PRACTICE NURSE USE OF EVIDENCE IN CLINICAL PRACTICE: A DESCRIPTIVE SURVEY

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Abstract

The role of practice nurses is a specific feature of the modernisation agenda of the New Zealand health service. Increasing importance is being placed on service improvement through effective decision making and enhanced clinical performance. To contribute to the development of primary health care it is crucial that nurses have the skills to appropriately implement research based and other evidence in practice.

This study involved 55 West Auckland practice nurses working in the general practice setting. The aim of the study was to describe nurses' perceptions of their use of evidence-based practice, attitudes toward evidence-based practice and perceptions of their knowledge/skills associated with evidence-based practice. An additional aim was to determine the effect of educational preparation on practice, attitudes and knowledge/skills toward evidence-based practice. A descriptive survey design was selected for this study. The results demonstrated that nurses' attitudes toward evidence-based practice, knowledge and skills relevant to the implementation of evidence-based practice and the educational preparation of the nurses were important factors influencing the effective utilisation and application of research results in practice.

Educational interventions are identified as an integral aspect of implementing evidence-based practice and enhancing practice nurses' knowledge and skill relevant to the use of evidence in practice. Further research is needed to assess the contextual factors which can inhibit or promote achievement of evidence-based practice by practice nurses.

Key Words: Evidence-based practice, primary health care, nursing, education.

Introduction

An effective primary health care system is central to improving the health of New Zealanders and in particular, reducing inequalities in health. The government identifies primary health care nursing as being crucial to the implementation of the Primary Health Care Strategy (Ministry of Health, 2001). Internationally, the potential for nurses to improve health in primary health care settings is acknowledged (Halcomb, Patterson, & Davidson, 2006). Increasing importance is being placed on improving health outcomes through the use of evidence. Consequently, effective clinical decisions based on available evidence are necessary if practice nurses are to best meet

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the needs of client/patients (Mantzoukas, 2008). Furthermore, nurses are becoming more accountable for the care they provide (McKenna, Ashton, & Keeny, 2004) and policy, as well as political and professional imperatives have made evidence-based practice a clinical prerequisite for clinical practice (Mantzoukas).

Evidence-based practice (EBP) is equated with consistent high quality care based on effective decision making (Mantzoukas, 2008). It provides a rationale for discarding ineffective practices and techniques (Dopson, Locock, Gabbay, Ferlie, & Fitzgerald, 2003). Governments around the world are encouraging EBP; this has led to a variety of initiatives, including the introduction of centres for evidence-based practice, dedicated journals, protocols, policies, guidelines and websites. However, it is recognised that the process of implementing evidence into practice is complex and involves more than a single focus on the practise of individual nurses. Implementing change, using evidence in practice and improving the quality of client/patient care are difficult processes which do not follow logical and linear paths (Rycroft-Malone et al., 2004).

In this article the findings of a survey of practice nurses' use of evidence in clinical practice are presented. The definition of EBP used in the study is outlined, followed by an overview of the literature about its use in primary health care. The findings of a survey of 55 West Auckland practice nurses are presented, followed by a discussion about the factors likely to positively influence the implementation of research evidence in primary health care practice.

Background

Evidence-based practice.

International nursing organisations identify EBP as a key strategy for creating integrated health models and for developing the recognition of nurses as important providers of health care (Jutel, 2008). In New Zealand, the Nursing Council of New Zealand includes evidence-based knowledge, education and research in their competencies for the registered nurse scope of practice (Nursing Council of New Zealand, 2007). Graduating nurses are required to have an understanding of the fundamental principles of research, research methods and sources of information and have the ability to apply research evidence to practice or undertake research to inform practice.

EBP has evolved as the dominant theme of practice, policy, management and education within health services across the developed world (Rycroft-Malone et al., 2004). The attraction of EBP for use by health professionals lies in its promise of being able to deliver consistent high quality care (Rolfe, Segrott, & Jordan, 2008). While there are a multitude of definitions available on the concept, Hoffmann, Bennett, and Del Mar (2010, p. 4) begin by asserting that EBP is more than the utilisation of research evidence. They go on to define EBP as

> *... valuing and using education, skills and experience ... considering the client's situation and values when making a decision, as well as considering the characteristics of the practice context ... This requires judgement and artistry, as well as science and logic.*

This is supported by Sackett, Strauss, Richardson, Rosenberg, and Haynes (2000) who assert that EBP is more than randomised controlled trials and that evidence is inclusive of clinicians' expertise and patients' preferences.

In New Zealand very little is known about practice nurse's attitudes toward EBP. Of those studies conducted in primary health care settings, the views and attitudes of general practitioners (GPs) to EBP were examined (Al-Ansary & Khoja, 2002; Mayer & Piterman, 1999; McColl, Smith, White, & Field, 1998; Young & Ward, 2001). Studies claim that GPs report mainly positive

attitudes towards EBP (Mayer & Piterman; McColl et al.), although barriers such as lack of time (Al-Ansary & Khoja; McColl et al.; Young & Ward), and understanding of terminology (Young, Glasziou, & Ward, 2002) are some of the factors identified that impede the use of research findings in practice. Much less is known about the views and attitudes of other professional groups toward EBP (O'Donnell, 2004), although the information that does exist presents a picture similar to that reported in the medical profession (Upton & Upton, 2006).

McCaughan et al. (2002) claim lack of research and interpretation skills hinder nurses' implementation of evidence in primary health care practice. McKenna et al. (2004) identified overwhelming amounts of information and transferability of information into practice as barriers to the implementation of research findings into clinical practice within primary health care settings. Lack of confidence in statistical and numerical issues were reported in a study looking at the experiences of GPs and practice nurses undertaking EBP training courses (Greenhalgh & Douglas, 1999). Another study found that GPs and practice nurses assigned different meanings to the term research evidence; GPs thinking in terms of clinical trials; nurses having a more holistic view of evidence, including qualitative research and local findings (O'Donnell, 2004). McKenna et al.'s study reported that GPs ranked barriers differently to community nurses. GPs identified that the most significant barriers to using EBP were the limited relevance of research to practice, keeping up with all current changes in primary health care, and the ability to search for evidence-based information. In contrast, the most significant barriers identified by community nurses were inadequate computer facilities and difficulties influencing changes within primary health care (McKenna et al.).

It is clear that few health care professionals within primary health care have the time to appraise the research evidence themselves (O'Donnell, 2004). The mere existence of evidence is not sufficient (Swinglehurst, 2005) consequently fitting a review of the evidence into an already over-stretched clinical day is problematic. The utilisation of research findings depends on time being made available for the reading and evaluation of research or alternatively the development of mechanisms that enable health professionals to easily access robust evidence to base their practice on.

Barriers to Implementing Evidence.

The organisational culture in which nurses work has a major role to play in influencing the use of research findings in clinical practice (Chummun & Tiran, 2008). McCance, Fitzsimons, Kenney, Hasson, and McKenna (2007) argue that the generation of knowledge is merely an academic endeavour unless successful approaches can be identified to integrate evidence into practice. To do this requires strategic supportive leadership, supportive organisational culture, effective training, availability of databases and research reports (Wallin, Bostrom, Wikbald, & Ewald, 2003), and an attitude that research is essential to the practise of nursing (Stetler, 2003).

Research examining the implementation of EBP in nursing has focused primarily on the many difficulties experienced in trying to achieve EBP, in particular on the barriers that may impede research utilisation (Stetler, Ritchie, Rycroft-Malone, Shultz, & Charns, 2007). The Barriers to Research Utilization Questionnaire developed in the USA by Funk, Champagne, Wiese and Tornquist, (1991) has been used extensively over the past fifteen years in a number of countries including Australia (Hutchinson & Johnston, 2004; Retsas, 2000; Retsas & Nolan, 1999), Finland (Kuuppelomaki & Tuomi, 2005; Oranta, Routasalo, & Hupli, 2002), Ireland (Glacken & Chaney, 2004), Sweden (Kajermo, Nordstrom, Krusebrant, & Bjorvell, 1998), USA (Walsh, 1997), Canada (Estabrooks, 1999) and the United Kingdom (Closs & Bryar, 2001; Nolan et al., 1998). This instrument has also been used to examine research utilisation in specific groups of nurses, for example, community nurses (Bryar et al., 2003) and forensic mental health nurses (Carrion,

Woods, & Norman, 2004). Factors identified that hinder the development of EBP and research utilisation include lack of time to read research findings (Bryar et al.; Gerrish & Clayton, 2004; Nagy, Lumby, McKinley, & Macfarlane, 2001), inadequate time to interpret and implement research findings (Kajermo et al.; Sitzia, 2001), difficulty with accessing and understanding research (McCaughan et al., 2002; Nagy et al., 2001), lack of skills needed to access, understand, evaluate and implement research findings (Retsas; Veeramah, 1995), lack of support from organisations (McCaughan et al.), as well as lack of autonomy to change practice (Parahoo & McCaughan, 2001; Sitzia).

Several other questionnaires have been developed to examine research implementation. McKenna et al. (2004) developed a questionnaire to address the barriers to the use of EBP in primary health care. Gerrish, Ashworth, Lacey, Bailey and Cooke (2007) developed a self report tool to assess the factors that affect the development of evidence-based nursing practice, where in addition to research evidence, other forms of evidence were considered, including evidence from colleagues, personal experience, intuition and local policies. Of particular interest was Upton and Upton's (2006) Clinical Effectiveness and Evidence Based Practice Questionnaire (EBPQ) which was identified as the most appropriate tool for measuring the day-to-day application of evidence to practice, individual attitudes and relevant skills for primary health care nurses and for answering the research questions for this study.

Using the EBPQ, the aim of this study was to describe practice nurses' perceptions, attitudes and knowledge/skills associated with EBP within the primary health care setting. The research questions were replicated from Koehn and Lehman (2008).

- What are practice nurses' perceptions of their use of EBP?
- What are practice nurses' attitudes toward EBP?
- What are practice nurses' perceptions of their knowledge/skills associated with EBP?
- What is the effect of educational preparation on practice, attitudes and knowledge/skills associated with EBP?

Methods

A quantitative descriptive survey design was used. The survey tool was based on the Clinical Effectiveness and Evidence Based Practice Questionnaire (EBPQ) (Upton & Upton, 2006) and was used with permission from the authors. The EBPQ is a self-report measure of nurses' perceptions of their practice, attitudes and knowledge/skills of EBP. It is comprised of 24 items organised into three distinct subscales:

Practice of individual components of evidence-based practice.

Respondents were asked to rate the frequency of completing certain steps in relation to EBP. For example, how frequently (from never to frequently) in the past year had the person posed a practice related question, tracked down the evidence in relation to the question, critically appraised that evidence or integrated the evidence into practice.

Attitudes toward evidence-based practice.

The questionnaire contained a number of statements designed to assess the respondent's attitudes toward EBP, including perceived barriers such as workload and person judgments. This was rated on a seven – point scale, with a higher score indicative of a more positive attitude.

Knowledge of evidence-based practice.

This section dealt with perceived knowledge and skills required to implement EBP; for example, research and information technology skills and the awareness of information sources. Individuals rated their ability from 1 (poor) to 7 (best).

A purposive sample was drawn from approximately 110 practice nurses working in general practices in West Auckland. Participants were provided with a questionnaire

pack comprised of an information sheet, the EBPQ, a demographic data sheet and a postage paid return envelope. Packs were distributed by practice managers and public health nurses in October 2007. Completion and return of the questionnaire was considered to be consent to participate and ethical approval for the study was granted via the expedited review process of the Northern Regional Health and Disability Ethic Committee and notification made to the Massey University Human Ethics Committee.

Of the 110 questionnaires distributed 55 were returned (N = 55), a response rate of 50%. All data were screened for accuracy, missing values, coding errors and errors in participants' responses. Any incomplete data sets were removed from the overall data set, resulting in 54 complete data sets available for analysis. Data were analysed using descriptive statistics. Data were coded and entered into Statistical Package for the Social Sciences, for analysis (SPSS Inc, 2008). Spearman's rank correlation coefficient (r_s) was used to examine the strength of relationship between variables. A significance level of $p = 0.05$ was chosen.

Cronbach's alpha coefficient for the entire questionnaire was 0.956 and as such was higher than Upton and Upton (2006) who reported a coefficient of 0.87. Good internal reliability was confirmed for two of the subscales with a Cronbach's alpha score of 0.908 for the practice of individual components of EBP subscale, and 0.953 for the knowledge and skills relevant to the implementation of EBP subscale. However, only 0.694 was recorded for the attitude towards EBP subscale.

Findings

Sample description.

The demographic data of the sample are presented in Table 1 and include age, gender, ethnicity, length of time registered, length of time working in primary health care environment and number of weekly hours worked. The majority of respondents (63 percent, n=34) reported achieving their nursing registration through hospital based certification. Thirteen percent (n=7) held a diploma in nursing. Twenty four percent (n=13) of respondents held a bachelor degree. Fifty percent (n=27) of respondents reported having a tertiary qualification (post registration) and 50% (n=27) reported not having a tertiary qualification. Figure 1 presents the frequency nurses read professional journals.

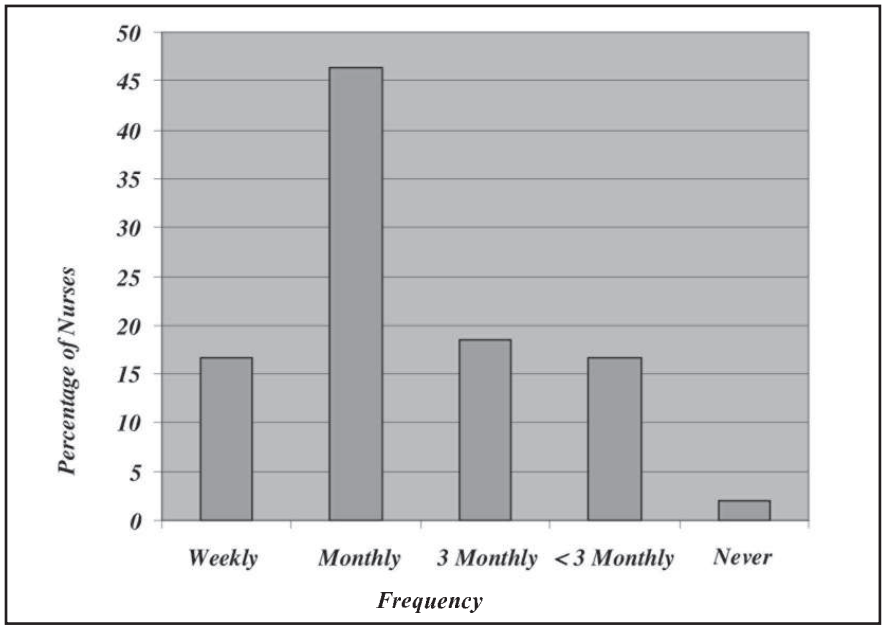

Figure 1. Frequency of reading professional journals

Table 1.

Summary of Demographic Information.

	Number of Respondents	*Percentage of Respondents*
Age (Years)		
20-29	9	16.7%
30-39	7	13.0%
40-49	11	20.4%
50-59	18	33.3%
60-69	6	11.1%
Missing data	3	5. 6%
Gender		
Female	52	96.3%
Male	2	3.7%
Ethnicity		
NZ European	31	57.4%
Other European	12	22.2%
NZ Maori	3	5.6%
Pacific Nation	3	5.6%
Asian	3	5.6%
Other	1	1.9%
Missing data	1	1.9%
How long registered		
<5 years	6	11.1%
5-10 years	6	11.1%
10-15 years	14	25.9%
>15 years	26	48.1%
Missing data	2	3.8%
How long in primary health care		
<5 years	17	31.5%
5-10 years	14	25.9%
10-15 years	10	18.5%
>15 years	12	22.2%
Missing data	1	1.9%
Weekly hours worked		
40 hours	17	31.5%
<40 hours	36	66.7%
Missing data	1	1.9%

Note: total percentages may not always equal 100% due to the effects of rounding.

Knowledge and skills relevant to the implementation of EBP.

Table 2 shows that knowledge and skills relevant to the implementation of EBP had a statistically significant relationship with the practice of individual components of EBP (r_s=0.744, p=0.000**) and with attitudes toward EBP (r_s=0.532, p=0.000**). Knowledge and skills relevant to the implementation of EBP were also shown to have a significant positive correlation with both level of registration preparation (r_s=0.528, p=0.000**) and tertiary qualifications (post registration) (r_s=0.351, p=0.016*). The length of time practising in primary health care was negatively correlated with knowledge and skills relevant to the implementation of EBP (r_s=-0.412, p=0.004**). There was no significant correlation between knowledge and skills relevant to the implementation of EBP and length of time registered and frequency of reading professional journals.

Attitudes toward EBP.

Attitudes toward EBP were found to have a statistically significant relationship with the practise of individual components of EBP (r_s=0.516, p=0.000**) as shown in Table 3. Attitudes toward EBP were not significantly correlated with length of time registered, length of time practising in primary health care, level of registration preparation, tertiary qualifications (post registration) and frequency of reading professional journals.

Practice of individual components of EBP.

Results showed that the practice of individual components of EBP were positively correlated with level of registration preparation (r_s=0.306, p=0.026*) and frequency of reading professional journals (r_s=0.303, p=0.028*). There was a significant negative correlation between practise of individual components of EBP and length of time practising as a registered nurse (r_s=-0.288, p=0.038*). The length of time practising in primary health care was also found to have a significant negative correlation with the practise of individual components of EBP (r_s=-0.312, p=0.024*). There was no significant correlation between practice of individual components of EBP and tertiary qualifications (post registration).

Length of time practising as a registered nurse.

There was a significant positive correlation between the length of time practising as a registered nurse, and length of time practising in primary health care

Table 2.

Relationship between Respondent Characteristics and Knowledge/Skills Relevant to the Implementation of EBP.

Characteristics	Correlation Coefficient (r_s)	*p* Value
Attitude towards EBP	.532	.000
Practice of individual components of EBP	.744	.000
Length of time practising as a registered	-.224	.134
Length of time practising in primary health care	-.412	.004
Level of registration preparation	.528	.000
Tertiary Qualification (post registration)	.351	.016

Note: * p<.05 moderate level of significance
**** p<.01 high level of significance**
p>0.5 no significant correlation

Table 3.

Relationship between Respondent Characteristics and Attitudes toward EBP.

Characteristics	Correlation Coefficient	*p* Value
Practice of individual components of EBP	.516	.000
Length of time practising as a registered	.001	.993
Length of time practising in primary health care	-.199	.162
Level of registration preparation	-.216	.128
Tertiary Qualification (post registration)	.245	.083
Frequency of reading professional journals	.155	.278

Note: * p<.05 moderate level of significance
**** p<.01 high level of significance**
p>0.5 no significant correlation

(r_s=0.672, p= 0.000**). As shown in Table 4 there was a significant negative correlation between length of time practising as a registered nurse and the level of registration preparation (r_s=-0.570, p=0.000**), tertiary qualifications (post registration) (r_s=-0.306, p=0.026*) and the frequency of reading professional journals (r_s=-0.286, p=0.038*).

Length of time practising in primary health care.

Length of time practising in primary health care was shown to have a significant negative correlation with level of registration preparation. This variable was not significantly related to tertiary qualifications and frequency of reading professional journals.

Level of registration preparation and tertiary qualifications (post registration).

There was a significant positive correlation between level of registration preparation and tertiary qualifications (post registration). There was no significant relationship between level of registration preparation and frequency of reading professional journals. These results demonstrate that knowledge and skills relevant to the implementation of EBP and

Table 4.

Relationship between Respondent Characteristics and Length of Time Practising as a Registered Nurse.

Characteristics	Correlation Coefficient	*p* Value
Length of time practising in primary health care	.672	.000
Level of registration preparation	-.570	.000
Tertiary Qualification (post registration)	-.306	.026
Frequency of reading professional journals	-.286	.038

Note: * p<.05 moderate level of significance
**** p<.01 high level of significance**
p>0.5 no significant correlation

nurse's attitudes toward EBP are important factors influencing the practise of individual components of EBP. Educational preparation of the nurses was also shown to have a positive influence on the practise of individual components of EBP and the knowledge/skills relevant to its implementation.

Discussion

Findings from this study demonstrate that knowledge and skills relevant to the implementation of EBP, nurses' attitudes toward EBP and the educational preparation of the nurses were important factors influencing the practice of individual components of EBP. In the present study significant relationships were identified between the knowledge and skills relevant to the implementation of EBP, the practice of individual components of EBP and having a tertiary qualification (as a route to registration as a registered nurse or post registration). These findings suggest that education positively influences nurses' understanding of EBP as well as the skills required to critically appraise and/or undertake research, and translate findings into practice. These results support findings from previous research (see Kuuppelomaki & Tuomi, 2005; Olade, 2004).

Results also demonstrated that practice nurses' attitudes toward EBP were associated with the practice of individual components of EBP. These findings were consistent with previous studies, which concluded that positive attitudes on the part of nursing staff toward EBP were important for the effective utilisation and application of evidence in nursing practice (Camiah, 1997; Upton & Upton, 2006). This is further supported by Frasure (2008) who identified that positive individual beliefs and attitudes were shown to influence the utilisation of EBP in clinical areas.

Level of registration preparation was also one of the characteristics of the nurses in this study which had a positive association with the practice of individual components of EBP and with the knowledge and skills relevant to the implementation of EBP. Nurses who had completed tertiary education (post registration) were also found to have increased knowledge and skills relevant to the implementation of EBP. These results support the conclusions of previous studies that educational preparation matters in terms of a commitment to utilisation of EBP to underpin nursing practice (Kajermo et al., 2000; Olade, 2004).

There is a need to identify and overcome the barriers to the utilisation of research, such as the lack of knowledge and skills to read research, negative attitudes toward research and lack of support and resources in clinical practice (Parahoo, 1998). Despite the introduction of research methods into nursing curricula, there are still many nurses who have not been equipped with the appropriate knowledge and skills to implement evidence in practice. Higher educational levels have been found to positively affect perceptions of research in practice (Karkos & Peters, 2006; McCleary & Brown, 2003). Melnyk et al. (2004) identified educational interventions targeted toward strengthening nurses' attitudes about the benefit of EBP were a way of motivating nurses to learn and engage in EBP. Educational interventions are identified as an integral aspect of implementing EBP (Koehn & Lehman, 2008) and for enhancing practice nurses' knowledge and skill.

Study limitations.

There are methodological limitations common to all survey designs. One of the main disadvantages of using a self-completed postal questionnaire is the potential for a low response rate (Robson, 2002). Although the response rate was lower than a desired rate of at least 65%, the 50% rate falls within the norm (Polit & Beck, 2008). Research using random sampling is needed to assess whether the findings in this study can be generalised to the greater population of practice

nurses. Further research is also recommended to examine the different types of evidence used to inform practice and factors influencing the achievement of EBP in primary health care including the organisational and contextual factors.

Conclusion

There is a lack of research in New Zealand and internationally that has studied nurses' implementation of research findings in primary health care. Providing evidence-based primary health care has the potential to improve the health and well being of people and communities. To enable nurses to provide a coherent primary health care service they need to be skilled in evidence acquisition, interpretation and implementation and be able to evaluate the impact of the implemented evidence on health and wellbeing. Educational programmes are needed that provide nurses with the necessary skills to enable them to use research findings effectively in clinical practice. One of the pivots of EBP is the ability of nurses to access, accurately interpret and appropriately implement research-based and other evidence into the clinical setting.

Editorial Note:

The authors of this article originally referred to 'Practice Nurses' as 'Primary Health Care Nurses' - a practice the Editorial Board would normally advocate. However, based on reviewer feedback that aspects of this article related specifically to Practice Nurses and the context within which they work, the authors were asked to use the term 'Practice Nurses'.

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