Nurses’ roles in health promotion practice: an integrative review

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SUMMARY
Nurses play an important role in promoting public health. Traditionally, the focus of health promotion by nurses has been on disease prevention and changing the behaviour of individuals with respect to their health. However, their role as promoters of health is more complex, since they have multi-disciplinary knowledge and experience of health promotion in their nursing practice. This paper presents an integrative review aimed at examining the findings of existing research studies (1998–2011) of health promotion practice by nurses. Systematic computer searches were conducted of the Cochrane databases, Cinahl, PubMed, Web of Science, PsycINFO and Scopus databases, covering the period January 1998 to December 2011. Data were analysed and the results are presented using the concept map method of Novak and Gowin. The review found information on the theoretical basis of health promotion practice by nurses, the range of their expertise, health promotion competencies and the organizational culture associated with health promotion practice. Nurses consider health promotion important but a number of obstacles associated with organizational culture prevent effective delivery.

Key words: health care; nursing; competencies; health

INTRODUCTION
The role of nurses has included clinical nursing practices, consultation, follow-up treatment, patient education and illness prevention. This has improved the availability of health-care services, reduced symptoms of chronic diseases, increased cost-effectiveness and enhanced customers’ experiences of health-care services (Strömberg et al., 2003; Griffiths et al., 2007). In addition, health promotion by nurses can lead to many positive health outcomes including adherence, quality of life, patients’ knowledge of their illness and self-management (Bosch-Capblanc et al., 2009; Keleher et al., 2009). However, because of the broad field of health promotion, more research is needed to examine the role of health promotion in nursing (Whitehead, 2011).

The concept of health promotion was developed to emphasize the community-based practice of health promotion, community participation and health promotion practice based on social and health policies (Baisch, 2009). However, empirical studies indicate that nurses have adopted an individualistic approach and a behaviour-changing perspective, and it seems that the development of the health promotion concept has not influenced practical health promotion practices by nurses (Casey, 2007a; Irvine, 2007). On the other hand, there has been much discussion about how to include health promotion in nursing programmes and how to redirect nurse education from being disease-orientated towards a health promotion ideology (Rush, 1997; Whitehead, 2003; Mcilfatrick, 2004).
The aim of this integrative review was to collate the findings of past research studies (1998–2011) of nurses’ health promotion activities. The research questions addressed were: (i) What type of health promotion provides the theoretical basis for nurses’ health promotion practice? (ii) What type of health promotion expertise do nurses have? (iii) What type of professional knowledge and skills do nurses undertaking health promotion exhibit? (iv) What factors contribute to nurses’ ability to carry out health promotion?

METHODS

An integrative review was chosen because it allowed the inclusion of studies with diverse methodologies (for example, qualitative and quantitative research) in the same review (Cooper, 1989; Whittemore, 2005; Whittemore and Knafl, 2005). Integrative reviews have the potential to generate a comprehensive understanding, based on separate research findings, of problems related to health care (Kirkevold, 1997; Whittemore and Knafl, 2005). The integrative review was split into the following phases: problem identification, literature search, data evaluation, data analysis and presentation of the results (Whittemore and Knafl, 2005).

Search method

Several different databases were searched to identify relevant published material. Systematic searches of the Cochrane databases, Cinahl, PubMed, Web of Science, PsycINFO and Scopus databases were undertaken using the search string ‘nurs* AND professional competence* OR clinical competence* OR professional skill* OR professional knowledg* OR clinical skill* OR clinical knowledg* AND health promotion OR preventive health care OR preventive healthcare’. The searches were limited to studies published during the period 1998–2011 because, prior to 1998, nurses’ health promotion practice was mainly linked to health education.

Search result

The original search identified 1141 references: 119 in the Cochrane databases; 227 in Cinahl, 345 in PubMed, 128 in the Web of Science, 100 in PsycINFO and 222 in Scopus. After duplicate papers were excluded one researcher (V.K.) read the titles and abstracts of the remaining 412 research papers. No specific evaluation criteria are employed when conducting an integrative review using diverse empirical sources; one approach is to evaluate methodological quality and informational value (Whittemore and Knafl, 2005). All three researchers (V.K., K.T. and H.T.) defined the inclusion criteria together. Studies were included in the integrative review if they met the following criteria: the language had to be English, Swedish or Finnish, as translators for other languages were not available and the papers had to be published in peer-reviewed journals and describe nurses’ health promotion roles, knowledge or skills and/or factors that contributed to nurses’ ability to implement health promotion in nursing delivered through hospital or primary health-care services. The main exclusion criteria were: the published works were editorials, opinions, discussions or textbooks, or they described health promotion programmes, competencies other than health promotion or nursing curricula, or if the group studied included patients. The included studies were tabulated in chronological order under the following headings: citation, aim of the paper, methodology, size of the sample, measured variables, method of analysis, major results, concepts used as the basis of the study and limitations. Studies included in this review are available in Supplementary data, Table S1.

Data analysis

Conducting an integrative review that analyses various types of research paper is a major challenge (Whittemore and Knafl, 2005). In this review, the concept map method was adopted for both data analysis and presentation of the results. The use of concept mapping promotes conceptual understanding and provides a strategy for analysing and organizing information and identifying, graphically displaying and linking concepts. The concept map method was applied according to the recommendations of Novak and Gowin ([Novak and Gowin, 1984], p. 15–40] and Novak (Novak, 1993, 2002, 2005). According to Novak (Novak, 1993, 2002, 2005) the process of concept mapping involves six phases: (i) Identify a key question that focuses on a problem, issue or knowledge central to the purpose of the concept map. (ii) Identify concepts through the key question. (iii) Start to
construct the concept map by placing the key concepts at the top of the hierarchy. After that, select defining concepts and arrange hierarchically below of the key concepts. (iv) Combine the concepts by cross-links or links between concepts in different segments or domains of the concept map. (v) Give the cross-links a name of a word or two. (vi) To concepts can be added specific examples of events or objectives that clarify the meaning of the concept.

All three researchers (V.K., K.T. and H.T.) were involved in the concept mapping process. The process proceeded as follows: first, one researcher (V.K.) read studies that met the inclusion criteria and the concepts were identified through the four research questions upon which the review is based. Second, one researcher (V.K.) began to construct four concept maps hierarchically. This was achieved by putting the key concepts on the top of the left side of a page then listing definitions of the concepts down the middle of each page. Other researchers (K.T. and H.T.) verified the first and the second phases of the concept mapping process. Third, one researcher (V.K.) continued the construction of each concept map by combining main concepts and definition concepts using links that were then named. Other researchers (K.T. and H.T.) critically evaluated the concept maps thus produced. Fourth, one researcher (V.K.) selected examples of the main concepts and these were listed on the right side of each page for clarification.

RESULTS

In the end 40 research papers, were included in our integrative review. The research papers were methodologically very diverse: 16 of them included qualitative approaches; 14 were different types of reviews; 8 were quantitative; 1 used concept analysis and 1 was a mixed-method study. Twelve empirical studies were conducted in hospitals and fourteen in primary health-care settings. Eleven studies were published in the period 1998–2004, twenty-two between 2005 and 2009 six between 2010 and 2011.

What type of health promotion provides the theoretical basis for nurses’ health promotion practice?

The theoretical basis underlying nurses’ health promotion activities was identified in 25 of the research papers (Benson and Latter, 1998; McDonald, 1998; Robinson and Hill, 1998; Sheils and Lindsey, 1998; Burge and Fair, 2003; Hopia et al., 2004; Whitehead, 2004, 2006a,b,c, 2009, 2011; Berg et al., 2005; Runciman et al., 2006; Casey, 2007a,b; Folke et al., 2007; Irvine, 2007; Piper, 2008; Witt and Puntel de Almeida, 2008; Chambres and Thompson, 2009; Fagerström, 2009; Richard et al., 2010; Samarasinghe et al., 2010; Povlsen and Borup, 2011). According to these papers the theoretical basis of health promotion reflects the type of practical actions undertaken by nurses to promote the health of patients, families and communities. The research suggests that nurses work from either a holistic and patient-oriented theoretical basis or take a chronic diseases and medical-oriented approach. These theoretical foundations were considered to represent the main concepts of health promotion orientation and public health orientation in this review (Figure 1).

Health promotion orientation

The most common factor influencing the concept of health promotion orientation was individual perspective (Robinson and Hill, 1998; Hopia et al., 2004; Runciman et al., 2006; Casey, 2007a; Chambres and Thompson, 2009; Samarasinghe et al., 2010; Povlsen and Borup, 2011). When nurses’ health promotion activities were guided by individual perspective nurses’ exhibited a holistic approach in their health promotion practice, they concentrated on activities such as helping individuals or families to make health decisions or supporting people in their engagement with health promotion activities (Hopia et al., 2004; Irvine, 2007; Chambres and Thompson, 2009; Samarasinghe et al., 2010; Povlsen and Borup, 2011). Nurses’ strategies for health promotion included giving information to patients and providing health education (Casey, 2007a). However, patient participation was mainly limited to personal aspects of care, such as letting patients decide on a menu, when to get out of bed and what clothes they wanted to wear (Casey, 2007a).

The second common defining concept of health promotion orientation was empowerment, which was related to collaboration with individuals, groups and communities (McDonald, 1998; Berg et al., 2005; Whitehead, 2006a; Irvine, 2007; Piper, 2008; Richard et al.,
Fig. 1: Concepts and examples of the theoretical basis of nurses’ health promotion activities.

2010; Samarasinghe et al., 2010). Such orientation was described in these studies in terms of nurse–patient communication and patient, group and community participation. Although these studies found empowerment to be one of the most important theoretical bases for health promotion activities by nurses, empowerment was not embedded in nurses’ health promotion activities (Irvine, 2007).

The third common defining concept of health promotion orientation was social and health policy (Benson and Latter, 1998; Whitehead, 2004). These studies focused on the role of governmental and non-governmental organizations in shaping health policies and promoting health through community involvement.

Table: Theoretical Bases of Nurses’ Health Promotion Activities

<table>
<thead>
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<th>Theoretical Basis</th>
<th>Examples from included studies</th>
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| Individual perspective          | - Helping people to make health decisions  
- Helping people to engage in health promotion activities  
- Holistic orientation  
- Client-focused health promotion in nursing practice |
| Empowerment                      | - Psychological support  
- Nurse-patient communication  
- Enabling patient’s participation  
- Collaboration with patients |
| Social- and health policy       | - Declarations of professional organisations  
- Directives of governmental organisations  
- WHO charters and declarations |
| Community orientation            | - Work collaboratively with other professionals and communities  
- Voluntary work in communities |
| Disease prevention               | - Focus on diagnosis and physical health  
- Interventions for patients with chronic diseases |
| Authoritative approach           | - Giving information to patients  
- Traditional health education  
- Changing the behaviour of individuals |
These studies suggested that nurses’ health promotion activities should be based on the recommendations in, for example, the World Health Organization’s (WHO) charters and declarations and directives and guidance from professional and governmental organizations. However, the studies examined found that nurses were not familiar with social and health policy documents and that they did not apply them to their nursing practice (Benson and Latter, 1998; Whitehead, 2011).

The last defining concept of health promotion orientation was community orientation (Sheilds and Lindsey, 1998; Whitehead, 2004; Witt and Puntel de Almeida, 2008). These papers revealed that nurses had knowledge of community-orientated health promotion: they were expected to use health surveillance strategies, work collaboratively with other professionals and groups and respect and interact with different cultures. In addition a health promotion orientation appeared to result in nurses working more closely with members of communities, for example, being involved in voluntary work and implementation of protective and preventive health measures.

Public health orientation
Public health-orientated chronic disease prevention and treatment has traditionally been the theoretical basis of nurses’ health promotion activities (Burge and Fair, 2003; Berg et al., 2005; Whitehead, 2006c; Folke et al., 2007; Casey, 2007b; Irvine, 2007; Chambres and Thompson, 2009; Fagerström, 2009; Richard et al., 2010).

The first defining concept of public health orientation was disease prevention (Berg et al., 2005; Whitehead, 2006c; Folke et al., 2007; Irvine, 2007; Fagerström, 2009; Richard et al., 2010). According to these studies, this occurred in health promotion when the focus was on diagnosis, physical health and the relief of the physical symptoms of disease. The second defining concept of public health orientation was the authoritative approach (Burge and Fair, 2003; Casey, 2007b; Irvine, 2007; Chambres and Thompson, 2009). This approach emphasizes the need for nurses to give information to patients. In addition, the authoritative approach suggests that health promotion activities should aim to change patients’ behaviour (Irvine, 2007; Chambres and Thompson, 2009).

What type of health promotion expertise do nurses have?
The expertise of nurses with respect to health promotion was described in 16 research papers (Robinson and Hill, 1998; Whitehead, 2001, 2006b, 2007, 2009, 2011; Hopia et al., 2004; Cross, 2005; Jerden et al., 2006; Runciman et al., 2006; Kelley and Abraham, 2007; Witt and Puntel de Almeida, 2008; Fagerström, 2009; Parker et al., 2009; Goodman et al., 2011; Whitehead, 2011). According to these papers nurses implemented a range of types of health promotion activity and applied different health promotion expertise across a wide range of nursing contexts. Depending on the context nurses are able to make use of a variety of types of expertise in health promotion. Nurses can be classified into: general health promoters, patient-focused health promoters and project management health promoters (Figure 2).

General health promoters
Health promotion by nurses is associated with common universal principles of nursing. The most common health promotion intervention used by nurses is health education (Robinson and Hill, 1998; Whitehead, 2001, 2007, 2011; Runciman et al., 2006; Witt and Puntel de Almeida, 2008; Parker et al., 2009). General health promoters are expected to have knowledge of health promotion, effective health promotion actions, national health and social care policies and to have the ability to apply these to their nursing practice (Witt and Puntel de Almeida, 2008; Whitehead, 2009).

Patient-focused health promoters
There is growing recognition that different patient groups, such as the elderly or families with chronic diseases, have different health promotion needs. In promoting the health of these different groups, nurses can be regarded as patient-focused health promoters (Hopia et al., 2004; Cross, 2005; Jerden et al., 2006; Kelley and Abraham, 2007; Goodman et al., 2011). These studies revealed that when health promotion for patient groups who need high levels of
Types of expertise

General health promoters
- Robinson and Hill, 1998
- Runciman et al., 2006
- Witt and Puntel de Almeida, 2008
- Parker et al., 2009

Examples from included studies
- Applies health education knowledge in nursing interventions
- Gives health education to patients
- Traditional health educator

Patient-focused health promoters
- Hopia et al., 2004
- Cross, 2005
- Jerden et al., 2006
- Kelley and Abraham, 2007
- Goodman et al., 2011

Examples from included studies
- Have knowledge of different types of diseases and symptoms
- Identify health promotion needs of different groups (e.g., families or older people)
- Professional interaction focused on the specific disease or physical problems

Managers of health promotion projects
- Runciman et al., 2006
- Whitehead, 2006b
- Witt and Puntel de Almeida, 2008
- Fagerström, 2009

Examples from included studies
- Health care managers need to be the key implementers of health promotion
- Co-ordinates educational actions in the health unit and community
- Take a part in health promotion initiatives of individuals, families and community

Fig. 2: Concepts and examples of the types of nurses’ expertise as health promoters.

care and treatment is required, nurses must have the ability to include health promotion activities in their daily nursing practice.

Managers of health promotion projects
Nurses should be able to plan, implement and evaluate health promotion interventions and projects (Runciman et al., 2006; Whitehead, 2006b; Witt and Puntel de Almeida, 2008; Fagerström, 2009). Projects can facilitate the development of health promotion in nursing practice (Runciman et al., 2006). Thus, managers of health promotion projects should have advanced clinical skills and take the responsibility in supervising and leading research and development actions in nursing as well as having the ability to co-ordinate educational and developmental interventions in health-care units and communities (Witt and Puntel de Almeida, 2008; Fagerström, 2009).

What type of professional knowledge and skills do nurses undertaking health promotion exhibit?
Nurses’ knowledge of health promotion and their relevant practical skills were described in 18 research papers (McDonald, 1998; Nacion et al., 2000; Burge and Fair, 2003; Whitehead, 2003; Hopia et al., 2004; Reeve et al., 2004; Spear, 2004; Cross, 2005; Irvine, 2005, 2007; Rush et al., 2005; Jerden et al., 2006; Casey, 2007b; Kelley and Abraham, 2007; Piper, 2008; Witt and Puntel de Almeida, 2008; Wilhelmsson and Lindberg, 2009; Goodman et al., 2011). These studies suggested that nurses’ health promotion activities consisted of a variety of
competencies. We classified these into multidisciplinary knowledge, skill-related competence, competence with respect to attitudes and personal characteristics (Figure 3).

![Diagram of health promotion competencies]

**Fig. 3:** Concepts and examples of nurses' health promotion competencies.

**Multidisciplinary knowledge**
Nurses’ health promotion activities were often based on a broad and multidisciplinary
knowledge (Nacion et al., 2000; Burge and Fair, 2003; Spear, 2004; Irvine, 2005; Casey, 2007b; Witt and Puntel de Almeida, 2008; Whitehead, 2009). This included a knowledge of: health in different age groups; epidemiology and disease processes and health promotion theories. In addition, nurses need to have the ability to apply this knowledge to their health promotion activities (Burge and Fair, 2003; Spear, 2004; Irvine, 2005; Runciman et al., 2006; Piper, 2008; Witt and Puntel de Almeida, 2008). Nurses were also expected to be aware of economic, social and cultural issues, social and health policies and their influence on lifestyle and health behaviour (Burge and Fair, 2003; Irvine, 2005).

Skill-related competence

Nurses must possess a variety of health promotion skills; of these, communication skills were considered to be the most important (McDonald, 1998; Nacion et al., 2000; Burge and Fair, 2003; Hopia et al., 2004; Irvine, 2005; Jerden et al., 2006; Casey, 2007b). Nurses play a particularly important role when they encourage patients and their families to participate in decision-making related to treatment or to discuss and express their feelings about situations associated with serious illness (Hopia et al., 2004). Skill-related competence also includes the ability to support behavioural changes in patients and the skill to respond to patients’ attitudes and beliefs (Burge and Fair, 2003). In addition, skill-related competence involves teamwork, time management, information gathering and interpretation and the ability to search for information from different data sources (Irvine, 2005; Jerden et al., 2006).

Competence with respect to attitudes

Competence with respect to attitudes emerged as a positive feature of health promotion (Whitehead, 2003; Reeve et al., 2004; Spear, 2004; Cross, 2005; Irvine, 2005, 2007; Kelley and Abraham, 2007; Piper, 2008; Wilhelmsson and Lindberg, 2009). Effective health promotion practice requires nurses to adopt a proactive stance and act as an advocate. An affirmative and egalitarian attitude towards patients and their families, as well as the desire to promote their health and well-being, are important attitudes with respect to health promotion activities (Irvine, 2005, 2007; Wilhelmsson and Lindberg, 2009). In addition, nurses who have personal experience, for example, of having had a baby, have a more positive attitude towards promoting the health of patients in the same situation (Spear, 2004).

Personal characteristics

Traditionally, nurses were perceived to be healthy role models, engaging in healthy activities, not smoking and maintaining an ideal weight (Burge and Fair, 2003; Reeve et al., 2004; Rush et al., 2005). In addition, personal confidence and flexibility are personal characteristics that nurses working in health promotion are expected to possess (Burge and Fair, 2003; Rush et al., 2005).

What factors contribute to nurses’ ability to carry out health promotion?

Thirteen research papers identified features which contributed to nurses’ health promotion activities (Robinson and Hill, 1998; Reeve et al., 2004; Jerden et al., 2006; Runciman et al., 2006; Whitehead, 2006b, 2009, 2011; Casey, 2007a,b; Kelley and Abraham, 2007; Wilhelmsson and Lindberg, 2009; Beaudet et al., 2011; Goodman et al., 2011). All of the features related to cultural aspects of the organization in which nurses work. We considered that these could be classified as either supportive or discouraging (Figure 4).

First, organizational culture consisted of three supportive aspects: hospital managers, culture of health and education. The hospital managers were responsible for whether health promotion was a strategically planned and whether it was considered to be of great importance (Whitehead, 2006b, 2009). In addition, the hospital managers were key individuals in ensuring that health promotion activities did not conflict with other work priorities (Jerden et al., 2006; Casey, 2007a; Beaudet et al., 2011). Hospital managers also have an important role in cultivating a culture of health in the work community, for instance by prohibiting smoking during working time (Casey, 2007a). Education enhanced nurses’ health promotion skills and health promotion projects were catalysts for health promotion in nursing practice (Goodman et al., 2011). Organizational culture included three discouraging factors. The major one was a lack of resources, including a lack of time, equipment (e.g. computers) and health
education material (Robinson and Hill, 1998; Reeve et al., 2004; Runciman et al., 2006; Casey, 2007b; Kelley and Abraham, 2007; Wilhelmsson and Lindberg, 2009; Beaudet et al., 2011). In addition, nurses may lack skills to implement health promotion in their working place (Goodman et al., 2011). Recent studies have also revealed that health promotion activities are still unclear to nurses (Beaudet et al., 2011; Whitehead, 2011).

**DISCUSSION**

Several authors have identified a need to clarify the concept of health promotion in nursing (Goodman et al., 2011; Whitehead, 2011). We found the concept map method useful to enhance conceptual understanding of this complex nursing phenomenon. This integrative review was intended to identify the findings of nursing-specific studies of health promotion activities published in the period 1998–2011. We identified 40 relevant English research papers. Most of these studies were published between 2005 and 2009. Combining qualitative and quantitative studies is complex and can introduce bias and error (Whittemore and Knafl, 2005). The data examined herein originated from methodologically diverse research. Therefore, we should be cautious of generalizing our findings. Most of the studies were qualitative, but a broad range of health promotion activities undertaken by nurses was described. The concept map method was used to analyse the data; the results of this review are reported both

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**Fig. 4:** Concepts and examples of organizational culture associated with health promotion activities.
as text and concept maps. Concept maps are rarely used as a data analysis tool and therefore we employed researcher triangulation (V.K., K.T. and H.T.) during the research process; this enhanced our understanding and increased scientific rigour (Jones and Bugge, 2006).

We found that health promotion and public health orientation have guided nurses’ health promotion activities (e.g. McDonald, 1998; Whitehead, 2009; Richard et al., 2010; Povlsen and Borup, 2011). It was surprising that, even though there has been much public debate and research has emphasized that health policies should guide nurses’ health promotion activities worldwide, health policies have little impact on nursing practice (e.g. Benson and Latter, 1998; Irvine, 2007; Whitehead, 2011). Nurses have a variety of types of expertise, some working as general health promoters, some as patient-focused health promoters and some as managers of health promotion projects (e.g. Whitehead, 2008; Witt and Puntel de Almeida, 2008; Fagerström, 2009; Goodman et al., 2011). The management of health promotion projects is particularly important, although only three studies (Whitehead, 2006b; Witt and Puntel de Almeida, 2008; Fagerström, 2009) described the type of expertise possessed by such managers. We found that there has been great interest in nurses’ health promotion competencies (e.g. Irvine, 2005, 2007; Witt and Puntel de Almeida, 2008; Wilhelmsson and Lindberg, 2009).

A number of studies found that nurses’ health promotion activities were based on multidisciplinary knowledge (e.g. Burge and Fair, 2003; Irvine, 2005; Whitehead, 2009). Interestingly, knowing about the trends that will influence the population’s health in the future, such as multiculturalism, new technologies and ecological changes, were not identified as nurses’ health promotion competencies. Unexpectedly for us the competencies associated with attitudes were not emphasized as one of the most important competencies even though nurses should be advocates of good health. We also found that nurses’ individual health-related beliefs and lifestyles are important personal characteristics in health promotion and that nurses are expected to be healthy role models (e.g. Burge and Fair, 2003; Reeve et al., 2004; Rush et al., 2005). Nurses are aware of the importance of health promotion, but organizational culture with respect to health promotion can either support or discourage them from implementing it (e.g. Reeve et al., 2004; Casey, 2007a,b; Goodman et al., 2011; Whitehead, 2011). Managers in health-care organizations should appreciate the value of health promotion activities and ensure adequate resources for their implementation (e.g. Casey, 2007b; Beaudet et al., 2011).

CONCLUSION

According to much of the health promotion research, it appears that nurses have not yet demonstrated a clear and obvious political role in implementing health promotion activities. Instead, nurses can be considered general health promoters, with their health promotion activities based on sound knowledge and giving information to patients. Nursing is an appropriate profession in which to implement health promotion, but several barriers associated with organizational culture have a marked effect on delivery. Therefore, more research is needed to determine how to support nurses in implementing health promotion in their roles in a variety of health-care services.

SUPPLEMENTARY DATA

Supplementary data are available at HEAPRO Online.

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AUTHORS’ CONTRIBUTIONS

V.K. was responsible for the computer-based data searches and the data analysis via the concept map method. K.T. and H.T. verified that the data searches were made properly. K.T. and H.T. verified that the concept mapping process proceeded properly and made critical appraisals in every phase of the research process. V.K. was responsible for the drafting of the manuscript. K.T. and H.T. made critical revisions to the paper for important intellectual contents, conceptualization, support in theorizing the findings and provided material support. K.T. and H.T. supervised the study.
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