivors of breast cancer. This project aimed to listen, report and interpret rural women's stories of resilience in surviving breast cancer and moving on with their lives. The participants reported that there were both positive and negative aspects of living in a rural setting, especially when ill. Eight of the nine participants, however, felt strongly that the positive aspects of rural living outweighed the difficulties. This suggests that rurality in the context of health and illness must be considered as a multifaceted dimension, with resources to support cancer survivors building on the existing strengths in rural communities.

INTRODUCTION

The incidence of breast cancer has steadily risen in Australia, increasing by 16% in rural areas and 14% in urban areas between 1987 and 1991 (Australian Institute of Health and Welfare [AIHW] 1999). For both urban and rural women, survival rates have also increased over time (AIHW 1999), meaning that more women are living with breast cancer for many years following diagnosis. Paradoxically, whilst survival rates have increased, breast cancer is still not considered to be a curable disease and hence long-term survivors can never be absolutely certain about their health status (LaTour 1996; Crouch and McKenzie 2000). Hence, for women with breast cancer, the challenge is to live with the disease rather than beyond the disease.

Alongside the trauma of diagnosis, and the difficulties of living with breast cancer, rural women may experience particular concerns because of their geographical location. These concerns relate to their distance from metropolitan areas and specialist health services; and the specific difficulties of rural living, which have included, over the last 20 years, rural unemployment, decreasing farm incomes, drought, population decline, the closure of businesses and services, and the loss of farms by families who had long lived off the land (Coakes and Kelly 1997).

Research examining rural women's experiences of cancer is limited. However, one recent study in Queensland, Australia, has shed some light on the particular concerns of rural women with breast cancer (McGrath et al 1999 a, b; McGrath et al 1999). Twenty-eight women participated in the study, reporting that their major concerns were fear of recurrence, physical concerns, and worry about their family (McGrath et al 1999). Their distance from metropolitan areas led to further hardships such as being separated from family and friends at a time of heightened vulnerability, having to travel long distances for follow-up care, and additional financial burdens arising from travel and accommodation costs. On a positive note, the women found significant support from within the informal support networks operating in rural areas. These networks included family, friends and community, and offered significant practical and emotional support to the

woman and her loved ones through the ordeal of breast cancer (McGrath et al 1999).

McGrath's findings are largely in keeping with the significant body of research describing the psychological, physical and social sequelae of breast cancer for women. A 1998 meta-analysis of research established that many breast cancer survivors experienced significant physical, psychological and social problems (Gotay and Muraoka Miles 1998). Some studies indicate that between 20% and 66% of women will face long-term distress (Breitbart 1995; National Breast Cancer Centre 1995). Additionally, up to half of women with recurrence of their breast cancer will experience psychiatric disorders (Hall et al 1996).

To add to these burdens, there is evidence that many women with breast cancer do not feel well informed or supported. In a meta-analysis of literature on women's experiences of breast cancer, Smyth et al (1995) found that the literature consistently revealed inadequacies in the amount and quality of information and support available to women who had been diagnosed with the disease. The need to deal with this problem is highlighted by National Breast Cancer Centre in their publication *Clinical Practice Guidelines for the Management of Early Breast Cancer* (National Breast Cancer Centre 1995).

Despite the overwhelming evidence that women with breast cancer suffer greatly, a particularly encouraging finding of studies of long-term cancer survivors has been that, whilst the consequences of a cancer diagnosis never disappear completely, many long-term survivors report that they lead satisfying lives with a high quality of life (Dow 1992; Dorval et al 1998; Gotay and Muraoka Miles 1998). Clearly, many cancer survivors are able to successfully navigate the journey through cancer. How this journey is navigated was the subject of the current research, as stories of survival can offer hope and inspiration to those diagnosed with cancer, and give loved ones, nurses and other health professionals valuable insights about the survivorship experience. The aim of this study was to listen, report and interpret rural women's stories of resilience in surviving breast cancer and living with the disease whilst moving on with their lives. The research question was as follows:

What responses indicating resilience assist rural women who are long-term survivors of breast cancer to move on with their lives in the face of this adversity?

METHODOLOGY AND METHODS

A feminist postmodern narrative methodology was used. A postmodern approach to research rejects modernist notions of 'truth' as being observable and measurable (Lyotard 1983). It was argued that women's experiences of surviving breast cancer have been marginalised in a scientific community which founded on modernist notions, and which has focused on medical diagnosis and treatment. This inquiry is feminist because

it is critical of the marginalisation of women's voices, which has meant that decisions about breast cancer care are frequently made without understanding the implications of such decisions on a woman's life. The research aimed to alter this situation by privileging women's voices so that they are honoured and listened to by those charged with the responsibility of caring for them.

A narrative methodology, which is congruent with feminist epistemological principles, was used to allow rural women who have survived breast cancer to tell their own stories, and give voice to their own experiences and the meanings they have drawn from those experiences.

The nine participants in the study were women who had been diagnosed with breast cancer (excluding cancer in situ) at least five years ago; had completed any medical treatment associated with their disease; lived in rural south-west Queensland; and, agreed to participate in in-depth interviews. Participants were recruited via media releases inviting women to join the study and via rural community nurses. The age of participants ranged from 44 to 75 years. They were between five and 32 years post breast cancer diagnosis. All participants had a mastectomy to treat their breast cancer, with four also having radiotherapy and one having chemotherapy.

Data was collected by in-depth interviews. Feminist research principles informed all stages of the study, with a strong commitment within the study to privilege women's voices and acknowledge their wisdom in relation to their own experiences. The University of Southern Queensland Human Ethics and Research Committee granted ethical approval for the study. Interviews typically took between one and four hours, and were conducted in participants' homes. Follow-up interviews were conducted by telephone. The interviews were unstructured, with participants simply asked 'How did you get through?' Interview transcripts, and the narrative (story) constructed from these, were returned to participants for member checking.

Emden's guidelines (1998) for conducting a narrative analysis were used in this inquiry to present and interpret the stories of rural women who have survived breast cancer. This involves close and repeated readings of the interview transcript, followed by deletion of all interviewer questions and comments, as well as extraneous content (words and sentences not relevant to the key ideas). The next stage is the identification of items that are part of subplots (themes), which are moved together to create a cohesive story or set of stories. The final step is to return the story to the participant and ask if it is accurate, or if any changes should be made.

Emden's second strategy is one of emplotment (1998). This means finding one or more plots within the story, in order to make sense of that story.

Issues of rigour in this study were addressed in relation to Steinar's argument that traditional criteria of 'truth' need to be reconceptualised in response to postmodern

critiques of knowledge (Steinar 1995). Steinar defined validity as being derived from the quality of craftsmanship in an inquiry, with quality control at each stage of the process. Using a coherent theoretical framework (postmodern feminist); gathering data by in-depth interview, with appropriate attention to issues of power and relationship; paying continuous attention to reflexivity; using narrative analysis to ensure that each participant's story was accurately and faithfully represented; member checking; returning to the data continually during the process of interpretation; and, the use of 'thick descriptions' to support the data analysis were central aspects of the research process in this inquiry which demonstrate quality of craftsmanship.

The results of this study revealed significant findings about women's roles and how these interface with resilience, survivorship and the cancer experience, which will be reported elsewhere. The focus here is on the dimension of 'rurality' as a factor influencing participants' experiences with breast cancer, and their responses to it.

FINDINGS

Participants discussed both the positive and negative aspects of being a rural woman living with breast cancer. Living in a rural area means living away from specialist health services, yet for these participants it also means living within a close-knit community that provides significant emotional support and solace. However, the downside of the closeness of rural areas is that, for some, it limits opportunities for personal privacy and confidentiality at times of stress. Some participants felt their connections with the land helped them to heal. Finally, participants felt that their previous experiences as rural women had made them strong enough to deal with breast cancer.

In this section, discussion of these elements of living with breast cancer in a rural setting is supported by 'thick descriptions' (Geertz 1973), which are drawn from the participant's stories, and are italicised for clarity.

When you're out in the bush... you're miles away

The participants in this inquiry faced particular difficulties relating to their distance from specialist services, similar to difficulties previously reported in the literature (Humphreys and Rolley 1991; McGrath et al 1999). All but one of the participants had travelled significant distances for surgery, radiotherapy and follow-up care, and this was disruptive and financially costly at a time of great personal upheaval. For example:

In the country the biggest problem is going backward and forward for your tests every three months and every six months and every 12 months for 10 years. It's very expensive - Ruth.

Evidence of professional support for the women after their return home following surgery and, for some, radium

treatment, is conspicuously absent in the participants' stories. All participants reported that their GP was their primary health care provider, and none had been referred for counselling, support, physiotherapy, domiciliary nursing or any other health service. This may be related to the lack of such services in rural areas. It is worth reiterating that some of the participants were telling their experiences of 20-30 years ago, when access to mobile health teams and other services was significantly less.

Some participants reported that they did not want professional help anyway, but for others, this support would have been welcomed. For example, Heavs felt that counselling might have helped her come to terms with her experience earlier, and Florence felt that, because of her geographical isolation, she was often alone with her fears. She felt angry with the local GP because of how he had handled her diagnosis, but did not have reasonable access to another medical practitioner.

When you go out to the bush and you're miles away from your... the doctor that you've had, and I was annoyed with the local doctor and I didn't go back to him for years and years... so you sort of hesitate to ask anybody and you're wondering what the heck's wrong with you ... and nobody had told you that it would be like that - Florence.

At the same time, participants spoke of the nurturing and support they found within rural communities, their identities as rural women, and, for some, a sense of peace and harmony, which they did not find in the city. The absence of specialist services is keenly felt, yet all but one of the participants would not have traded the benefits of rural living.

Here, you speak to everybody

The informal yet highly effective systems of support available to rural people have been well documented (Brown 1990; McGrath et al 1999). Kate Brown (1990, p.52) wrote of the 'paradox' of rural health, whereby rural dwellers define health as the capacity to stay independent, yet believe that they are able to achieve good health, and hence independence by being dependent, through connections to the community via community activities. Hence, individuals in a rural community contribute to their own health by staying connected, and it is this very strategy that also ensures the health of the community. This 'connected independence' is apparent in the stories of participants in this inquiry. All but two (Maree and Florence) of the participants spoke of the support available to them from family, friends and neighbours in their communities, and felt that this support was very important to their capacity to overcome their illness. For example,

I came home and... I didn't have any traumas after that because everybody supported me, you know the family all turned up and they'd bring tea... I mean even though I had five children I virtually had all the cousins and my sisters and my friends all feeding us and looking after us - Margaret; and,

In the city you can live next to somebody for 12 months and probably never exchange a word with them, where here, you speak to everybody, and people come up and say 'How are you, I'm thinking of you' - Ruth.

Conversely, a problem associated with rural living which appeared to be more strongly felt by some participants was that of 'being alone' with their experiences. For some, this was related to the lack of professional support, whilst others reported that they felt unable to speak of their true feelings because they wanted to protect loved ones, or because they felt a real lack of privacy and confidentiality in their communities.

For the majority of the participants in this inquiry, telling their story at interview was their first opportunity to speak at length of what they had endured. Whilst two of the participants regularly attended breast cancer support group meetings, where they were encouraged to speak of their experiences, the other seven said that they rarely spoke about their ordeal. For some, it was simply too difficult to speak of:

For a long time I couldn't [speak of it]... the only reason I ever tell anyone... I would say you know that they should go and... have checks and so forth - Margaret.

Another reason for maintaining a silence was the need to protect loved ones, whom they perceived to be suffering:

I feel that it affected Bill more than it affected me, not losing the breast but the fact that I had cancer... he'd just sit beside the bed and he wouldn't say anything - Ruth.

Heavs felt unable to share her experience with others, because she felt that no one else had any idea of what she was experiencing. Embarrassment at having only one breast was also an issue for some and this was exacerbated in a rural town where anonymity is difficult. Anne found this aspect of rural living difficult at a time when she was trying to adjust to her altered body image:

You do feel self-conscious. You feel like they're all looking at you - Anne.

Maree, who, as a migrant woman, had no extended family to turn to, also experienced this sense of isolation related to being a relative newcomer in the town and not knowing who she could trust:

We've been on our own, you know basically. We've got plenty of acquaintances, but there's nobody I can go and have a cup of tea, and just tell them how I'm feeling and that, and know that it will stay just there. I don't find living in a rural town good because everyone cares. It's not - Maree.

Balance in the bush

Another aspect of rural living touched on by some was that of a sense of peace related to a personal connection with the land. As an exemplar, Louise Jay's feelings about her strong connection to the land are evocative:

I feel a balance when I'm in the bush. I'd rather be at home... there's something sort of very peaceful about it all and that's what I meant by healing. Come back to where you're familiar and your mind hopefully gets back to where it used to be sort of thinking. You feel you're free... you can just look at the world out there... and it's a very peaceful sort of sensation. And perhaps there'll be a goat coming up to rub up against you, and he's sort of saying it's okay too, it's good - Louise Jay.

Louise Jay's words are fascinating - she was describing a connection to the land that has often been discussed by indigenous peoples in Australia, but it is not often acknowledged in public forums that this same sense of spiritual connections can occur for others who love the land and have often spent their lives living with, and working on, the land.

Living in the bush... it makes you strong

A third aspect of participants' stories which relate to the positive influences of rurality relates to the women's perceptions of themselves as 'rural women', which they then used as an interpretive lens through which they described their resilience in the face of breast cancer. A number of participants defined themselves as 'rural women', and felt that this implied a sense of strength and stoicism, developed through experiences of rural living which had required them to work hard and cope on their own:

Living in the bush... I think it's a much harder life and you learn to live with it. You're isolated and you work very hard physically. And people do things for themselves. When you're away from the city, you have to do everything yourself - Florence; and,

We've always lived on the land. It makes you strong. I think it is because you go out and you milk cows, and you feed - help feed pigs, you help feed the cattle, you come in, you look after your family, like after milking at night, you come in, you put your tea on, you bath your kids, you feed them, get them to bed, and then you feed yourself and you wash up and you bath and you go to bed. You get up in the mornings and it's the same thing all over again. You got no time to sit down and think of yourself. And I think that helps build you up - May; and,

I think country women are more positive and can get through a lot more things because they've handled the children and that, you know. And they've had to learn to cope themselves - Evelyn.

DISCUSSION AND CONCLUSION

The stories of participants in this study revealed that rurality is a complex factor for women living in rural areas who are confronted with a health crisis such as breast cancer that, for survivors, becomes a chronic illness. The women in this study were vocal in expressing their love of rural living, and their dislike of 'the city'. They acknowledged the particular difficulties they faced as rural

women, yet did not depict themselves as 'victims' living marginalised lives in communities beset by hardship. This challenges the conventional wisdom that rural life is more difficult than urban living, and is a cause of ill health.

A similar finding was reported by Wainer (1988). She asked rural women to discuss their perceptions of health and illness. She found that they described themselves as healthier than urban women in Australia, despite having less access to health services and living in more hazardous environments.

Similarly, in a recent study involving 394 randomly selected participants in Queensland, Australia, women who lived in major rural towns reported fewer symptoms of stress, anxiety and depression than women in urban, remote and smaller rural areas (Rogers-Clark, Bramston and Hegney 1998). Whilst women in smaller rural towns and remote areas reported more symptoms of psychological distress than women in major rural towns, the extent of their symptoms was similar to women in urban areas. This suggests that location by itself may not be an important factor in predicting the degree of emotional distress in a community (Rogers-Clark, Bramston and Hegney 1998).

These findings are significant because discussions of rurality that identify only the difficulties associated with rural living (for example Humphreys and Rolley 1991) are missing half of the story. This positive dimension of rural living tends to be ignored in scholarship and research about rural living. This is understandable, however, given the well-documented problems in rural communities, which include downturn in rural economies, a decreasing population, and lack of services (Humphreys and Rolley 1991; AIHW 2000).

Perhaps some rural women have found ways to survive through difficult life circumstances. Rural women might be able to draw upon a number of strengths to empower their responses to psychological and social stressors. These strengths could include a pride in the achievements and traditions of rural living, a culture of self-reliance, strong family connections, and a strong sense of community (Bigbee 1987).

It is ironic that, in the drive to highlight the significant social and economic problems that rural communities are experiencing, the positive aspects of rural living are dismissed and replaced with images of decline and hardship. Inadvertently, this could actually be adding to the declining populations of rural areas and the inability of rural communities to attract professionals like nurses and medical practitioners to their areas.

In relation to rural women with a history of breast cancer, it is vital that any interventions seek to build on the strengths of rural communities in relation to lifestyle and support, rather than assuming that rural communities are defined by their absence of specialised services. This study has determined that the informal supports available in rural communities are often highly effective in assisting people

through a health-related crisis. Hence, future programs to support rural women should have a partnership framework, with a key strategy being to identify and work with these informal support systems.

The specialist breast cancer nurse role has been evaluated in Australia, and found to be highly effective in supporting women with breast cancer (Liebert 1998). The establishment of specialist breast care nurses in key positions where they can provide ongoing information and support to women in rural and remote areas would provide direct services to rural women. In addition, a key aspect of the specialist breast care nurse role is to facilitate the development of better links between tertiary health and rural health facilities, which includes referral to community health services and specialist allied health services as well as to the woman's general practitioner, ensuring holistic continuity of care for the rural woman confronting breast cancer.

REFERENCES

- Australian Institute of Health and Welfare. 1999. New breast cancer data for 1997. 9 November 1999 [cited 11 November 1999]. Available from www.aihw.gov.au/publications/.
- Australian Institute of Health and Welfare. 2000. *Australia's Health 2000*. Australian Government Printing Service: Canberra. Cat No. 19.
- Bigbee, J.L. 1987. Stressful life events among women: A rural-urban comparison. *The Journal of Rural Health*. 3(1):39-51.
- Breitbart, W. 1995. Identifying patients at risk for, and treatment of major psychiatric complications of cancer. *Support Care Cancer*. 3:45-60.
- Brown, K. 1990. Connected Independence: A Paradox of Rural Health? *Journal of Rural Community Psychology*. 11(1):51-63.
- Coakes, S.J. and Kelly, G.J. 1997. Community competence and empowerment: Strategies for rural change in women's health service planning and delivery. *Australian Journal of Rural Health*. 5(1):26-30.
- Crouch, M. and McKenzie, H. 2000. Social realities of loss and suffering following mastectomy. *Health*. 4(2):196-215.
- Dorval, M., Maunsell, E., Deschenes, L., Brisson, J. and Masse, B. 1998. Long-term quality of life after breast cancer: Comparisons of 8-year survivors with population controls. *Journal of Clinical Oncology*. 16(2):487-94.
- Dow, K.H.M. 1992. An analysis of the experience of surviving and having children after breast cancer. Doctoral Dissertation. Psychology Department. Boston College. Boston.
- Emden, C. 1998. Conducting a narrative analysis. *Collegian*. 5(3):34-39.
- Geertz, C. 1973. *The Interpretation of Cultures*. New York: Basic Books.
- Gotay, C.C. and Muraoka Miles, M.Y. 1998. Quality of life in long-term survivors of adult-onset cancers. *Journal of the National Cancer Institute*. 90(9):656-667.
- Hall, A., Fallowfield, L.J. and A'Hern, R. 1996. When breast cancer recurs: A three year prospective study of psychological morbidity. *The Breast Journal*. 2(3):197-203.
- Humphreys, J. and Rolley, F. 1991. *Health and Health Care in Rural Australia*. Armidale: University of New England.
- LaTour, K. 1996. The breast cancer journey and emotional resolution: A perspective from those who have been there. In *Contemporary Issues in Breast Cancer*, edited by Dow, K.H. Boston: Jones and Bartlett.
- Liebert, B. 1998. The specialist breast nurse. *Breast news: Newsletter of the National Health and Medical Research Council National Breast Cancer Centre*. 4(1).
- Lyotard, J.F. 1983. Answering the Question: What is Postmodernism? In *Innovation/Renovation*. Edited by Hassan, I. and Hassan, S. Madison, WI: University of Wisconsin Press.
- McGrath, P., Patterson, C., Yates, P., Treloar, S., Oldenburg, B. and Loos, C. 1999 a. A study of post-diagnosis breast cancer concerns for women living in

rural and remote Queensland. Part II: Support Issues. *Australian Journal of Rural Health*. (7)1:43-52.

McGrath, P., Patterson, C., Yates, P., Treloar, S., Oldenburg, B. and Loos, C. 1999 b. A study of post-diagnosis breast cancer concerns for women living in rural and remote Queensland. Part 1: Personal Concerns. *Australian Journal of Rural Health*. (7)1:34-42.

National Breast Cancer Centre. 1995. Clinical Practice Guidelines for the Management of Early Breast Cancer. Canberra: National Health and Medical Research Council. Commonwealth of Australia.

Rogers-Clark, C., Bramston, P. and Hegney, D. 1998. Women's emotional health and well being: An urban/rural comparison. Paper read at 4th Biennial

Australian Rural and Remote Health Scientific Conference Proceedings, at Toowoomba, Queensland, Australia.

Smyth, M.M., McCaughan E. and Harrison S. 1995. Women's perceptions of their experiences with breast cancer: Are their needs being addressed? *European Journal of Cancer Care*. English language edition. 4(2):86-92.

Steinar, K. 1995. The social construction of validity. *Qualitative Inquiry*. 1(1):19-41.

Wainer, J. 1988. Rural Women's Health. *Australian Journal of Primary Health Interchange*. 4(3):80-88.

RESEARCH ROUNDUP A summary of research reports from nursing and medical journals

NURSES KNOW PAIN, BUT LESS KNOWLEDGEABLE ABOUT NARCOTICS

A study published in October's *Nursing2002* reveals nurses know how to assess their patients' pain but are less knowledgeable about the proper use of morphine and other narcotics in managing severe or chronic pain. The study found nurses tend to have unrealistic fears about the risk of addiction - which may lead them to under treat pain in patients who need narcotic painkillers the most. Based on survey responses from over 3200 nurses, the research findings were compiled by Margo McCaffery who designed the survey to determine whether nurses' knowledge and attitudes about pain control had advanced in recent years. Ms McCaffery emphasises that misconceptions about pain control aren't limited to nurses, but cut across the health care profession. In written comments sent in with survey answers, many nurses expressed frustration with doctors and other colleagues who prescribe inadequate doses of pain medications. According to Ms McCaffery, the study shows that nurses still need education about pain medication and addiction. Comparing these findings to the results of a similar survey conducted in 1995, McCaffery says that nurses' understanding of addiction risks has not improved in recent years.

Reference

McCaffery, M. and Robinson, E. Your patient is in pain: Here's how you respond. *Nursing2002*. 32(10):36-47.

DEATH RISK HIGHER IN PRIVATE FOR-PROFIT HOSPITALS

Patients in private hospitals run for profit have a higher risk of dying than those in private not-for-profit hospitals, according to a major Canadian study. Researchers reviewed a decade of data obtained on 38 million patients at 26,000 hospitals across the US and found death rates were 2% higher in the for-profit hospitals. The authors suggest that private for-profit hospitals compare unfavourably with the not-for-profit variety in terms of patient outcomes, because they are faced with pressures to hold down costs while delivering their profit and devote fewer resources to patient care. The authors point out that the private for profit hospitals studied employed fewer highly skilled personnel per risk-adjusted bed, and identify lower staff levels as a factor accounting for the higher death rates.

Reference

Devereaux, P.J. 2002. A systematic review and meta-analysis of studies comparing mortality rates of private for-profit and private not-for-profit hospitals. *Canadian Medical Association Journal*. (166)11:1399-1406.

NURSE X-RAY REQUESTS REDUCE WAITING TIMES

Experienced triage nurses are as accurate as medical staff in assessing the need for X-rays and can significantly reduce emergency waiting times for patients with isolated limb trauma, University of Sydney, Australia, researchers say. The researchers performed a literature review and found only half of the patients with limb injuries triaged to be seen within 10-30 minutes received assessment and treatment within National Triage Scale guidelines. Patients with isolated limb fractures often experienced lengthy delays if radiological examination was required. The authors cite several studies which demonstrate: a positive correlation between triage nurses ordering X-rays and decreased waiting times; high agreement rates between doctors and triage nurses on the ordering of X-rays; and, high accuracy and appropriateness of nurse initiated X-rays. The authors also identify other advantages of extending triage nurses' roles to encompass ordering X-rays, including changed patient perceptions of waiting and increased satisfaction with emergency services.

Reference

Tambimuttu, J., Hawley, R. and Marshall, A. 2002. Nurses-initiated X-ray of isolated limb fractures in the emergency department: Research outcomes and future directions. *Australian Critical Care*. (15)3:119-122.

NEEDLESTICK INJURIES MAINLY SUSTAINED BY NURSES

Of the 1836 'dirty' needlestick injuries reported in a recent study in the *Medical Journal of Australia*, most were sustained by nursing (66.2%) and medical (16.8%) staff, with 62.7% sustained before disposal. More than one needlestick injury (NSI) occurs for every two days of hospital operation. The study, conducted by Dr Michael Whitby from the Princess Alexandra Hospital in Brisbane and Dr Mary-Louise McLaws from the University of New South Wales, describes the frequency and circumstances of hollow-bore dirty NSI sustained by healthcare workers, and the potential cost of safety devices to prevent such injuries. While the study demonstrates an increased knowledge among nurses of possible consequences of the NSIs, the level of injuries has continued. Dr Whitby said the introduction of syringes with self-retracting needles, at an estimated cost of at least \$365,000 per year for consumable items only, could reduce high-risk NSI in the Princess Alexandra Hospital by up to 62%.

Reference

Whitby, M. and McLaws, M.L. 2002. Hollow-bore needlestick injuries in a tertiary teaching hospital: Epidemiology, education and engineering. *Medical Journal of Australia*. 177(8):418-422.