

**A strategy to promote nurses' health research
contribution in South Africa**

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"We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time."

TS (Thomas Stearns) Eliot

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Soli Deo Gloria

Abstract

Professionals in the medical field often question the value and contribution nurses make through research. To counteract these perceptions, to create awareness of nurses of their role in contributing to the body of knowledge of nursing and to improve the implementation of research findings, it is important to design and implement a strategy for the promotion of all aspects of research by nurses.

This research intended to describe and explore the contribution of research by nurses in South Africa. This was done by exploring perceptions of stakeholders, as well as analysing the nature of research by nurses listed in the Nexus database and published articles. This information was used to explore and describe a strategy to promote nurses' research contribution, and to explore the feasibility of this strategy in the Southern District of the North West Province.

An explorative and descriptive, qualitative and quantitative design was employed in this research. A literature study preceded the execution of the research. The research was conducted in three phases. The first phase consisted of a Delphi study, which resulted in the formulation of a proposed strategy. In a follow-up phase, eleven focus group interviews were conducted with groups in the Southern District of the North West Province to verify the proposed strategy and to explore the feasibility of the strategy. During the last phase a profile of research conducted by nurses in South Africa was composed.

Information gathered through all the phases of the research revealed similar results about important aspects of research by nurses. This contributed mainly to the development of a strategy to promote nurses' research. This strategy was verified and refined and is recommended for implementation in the Southern District of the North West Province, with the intention to evaluate the impact of the strategy for refinement and wider application.

Key words: Nurses, research, health research, strategy, contribution.

Opsomming

Professionele lui in die mediese veld bevraagteken dikwels die waarde en bydrae van verpleegkundiges deur navorsing. Om hierdie persepsies teë te werk, om navorsingsbewustheid by verpleegkundiges oor hulle rol in die bydrae tot die kennisliggaam van verpleegkunde te kweek en om die implementering van navorsingsbevindinge te verbeter, is dit belangrik om 'n strategie vir die bevordering van alle aspekte van navorsing deur verpleegkundiges te ontwikkel en te implementeer.

Hierdie navorsing het ten doel gehad om verpleegkundiges in Suid-Afrika se navorsingsbydrae te verken en te beskryf. Dit is gedoen deur belanghebbendes se opinies te verken, sowel as deur die aard van navorsing deur verpleegkundiges, soos gelys in die Nexus-databasis en gepubliseerde artikels, te analiseer. Hierdie inligting is gebruik om 'n strategie om verpleegkundiges se navorsingsbydrae te verken en te beskryf, en om die uitvoerbaarheid van hierdie strategie in die Suidelike Distrik van die Noordwesprovinsie te verken.

'n Verkennende en beskrywende, kwalitatiewe en kwantitatiewe ontwerp is in hierdie navorsing gebruik. 'n Literatuurstudie het die uitvoering van die navorsing voorafgegaan. Die navorsing is in drie fases uitgevoer. Die eerste fase het bestaan uit 'n Delphi-studie, wat die formulering van 'n voorgestelde strategie tot gevolg gehad het. In 'n opvolgfase is elf fokusgroep-onderhoude met groepe in die Suidelike Distrik van die Noordwesprovinsie gevoer, om die strategie te verifieer en om die uitvoerbaarheid van die strategie te verken. Gedurende die laaste fase van die navorsing is 'n profiel van navorsing deur verpleegkundiges in Suid-Afrika saamgestel.

Inligting wat in die fases van die navorsing ingesamel is het soortgelyke belangrike aspekte oor navorsing deur verpleegkundiges onthul. Dit het hoofsaaklik bygedra tot die ontwikkeling van 'n strategie om die navorsingsbydrae van verpleegkundiges te bevorder. Die strategie is geverifieer en verfyn, en word aanbeveel vir implementering in die Suidelike

Distrik van die Noordwesprovinsie, met die ingesteldheid om die impak van die strategie te evalueer vir verdere verfyning en wyer toepassing.

Sleutelwoorde: Verpleegkundiges, navorsing, gesondheidsnavorsing, strategie, bydrae.

Preface

The article format was chosen for this research report. The PhD candidate, Mrs Emmerentia du Plessis, conducted the research and wrote the manuscripts. Prof SP Human acted as promoter and auditor by providing valuable guidance during the research process, and critically evaluating research report writing, thereby enhancing the quality of the research. Five manuscripts have been written and will be submitted for publication:

- Manuscript one: "Health research conducted by nurses – making our contribution count" (Literature overview) (*Journal of Nursing Scholarship*)
- Manuscript two: "A profile of health research conducted by nurses in South Africa" (*Journal of Nursing Scholarship*).
- Manuscript three: "The art of the Delphi technique: scientific application" (*Health SA Gesondheid*).
- Manuscript four: "Opinions on a strategy to promote nurses' research contribution in South Africa" (*Health SA Gesondheid*).
- Manuscript five: "Exploring a strategy to promote nurses' research contribution" (*Health SA Gesondheid*).

Consent to submit these manuscripts for examination was obtained from the co-author, Prof SP Human, as follows:

I Susara Petronella (Sarie) Human hereby consent that the manuscripts as mentioned above, of which I am a co-author, may be submitted for the purpose of examination for the degree PhD (Nursing Science) (PhD candidate: Mrs Emmerentia du Plessis).

Prof SP Human

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Overview of the research

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1. Introduction and problem statement

Internationally, health research is perceived to be of the utmost importance. The World Health Organisation views health research as such an important aspect of health that the promotion and conduct of research is a core element of its Constitution (WHO, 2002:1). Health research is regarded to be important as it serves as an essential tool to provide evidence-based policies and strategies to improve health service delivery (COHRED, 2004:1). In South Africa this view is strongly supported, and a significant contribution to health research by all stakeholders in health research is required (Muller, 1998:9). Literature indicates that stakeholders' contribution to health research is valuable if the research they conduct is relevant, if research results are disseminated and implemented, if the number of researchers is adequate, if the researchers are competent to conduct research and if the research conducted is a focused, coordinated and collaborative effort (COHRED, 2004:1; WHO, 2002:1; SA, 1997:18).

Health research conducted by nurses

Nurses, as stakeholders in health research, have the potential to make valuable contributions in health research (Sajiwandani, 1998:35), as the ultimate goal of research conducted by nurses is to improve nursing care, and ultimately, to improve the health of the nation (Poggenpoel, 1998:2; Botes, 2001:17; Kotze, 1984:11; Searle, 1990:1; Bergman, 1992:32). However, concern regarding the research contribution of nurses exists (Sajiwandani, 1998:35).

Specific concern is raised regarding the lack of clinical research within the profession of nursing science (Muller, 2000:3). In this context, clinical research is understood as research that investigates nursing problems, and

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research through which results that are significant to nursing practice and patient outcomes are generated, as defined by McGowan (1994:1).

Further concern is raised by Brink (1992:29) and Ehlers (2004), namely that the majority of health research conducted by nurses focus on the nurse as caregiver rather than on health care as such. It also appears that while exploratory, descriptive and contextual research is conducted (Stuart, 2003:2; Zeeman *et al.*, 2002:34), the growing need for operational research and community-based participatory research receives less attention (Muller, 2000:3). The significance of health research conducted by nurses is thus questioned.

The fact that this research is mostly conducted by postgraduate students who conduct research mainly to obtain a postgraduate qualification, contribute to the perceptions that nurses are not research oriented and that they therefore do not contribute largely to the development of nursing science (Searle, 1990:1, Brink, 1992:29). This might be a contributing factor to the situation that independent, replication and follow-up research by nurse are limited (Poggenpoel, 2001:2; Muller, 2000:3, Hunt, 1995:1) and that research results are neither disseminated effectively nor implemented optimally (Zeelie *et al.*, 2003:10; Bergman, 1992:33, Hunt, 1995:1).

This situation is aggravated by the fact that the number of nurses conducting health research is limited (Botes, 1993:24, Potgieter, 2003:2; Kim, as quoted by Ehlers, 2001:79). Brink (1992:30) further argues that if nurses engage in health research, the provision of guidance and mentoring to nurses might be inadequate due to only a small group of nurse research leaders in South Africa. The lack of experienced nurse researchers and the limited nurse involvement in decision making in research impact on the advancement of nursing research at national and international levels (Ehlers, 2001:79). Geyer (2000:3) confirms the view that the small number of nurse leaders serving on

research institutions such as the Medical Research Council (MRC), the Essential National Health Research (ENHR) committee and the International Network for Doctoral Education in Nursing (INDEN), should be substantially increased. Nurses should not only influence health research in South Africa, but health research conducted by nurses should reflect relevance to the health research environment in South Africa and internationally (Zeelie *et al.*, 2003:4).

Relevance

The current South African and international environment is characterised by the Essential National Health Research (ENHR) strategy (COHRED, 2001:1; SA, 1997:1). The aims of the ENHR strategy are increase relevance and impact by developing appropriate research agenda, coordinating research and optimising contributions to health research (COHRED, 2001:1). In line with this strategy, an ENHR task team developed a South African health research agenda, in the form of health research priorities (COHRED, 2001:10), as indicated in Table 1.

Table 1: Top ten ENHR priorities in South Africa as identified in 1996

<ul style="list-style-type: none">• Injury/trauma/violence (including rape)• Tuberculosis• Nutrition• HIV/Aids and STIs• Cancer (all)• Diarrhoeal Diseases• Respiratory infection (including COAD)• Mental Health (including substance abuse)• Malaria• Diabetes

Source: COHRED (2001:32)

These priorities are similar to international research priorities as described by the Council for Health Research and Development (COHRED, 2004:1, 2), the World Health Organisation (WHO, 2002:2) and the African Medical and Research Council (AMREF, 2004:1).

In publications in nursing journals over the past few years it was confirmed that nursing research should be responsive to South African health issues and should include aspects such as primary health care, traditional healing, politics in nursing science (Poggenpoel, 2001:2; Ehlers, 2002:2), intensive care nursing, mental health, substance abuse, youth, HIV and Aids, groups at risk (children and women), violence and nursing education (Stuart, 2003:2; Potgieter, 2003:2; Poggenpoel, 2001:2). The Democratic Nursing Organisation of South Africa (DENOSA) have also annually identified research priorities since 1983, and has developed a research strategy (DENOSA, 2003:1), similar to that of the International Council of Nurses (ICN, 2004:1). In spite of these efforts, it seems that research themes are chosen on an ad hoc basis and that there is a limited discernable body of focused research (Brink, 1992:30; Kortenbout, 1995:1). This limits the growth of the profession as well as the value of nurses' research contribution in health research.

Collaboration and coordination

Collaboration and coordination between research partners also pose specific challenges in promoting the contribution of health research conducted by nurses (Brink, 1992:31). This collaboration refers to intra-disciplinary and interdisciplinary cooperation to create a support system for nurse researchers and to advance networking and globalisation, as well as involving the community as equal partners in research (Poggenpoel, 1995:2; Brink, 1992:2; Muller, 2000:3, Bergman, 1992:32; Zeelie *et al.*, 2003:10; WHO, 2002:1). While collaboration is advocated in health research in South Africa (SA,

1997:18-20; HST, 2001:1; MRC, 2002:5) and progress has been made towards collaboration amongst individual nurses and groups of nurses nationally and internationally (Muller, 2000:2), there is little evidence of interdisciplinary collaboration or with the community (Brink, 1992:31). These factors contribute to the perceptions that nurses are generally not acknowledged as leaders in health research.

Funding

A further challenge within nursing research is that nurses have limited access to research funds. Bergman (1992:29) ascribes this limitation to the fact that funding authorities generally question nurses' ability to conduct research of high quality. Zeelie *et al.* (2003:8) as well as Uys (as quoted by Webb, 1998:485) argue that making funds available to nurses will specifically enhance the quality of their research. Nurses, however, are in general not experienced and therefore not often successful in generating own research funds or to write scientifically competitive proposals for research funding (Bergman, 1992:32).

Coordinated strategy to improve research

It is evident that research by nurses is not characterized by coordinated efforts to improve research or the impact of research. Ehlers (2001:79) and Muller (1998:9) suggest that a unifying strategy will be valuable to guide and promote nurses' research contribution. However, such a strategy does not exist, and research regarding this matter needs serious consideration.

2. Research questions

The following research questions thus came to mind:

- What is nurses' health research contribution in South Africa, as perceived by stakeholders who are influencing and influenced by this contribution?

- What health research is conducted by nurses in South Africa?
- What should a strategy entail to promote nurses' research contribution?

3. Research objectives

The overall goal of the research was to explore and describe nurses' health research contribution in South Africa and to formulate a strategy to promote this contribution. To achieve this goal, the following objectives were set:

- To explore and describe the opinion of stakeholders in health research on nurses' research contribution in South Africa.
- To develop a profile of health research conducted by nurses in South Africa.
- To develop a proposed strategy, based on the findings and to verify and refine this strategy in a specific context, namely the Southern District of the North West Province, in preparation for the implementation of the strategy.

4. Central theoretical argument

It seems that in South Africa, a spiral effect leads to the perception that research done by nurses is not of great value. This spiral involves the following: when research done by nurses does not make a visible and recognised contribution to the science of nursing, it in turn leads to a lack of acknowledgement by the scientific world. This lack of acknowledgement results in nurses themselves doubting the value of their research which completes the circle in creating the perception that research done by nurses are questionable in terms of its impact, value and contribution. Based on these components of the spiral, funding for nurses to conduct research is limited, development of leaders in nursing research inhibited and recognition of the value of research done by nurses mostly non-existent. It is therefore

essential to develop a strategy to break the spiral and which will lead to the promotion of the quality and value of research done by nurses to such an extent that its impact is visible and the contribution recognised.

5. Paradigmatic perspective

The paradigmatic perspective of the researcher informed research decisions, and is therefore explained below. The paradigmatic perspective consists of meta-theoretical, theoretical and methodological assumptions (Botes, 1992:40).

5.1 Meta-theoretical assumptions

These assumptions are based on a Christian worldview, and include assumptions regarding human beings, the environment, health and illness. The explanation of these assumptions is guided by works of Van der Walt (1994, 1999).

5.1.1 Human being

The researcher's view of human beings and therefore also of the nurses involved in this study, is inextricably connected to her view of God. She views God as the creator of the universe, and therefore agrees that He is the owner and ruler of Creation. He cares for His creation and is concerned about everyone in particular.

He created human beings in His image. Human beings bear God's image by the way we stand in a relationship with Him. He has given us a free will, and we may choose how we stand in a relationship with Him. He holds us accountable for this choice. Human beings are sinful, and we are only able to stand in a relationship with God by redemption in Christ. This relationship

grows when we serve and glorify Him by obeying His commandments. The love commandment stands central, namely that we should love God above all else, and love our fellow-humans as we love ourselves. We are guided and given insight by the Holy Spirit in obeying these commandments. We have a duty to be renewed continuously in order to reflect His image more and more, in order to glorify Him.

Human beings are created as complex, unique, multidimensional beings, as man or woman. The dimensions include human being as heart, human being as spirit, human being as body, human being as flesh, human being as soul and human being as mind. The dimensions are interwoven and a human being functions as a whole. God has given us the task of increasing, inhabiting, ruling, cultivating and caring for creation. Within this broad task, He has given each human being specific tasks, as well as specific gifts and talents, time, energy and means to fulfill these tasks. We fulfill these tasks within societal relationships and structures.

The influence of research on nurses as human beings and the actions followed in research as well as the influence of research on nurse researchers and their patients and clients, were viewed from this meta-theoretical view.

5.1.2 Environment

The environment, which may also be referred to as the society, belongs to God, and is the sphere in which human beings can live in communion with and in service of God. Within this environment human beings have the task to care for nature, as well as for each other. This task is carried out within a plurality of equal societal structures, such as marriage, family, school and government. The manner in which human beings carry out this task is reflected in societal structures as an expression of human beings' relationship

to God. Thus society is a reflection or result of how God is being served by that society.

Human beings are placed within societal structures, and are given authority to carry out specific tasks in these structures. Human beings should work towards fulfilling the calling of the societal structure, not intervene in other structures, and help the whole society to develop harmoniously in mutual coherence.

The society or environment of importance in this research was the sphere where health research is conducted by nurses, namely at the levels of nursing practice, nursing education and research.

5.1.3 Health and illness

Human beings experience health and illness in the totality of their being. The researcher agrees with the World Health Organization's definition of health, namely that it is "a (dynamic) state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1978). Illness is seen as an impairment in health; and health and illness are dynamic states. Research conducted by nurses have the potential to impact on health and illness, in that research results can have academic value – when it contributes to the body of knowledge of nursing and health related disciplines – as well as practice value – when research results are utilised in health care practice.

5.2 Theoretical assumptions

These assumptions are definitions of key terms used in this research, including contribution, nurses' research contribution, nurses, stakeholders, health research and strategy.

5.2.1 Contribution

The Cambridge Advanced Learner's Dictionary (2004:2) defines contribution as "something that you do or give to help produce or achieve something together with other people, or to help make something successful".

5.2.2 Nurses' research contribution

Based on research results of the literature study (manuscript 1), the Delphi study (manuscript 4) as well as on the definition of "contribution" (refer to 5.2.1) it was possible to formulate an operational definition of "nurses' research contribution". For the purpose of this research, the research contribution of nurses entails the degree to which nurses, in a coordinated effort and within a research-supportive environment, conduct relevant, high quality research, disseminate and implement research results and evaluate the impact of research, in order to improve health and health care.

5.2.3 Nurses

In this research the concept "nurses" primarily refers to individuals registered with the South African Nursing Council (SANC, 2006) as professional nurses who practice independently and have had basic training in research as part of their training as a professional nurse. Other categories of nurses, namely enrolled and auxiliary nurses, are also implied, as they work together with professional nurses as a team.

These nurses may work in academic settings and/or practice settings, and may perform research, practice, management and/or education roles.

5.2.4 Stakeholders

Stakeholders refer to entities or individuals who influence or who are influenced by research. In this research the relevant stakeholders were identified from literature, as explained in 6.1 and 6.2.

5.2.5 Health research

Research is seen as one of the core roles of the nurse, as discussed by Wright (2005:5). For the purpose of this research, the term “health research” was chosen to indicate that when the term “research” is used, it is not only limited to “nursing research” but refers to all health-related research conducted by nurses.

Health research is thus defined as the diligent, systematic inquiry or investigation to validate and refine existing knowledge and generate new knowledge that will directly and indirectly influence health care practice (as adopted from Burns & Grove, 2005:2-3). The researcher also agrees with Wright (2005:5) that research should be viewed on a research continuum, ranging from being research-minded – having a critical, questioning attitude and observing trends – to utilising research results and conducting research.

Throughout this research project, the terms “health research”, “research” and “nursing research” refer to the above description.

5.2.6 Strategy

In this research the term “strategy” is seen as a framework or scheme that directs a course of action in a specific situation (Grünig & Repper as quoted by Steyn & Puth, 2000:29). According to Pearce and Robinson (2000:3) a strategy should consist of a mission, purpose, philosophy and goals, as well

as specific tasks. In this research a proposed strategy to promote nurses' research contribution is described, including a vision, objectives, key role players and approaches (refer to Appendix I).

5.3 Methodological assumptions

The model of Botes (1992) was used to guide this research. This model was developed specifically for health research conducted by nurses. The model provides a holistic view of the research process, as well as a framework within which the researcher may follow different approaches (Botes, 1992:38).

The model presents the activities of nursing on three levels (Botes, 1992:40). The first level is the nursing practice. Nurses may identify research problems within the nursing practice, and research should be aimed at improving nursing practice.

The second level entails research (Botes, 1992:40). At this level the researcher conducts research according to the research process, guided by the research problem that was identified on the first level.

The third level is the paradigmatic perspective and serves as determinant of research decisions (Botes, 1992:40). The paradigmatic perspective consists of meta-theoretical, theoretical and methodological assumptions, as discussed.

6. Research design and method

The research design and method is described in the following sections. The realisation of the research methodology is described in detail in the ensuing manuscripts.

The research was quantitative as well as qualitative in nature, and an explorative and descriptive design (Brink, 2002:109; Burns & Grove, 2005:232) was followed, as the opinion of stakeholders were explored and described, a profile of current health research conducted by nurses was developed and the results were used to develop and refine a strategy to promote research done by nurses. The research was conducted in three phases, namely a Delphi study, focus group interviews with stakeholders in nursing research, and finally the composition of a research profile through analysing nursing research as recorded in the Nexus database and illustrated in publications based on nursing research. These phases were preceded by a literature study. An overview of these phases is discussed in the following sections. An explanation of the role of the researcher in each phase is integrated in the discussions.

6.1 Phase one: Delphi study

A Delphi study was conducted to explore and describe the opinions of stakeholders regarding nurses' research contribution in South Africa. As the scientific merit of the Delphi technique is a debated matter, a detailed description of this technique was required, as presented in manuscript three. The implementation of the Delphi technique is discussed in manuscript four. An overview of the Delphi technique as implemented in this research follows.

6.1.1 Sample and population in the first phase (Delphi technique)

Based on literature, as discussed in the introduction and problem statement, as well as on the objectives of the research, it seemed that the population in this phase should include national and international stakeholders in health research who are influenced by or who influence health research conducted by nurses in South Africa. The sample was identified by means of cluster

sampling (Babbie & Mouton, 2004:194). This sampling method was chosen because multiple clusters existed within the population.

The sample was planned to be taken from various clusters of stakeholders. From literature it seemed that these clusters should include the following:

- National research funding institutions (National Research Foundation (NRF), Medical Research Council (MRC), Health Systems Trust (HST));
- National nursing regulatory institutions (the South African Nursing Council (SANC), the Democratic Nursing Organization of South Africa (DENOSA));
- The Health Professions Council of South Africa (HPCSA), representing dietetics, emergency care personnel, environmental health practitioners, medical and dental practitioners, medical technologists, occupational therapy and medical orthotics/prosthetics, optometry and dispensing opticians, physiotherapy, podiatry and biokinetics, psychology, radiography and clinical technology, speech, language and hearing professions, dental therapy and oral hygiene;
- Professional nurses in practice, education and research; and
- International institutions relating to health, nursing and/or research (Sigma Theta Tau International (STTI), the International Council of Nurses (ICN), the International Network for Doctoral Education in Nursing (INDEN) and the World Health Organization (WHO)).

Table 2 illustrates the planned cluster sampling:

Table 2: Cluster sampling *

National level			International level	
Research funding institutions	Nursing regulatory institutions	Multi-disciplinary team members	Professional nurses	International health/ research/nursing institutions
NRF (X)	SANC (XX)	Health Professions Council (X)	Practice (XXX)	STTI (XX)
MRC (X)	DENOSA (XX)		Education (XXX)	ICN (XX)
HST (X)			Research (XXX)	INDEN (XX) WHO (XX)

* "X" indicates the preferred distribution of the sample

* In the discussion of the research results (manuscript 4), the specific names of institutions are not mentioned in order to protect the identity of participants.

Within these clusters, participants were purposively selected according to selection criteria (refer to Table 3).

Table 3: Selection criteria for the various clusters

Selection criteria for all clusters	Selection criteria for the cluster of nurses in academic and/or education posts	Selection criteria for the cluster of nurses at practice level	Selection criteria for the diverse clusters
<p>Potential participants:</p> <ul style="list-style-type: none"> • should not be limited to South African participants, but should also be recruited at international level, to obtain both national and international viewpoints; • should not only include nurses, but be from multiple health related and/or health research related backgrounds to ensure that different viewpoints are obtained; • should be persons with experience in health research as indicated by their position and/or qualifications; • should be in a position of a stakeholder influencing and/or influenced by health research; and • should have access to e-mail and/or facsimile facilities. 	<p>The cluster of nurses in an academic and/or education post should be:</p> <ul style="list-style-type: none"> • a nurse experienced in health research; • involved in a nursing programme that includes research as a core module; and • responsible for a health research related portfolio. 	<p>The cluster of nurses at practice level should be:</p> <ul style="list-style-type: none"> • in a managerial position at institutional level; and • linked to a training programme for nurses. 	<p>Potential participants from nursing, health and/or health research groups (nursing regulatory organisations, professional organisations (nursing), health professions regulatory organisations, national and international health research institutions, health research networks, health research development organisations, research funding institutions, international nursing organisations) should be someone responsible for a health research related portfolio.</p>

6.1.2 Data gathering and analysis in the first phase (Delphi technique)

The Delphi technique was chosen to enable the researcher to obtain opinions of a large number of stakeholders in different professional settings and with varied philosophies and views with the aim of enriching the data (McIlpatrick & Keeney, 2003:631).

The Delphi technique, which functions from within a framework of anonymity, ensures that the opinion of stakeholders is not influenced by others. All stakeholders respond to posed questions individually and anonymously (Burns & Grove, 2005:407). Within the Delphi technique, quantitative as well as qualitative research techniques were employed, and data gathering took place during consecutive rounds (McIlpatrick & Keeney, 2003:629). During each round, a trial run was executed in order to refine the data gathering instruments, as suggested by Powell (2003:379). A discussion of the process follows.

During the initial round of this research stakeholders were informed regarding the research by means of a cover letter in which the researcher requested them to participate (refer to Appendix A). The cover letter was accompanied by a list of open-ended questions (refer to Appendix B), that were developed, based on a literature study. Stakeholders were asked to respond anonymously by answering these questions. They were asked to post, fax or e-mail their responses to the researcher. Stakeholders were informed that they will be requested to participate in follow-up rounds of the Delphi study. Anonymity was ensured by separating stakeholders' identification information from their responses before reading and analysing their answers.

Data gathered during the first round was analysed qualitatively by means of content analysis (Powell, 2003:379) in order to establish a list of initial opinions. An independent co-coder was appointed (refer to Appendix C: Work

protocol for data analysis in Delphi round 1) and after a critical discussion between the researcher and the co-coder the results of the first round was finalised.

Follow-up rounds served to present the findings of the first round to the participating stakeholders in the form of questionnaires in order to verify the findings and to establish levels of consensus (refer to Appendix D and Appendix E). Stakeholders were asked to indicate their agreement or disagreement with opinions that crystallised from the previous rounds, and they were given the opportunity to change or add opinions. The process of developing the questionnaires and the rationale for including dense statements in the questionnaires are explained in manuscript four.

Data obtained from these rounds generated quantitative data on an ordinal level (Brink, 2002:148), which was analysed by means of frequency distributions and presented as descriptive statistics (Brink, 2002:179). Statistical consultants at the North-West University were approached for assistance in the analysis of the quantitative data.

Group consensus on aspects relating to a strategy to promote nurses' research contribution was used as an indicator for continuing with further rounds. McIlfatrick and Keeney (2003:632) imply that a level of consensus should be established for each research project. These levels vary in different research projects (McIlfatrick & Keeney, 2003:632). A level of 65% was initially set for this research, as the participants formed a heterogeneous group, and disagreement was expected. However, this level was seen as tentative, and the stability of responses between rounds (Powell, 2003:379) was also used as further indication of consensus. In the realisation of the Delphi technique, the consensus level could be raised to 90 % (refer to manuscript 4).

In the presentation of data, namely in manuscript four, this consensus as well as disagreements was pointed out in order to identify a framework for a strategy to promote nurses' research contribution.

6.2 Phase two: Focus group interviews

In phase two of the research a qualitative approach was used in which focus group interviews were conducted to verify a proposed strategy to promote nursing research and to explore the feasibility of this strategy in the Southern District of the North-West Province. The process and results of this phase are discussed in detail in manuscript five.

The context in which the research took place was the Southern District of the North West Province. In the Southern District of the North West Province prominent research stakeholders include academics/educators, clinical facilitators, undergraduate, post-registration and postgraduate students at a nursing department at a local university and a nursing college; a health research committee steered by the Provincial Department of Health; multi-disciplinary teams, including nurses, conducting research or working at health care institutions in this District and nurses practicing in clinical settings. In this District there is no strategy to promote nurses' research contribution.

An overview of this phase is provided, namely sampling and population as well as data gathering and analysis.

6.2.1 Sampling and population in the second phase (focus group interviews)

Purposive sampling, as described by Babbie and Mouton (2004:166), was employed to select potential participants for the focus groups. Selection criteria for inclusion in the focus groups included the following:

- Participation in the focus groups should be voluntary;
- All participants should be well informed about the nature and content of the research and should willingly sign a consent form; and
- Participants should be members of a group of stakeholders who influence nursing research or who are influenced by research conducted by nurses in the Southern District of the North-West Province.

The sample size was determined by data saturation, as described by Woods and Catanzaro (1988:565). Data saturation was reached after 11 focus group interviews were held.

6.2.2 Data gathering and analysis in the second phase (focus groups interviews)

As mentioned, data gathering took place by means of focus group interviews. Focus group interviews are well planned group discussions in order to obtain a group's opinion on a specific topic (Kingry *et al.*, 1990:124), and were therefore appropriate in this research.

The researcher obtained permission from relevant authorities prior to conducting the focus groups (refer to Appendix F) and also posted written invitations to each potential participant in the identified groups (refer to Appendix G). Prior to the focus group interviews informed consent was obtained from each individual (refer to Appendix H), after which rapport was established through a round of introduction and by means of an ice breaker, for example asking the group's view on research. The proposed strategy to promote nursing research (refer to Appendix I) was then briefly presented.

Participants' opinion on the strategy itself as well as on the feasibility of the strategy was then explored. Views and ideas around the various aspects of nursing research were discussed based on a list of open-ended questions (refer to Appendix I). The questions that guided the interviews were generated from findings obtained during the Delphi study.

The initial focus group interview served as a trial run, and could be included for data analysis. The focus group interviews were conducted by the researcher who has proven skills and experience in conducting qualitative research interviews. Communication techniques such as clarifying, summarising and reflection, as described by Kneisl *et al.* (2004:154-155), were used to facilitate the discussion. The interviews were audio-taped and transcribed for the purpose of data-analysis. Field notes were taken by the researcher (refer to Appendix J), and were used in conjunction with transcriptions during data analysis. Refer to Appendix K for an example of one of the transcribed focus group interviews.

Data analysis took place by means of open-coding (Babbie & Mouton, 2004:499), conducted by the researcher as well as an independent co-coder (refer to Appendix L). Categories of results, with sub-categories, were created by coding words and themes – as units of analysis – and by grouping these codes together in logical themes. Consensus on the findings was reached between the researcher and co-coder. A literature control was conducted in order to ground findings in literature, as well as to identify similarities and differences in the results, as explained by Burns and Grove (2005:95).

6.3 Phase three: Developing a profile of research conducted by nurses in South Africa

The purpose of this phase was to develop a profile of health research conducted by nurses in South Africa in order to establish its potential

contribution, and to formulate recommendations regarding the improvement of this contribution.

Document analysis (Strydom & Delpont, 2002:324) was used to analyse information available in the Nexus database which is maintained by the National Research Forum (NRF, 2006). The Nexus database primarily contains information on research conducted at higher education institutions, hence the results of this phase is limited to this context. Information available in published research articles obtained through the Nexus database, were also analysed. Permission was obtained to conduct phase three of the research (refer to Appendix M). The Ferdinand Postma Library at the North-West University, Potchefstroom Campus, was instrumental in gaining access to the Nexus database.

All research titles, some accompanied by abstracts, listed as current and completed research projects in the period 2001-2005, were analysed. These data sets were analysed within the framework of findings obtained during phases one and two of the research as well as the literature study.

Published articles based on research projects and listed in the Nexus database were then identified by conducting title searches, using a variety of databases (refer to manuscript 2). Analysis of these articles resulted in enriching the data of phase three and served to limit interpretation bias (Strydom & Delpont, 2002:324). A comprehensive discussion of phase three of the research is given in manuscript two.

7. Ethical aspects

Throughout the research, the researcher ensured that the research was conducted in an ethical manner by applying ethical principles as prescribed by

the Declaration of Helsinki (World Medical Association, 2002:1-5; Brink, 2002:37-50); DENOSA (Brink, 2002:51-54) and Strydom (2002:62-75).

The design and method was clearly formulated in a research proposal and was submitted to an ethics committee for approval. Research only commenced after ethical approval was obtained (refer to Appendix N). The researcher is equipped to conduct the research and was guided by an experienced promoter to ensure a high level of scientific rigour throughout the research.

Of specific relevance to phases one and two, were the ethical principles of respect, justice and beneficence of participants. The researcher viewed participants to be autonomous, and therefore provided adequate information regarding the aims and methods of the research, institutional affiliation as well as anticipated benefits and potential risks and discomfort. This information created the opportunity for them to choose to participate on a voluntary basis, abstain or withdraw from the research at any time without reprisal. The researcher provided the information by means of covering letters (refer to Appendices A, D, E, G), and ensured a clear understanding of the content and meaning of the letters by means of telephone calls or face-to-face discussions. Informed consent was obtained from participants (refer to Appendix H).

Fair selection and treatment was ensured through scientific sampling methods, as explained above, and by clearly indicating what was expected from participants.

The researcher also protected participants from possible discomfort by ensuring voluntary participation, anonymity and confidentiality, as explained in the following discussions.

During phase one, anonymity and confidentiality created an opportunity for each individual to express their opinion without any interference, influence or bias (Hasson *et al.*, 2000:1012; Powell, 2003:377). Although the identities of participants were known to the researcher, their names were not given to one another, opinions were not linked to specific names and their individual responses were not made known to one another.

During phase two, audio-taped recordings of interviews and transcripts were marked by means of codes, and discarded after completion of the research. Interviews took place in private venues.

During the third phase, scientific honesty and rigor were of specific importance. As explained above, permission was obtained to utilise the Nexus database (refer to Appendix M), and results are reflected as accurately as possible. The anonymity of nurses conducting current and completed research was preserved by withholding their names and the institutions to which they are attached in the presentation of the results.

Additionally, scientific honesty, completeness and accuracy are ensured as much as possible in the presentation of the results of this research project.

8. Trustworthiness

Guba's model of trustworthiness was followed throughout the research, and specifically in phase two, to ensure truth value, applicability, consistency and neutrality in the research, as described by Krefting (1991:215).

8.1 Truth value

The truth value of the research relates to confidence in the truth of the findings. In order to ensure truth value, credibility needed to be established

(Krefting, 1991:215). Credibility was established by implementing several strategies.

One such strategy was *prolonged engagement*. During phase two, adequate time was spent with each group of participants, allowing time for the establishment of rapport, so that participants could feel comfortable and safe enough to share opinions that they might have viewed as sensitive. Questions were rephrased and/or repeated as applicable and facilitative communication techniques were used to ensure adequate exploration of the topic.

A further strategy to ensure credibility, namely *reflexivity*, was employed during the second phase. This entailed that the researcher wrote field notes directly after each focus group interview, specifically on the logistics, method of interviewing and personal feelings and thoughts (refer to Appendix J). This enabled the researcher to maintain a critical, questioning thought process throughout data gathering, limiting the threat of becoming over-involved.

To further enhance credibility, *triangulation* was implemented. In the overall research project, different data sources were obtained and different data methods were used to explore nurses' research contribution. These sources and methods include relevant literature (literature study), a panel of experts (Delphi study), groups of stakeholders in the Southern District of the North West Province (focus group interviews); and the Nexus database and published articles (document analysis).

Furthermore, the research was submitted to *peer examination* throughout the research process, in the form of supervision by the promoter, presenting the research problem at the annual conference of the South African Academy of Science and Art (2004), presenting the research proposal to a panel of research experts (2004), and presenting the results of the literature study and the Delphi study at the 23rd Quadrennial ICN Conference (2005).

Additionally, the researcher, guided by the promoter of this study, ensured the credibility of arguments posed in this research by ensuring that *structural coherence* is evident in each separate chapter or manuscript, as well as in the overall research report.

The researcher's *trustworthiness as a human research instrument* is evident through her experience and skills in research, interviewing and scientific writing skills, which she gained during basic and advanced studies and through practicing as a psychiatric nurse; and as a lecturer and research supervisor.

8.2 Applicability

Applicability relates to the transferability of research results (Krefting, 1991:220). In this research, the *dense description* of the research process and of characteristics of participants allow for the assessment of the transferability of this research. The verification by stakeholders in the Southern District of the North West Province, of the strategy proposed by the national and international panel of experts, might also be viewed as a measure to enhance the transferability of the research results.

8.3 Consistency

By ensuring consistency, the dependability of the research is enhanced (Krefting, 1991:221). The involvement of co-coders during data analysis, and consensus discussions between these co-coders and the researcher enhanced the consistency of the results. Furthermore, the dense description of the research process ensured that the research is *auditable*, namely that the decision trail that was followed is evident. Peer examination and triangulation also contributed to the dependability of the research.

8.4 Neutrality

Confirmability strategies should be implemented to promote neutrality (Krefting, 1991:221). A confirmability strategy applied in this research was that the promoter was an auditor of the research process, research results, conclusions and recommendations. The involvement of co-coders, as well as triangulation, the literature control and reflexivity, as explained above, also contributed to neutrality.

9. Reliability and validity

Reliability and validity were of specific importance during the execution of the Delphi technique. Validity was ensured by including as many as possible participants in the sample, based on the assumption of safety in numbers (Hasson *et al.*, 2000:1012). However, Powell (2003:378) is of the opinion that representation should be assessed on the qualities of the expert panel rather than on its numbers. The researcher therefore also ensured that selection criteria were developed and used, in order to identify stakeholders that represented the specific qualities essential to this research. The use of successive rounds helped to increase the concurrent validity (Hasson *et al.*, 2000:1012). The validity of results is also affected by the response rates (Hasson *et al.*, 2000:1012). Stakeholders who did not react to initial invitations to participate were thus contacted again and the invitation repeated. These aspects, as well as aspects pertaining to reliability, are discussed in more detail in manuscripts three and four.

During phase three, the use of different data sources contributed to validity, as explained in manuscript two.

10. Literature study and literature control

A literature study was conducted on health research internationally and in South Africa, as well as health research conducted specifically by nurses internationally and in South Africa. The purpose of the literature study was to gain insight into this topic (Burns & Grove, 2005:93) and to develop the list of open-ended questions used in phase one.

A literature control was conducted in phase two, after data gathering took place. The purpose of this literature control was to ground findings in literature, as well as to identify similarities and differences, as explained by Burns and Grove (2005:95).

In both cases, literature was obtained through literature searches on the following databases: Ebscohost (Academic Search Premier, ERIC, Health source: Nursing/Academic Edition, MEDLINE, PsycINFO, CINAHL); Nexus, SAE Publications; as well as books and theses in the Ferdinand Postma Library, North-West University, Potchefstroom Campus.

11. Conclusions, limitations and recommendations

Conclusions were drawn and recommendations were formulated based on the results of each phase of the research and relevant literature, and discussed in the various manuscripts. By analysing and synthesising the conclusions, overall conclusions could be drawn and described in the final chapter of this research, and recommendations could be formulated, specifically regarding a strategy to promote nurses' research contribution. Limitations of the research are also discussed in the final chapter.

12. Outlay of the research report

An article format is followed. Following this overview, the first two manuscripts both inform the development of a strategy. The literature study (refer to manuscript 1) describes current issues in health research, specifically health research conducted by nurses, while the profile of research conducted by nurses in South Africa (refer to manuscript 2) provides a reflection on whether this research is in accordance with current research issues. These manuscripts will be submitted to the *Journal of Nursing Scholarship*, as it might be valuable to create awareness at international level of research conducted by nurses in South Africa.

Manuscripts three, four and five also form a logical whole, as the Delphi methodology is described in detail (refer to manuscript 3), followed by a description of the application of this technique (refer to manuscript 4), while the results of the Delphi study is further explored in the fifth manuscript. These manuscripts will be submitted to *Health SA Gesondheid*, as it might be of particular value for the South African context.

Finally, overall conclusions, recommendations and limitations of the research are discussed.

During the course of the research process the title of the research was changed from “The contribution of nurses towards health research in South Africa” to “A strategy to promote nurses’ health research contribution in South Africa”, to indicate the outcome of the research project. Some instruments and correspondence refer to the initial title.

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6 April 2005

Dear Sir/Madam,

Presently, I am conducting research on "*The contribution of nurses towards health research in South Africa*" as part of a PhD (Nursing Science) degree, under supervision of Dr SP Human. This research has been approved by the Ethics Committee of the North-West University, Potchefstroom Campus (Ref. nr. 04K22).

You are identified as an important stakeholder, who influences or is influenced by health research and I would highly appreciate it if you will agree to provide me with information relevant to this study. Your input is really of great value and might assist in developing an understanding of the dynamics and impact of health research.

Participation is voluntary. If you decide to participate, please answer the attached list of questions and send your response(s) to me. Providing the information should take approximately one (1) hour. I would appreciate your response within the next 2 weeks and I undertake to give you feedback by the end of April 2005.

Your input, as part of an important contribution in the Delphi technique which I will be using in this part of the research, will be integrated with the contributions of other stakeholders. The integrated responses will be fed back to you in follow-up rounds in which you will kindly be requested to provide further input on the issues under discussion.

Throughout the process, your participation is voluntary and anonymous. It is therefore very important that you feel comfortable to share your opinion freely and honestly. Anonymity will be sustained throughout the study by using codes and symbols.

You may reply to the following fax number or e-mail address:

Fax no. (Attention: Emmerentia du Plessis)

E-mail address:

Please contact me if you need any further information.

Thank you in advance.

Mrs Emmerentia du Plessis
PhD (Nursing Science) student
Student number: 10962689

Dr SP Human
Promoter

VPKEMDP c:\documents and settings\administrator\my documents\emmerentia\phd\letter and list of open-ended questions.doc

Appendix B List of open-ended questions Delphi round one

List of questions to stakeholders

Please answer the following 13 open-ended questions. Your open and honest opinion is very valuable.

Please use more space than provided if necessary.

1. The contribution of nurses towards health research

“Contribution” could be described as an effort by nurses to improve the discipline of nursing and/or the health of individuals or groups by means of relevant, high quality research. This contribution is valuable if research is disseminated and implemented, if the number of researchers is adequate, if researchers are competent to conduct research and if the research conducted is a focused, coordinated and a collaborative effort. What is your opinion on the contribution of nurses towards health research in South Africa? You may want to address the following in your response: Is there any contribution? If so, what kind/to what extent, and in which fields is this contribution made? What is the value of this contribution? If not, why not, and what are the limitations?

2. Strategy to promote the contribution of nurses towards health research

Literature suggests that a unifying strategy to promote the contribution of nurses towards health research should be developed. What is your opinion on this statement? Do you think it is necessary/feasible? If so, what do you suggest should such a strategy entail and how can it be achieved? If not, why not and what obstacles do you foresee?

3. Collaboration in health research

Collaboration in health research could benefit all parties involved. Please share your opinion on research collaboration, specifically regarding nurses

conducting health research. Your response could include aspects of the following: What do you think is the value of collaboration? Who do you think nurses should collaborate with when conducting research (internationally, nationally, members of the health team, other sectors and disciplines, the community), and why? Is it important to collaborate with others when conducting research? (Please motivate your answer).

4. Relevance of health research conducted by nurses

What is your opinion on the relevance of health research conducted by nurses? The relevance could refer to relevance for the health of individuals and groups, relevance for the discipline of nursing and/or health related disciplines, relevance for the quality of care, relevance in terms of cost-containment in health service provision.

5. Research priorities for health research conducted by nurses

At international and national level, research priorities in health research are viewed as important. What is your opinion on research priority setting for health research conducted by nurses? Your discussion can address both current and future research priorities. Aspects to consider in your response are: What in your personal opinion are current research priorities? What procedures do you suggest should be established to determine research priorities? Please motivate your responses.

6. Research methodology

Research methodology may also have an influence on the contribution of nurses towards health research.

6.1 What is your opinion on the methodology/approaches (qualitative/quantitative) followed by nurses in conducting health research? Please motivate your answer and share any ideas and/or suggestions.

6.2 What is your opinion on the skilfulness of nurses in research methodologies? Please motivate your answer and share any ideas and/or suggestions.

6.3 What is your opinion on the need for nurse researchers to specialize in a specific methodological research approach?

7. Research capacity building

Capacity building relates to developing nurses as research leaders with the aim of facilitating research-mindedness amongst nurses and fostering research as a career for nurses. What is your opinion on research capacity building for nurses?

8. Research dissemination and utilization

Health research is only meaningful when research results and recommendations are disseminated and utilized. What is your opinion on the dissemination and utilization of the results of health research conducted by nurses? What strategies would you suggest to promote the dissemination and utilization of health research conducted by nurses?

9. Community aspects

Literature suggests that the community should be involved as equal partners in research. What is your opinion on the involvement of the community in health research conducted by nurses? For example, are the community involved? If so, are they involved as passive or active members? If not, why not? What ethical issues should nurses consider when conducting research in communities?

10. Quality in health research conducted by nurses

What is your opinion on the quality of health research conducted by nurses? Is there a relationship between the quality of research and the implementation of research findings?

11. Resources for health research conducted by nurses

Resources for research include funding, access to data bases and information, access to logistical support and access to research related team members, such as statisticians. Please share your opinion on these matters. Substantiate your responses if possible with examples and experiences.

12. The role of the nurse in health research in South Africa

What is your opinion on the role of the nurse in health research in South Africa? For this discussion “nurse” includes undergraduate students, post-graduate students, nurse practitioners, nurse educators, nurse researchers, nurse leaders and managers.

13. Please, share any other ideas or opinions regarding the contribution of nurses towards health research in South Africa:

Thank you for your cooperation.

Appendix C Work protocol for data analysis in Delphi round one

Dear Co-coder,

Work protocol for analysis (content analysis) of research results of: The contribution of nurses towards health research in South Africa.

Please follow the following guidelines when analyzing the lists of open-ended questions. Analyze the lists of open-ended questions, keeping in mind that the researcher should be able to develop a follow-up questionnaire from the results.

Important notes:

The opinion of participants is the unit of analysis. Look for statements/judgements that could be linked to the words: I feel, I believe, I think, I know, I agree, I disagree.

The level of analysis: focus on proximity analysis (recurrent opinions (concepts)), but if affect is apparent (e.g. descriptive words, punctuation marks, metaphors) note these as well.

Guidelines:

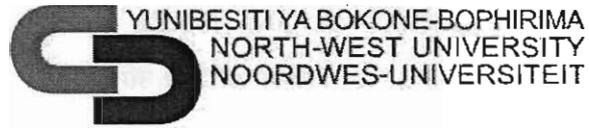
1. Get sense of the whole by browsing through, asking: what is it about?
2. Keep the relevant research objectives in mind, which are:
 - To explore and describe the opinion of stakeholders in health research on nurses' research contribution in South Africa.
 - To develop a profile of health research conducted by nurses in South Africa.

- To develop a proposed strategy, based on the findings and to verify and refine this strategy in a specific context, namely the Southern District of the North West Province, in preparation for the implementation of the strategy.
3. Read through lists, carefully, identifying opinions by underlying/highlighting relevant phrases.
 4. Note opinions in the left margin, note own thoughts (relating to underlying meaning, affect as identified, appropriateness of responses to questions) in right margin.
 5. Cluster similar opinions together to form columns.
 6. Give descriptive names to columns to form categories and sub-categories.
 7. Identify similarities in categories and sub-categories and re-group or reduce if necessary. Data should be presented in such a format that a questionnaire could be developed from the data, and in such a manner that it indicated broad, preliminary guidelines for a strategy to promote the contribution of nurses towards health research in South Africa.
 8. Write summary of own thought / impressions.

Please contact me if you need further information.

Regards,

Mrs Emmerentia du Plessis

**School of Nursing Science**

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12 October 2005

Dear Participant

INVITATION TO PARTICIPATE IN THE SECOND ROUND OF THE DELPHI STUDY: THE CONTRIBUTION OF NURSES TOWARDS HEALTH RESEARCH IN SOUTH AFRICA

You are kindly invited to participate in the second round of the above-mentioned study by completing the attached questionnaire. The purpose of the questionnaire is to validate statements regarding a strategy to promote the contribution of nurses towards health research in South Africa. The questionnaire is developed, based on responses of a panel of experts during the first round of the study. This panel responded to a list of open-ended questions about nurses' contribution towards health research and a strategy to promote their contribution.

Your inputs are valuable, as the questionnaires will be analysed and data will be used to develop a strategy to promote the contribution nurses make towards health research in South Africa. This strategy will be implemented and evaluated and might have the short-term effect that nurses become empowered as researchers and the long-term effect that health research conducted by nurses is recognised as having an effect on health and health care.

Your participation entails completing the questionnaire anonymously by indicating your agreement/disagreement with the statements. Completing the questionnaire will take approximately 30 minutes. The statements are dense and descriptive, with sub-statements as supportive data for the statements. *You are requested to indicate your agreement/disagreement with the statement and sub-statements as a whole.* If there are aspects of statements you do not agree with, or if you would like to make additional comments, you are invited to comment in the space provided.

You are welcome to contact me if you have any questions about the questionnaire.

Please send the completed questionnaire to:

Fax number: (018) 299 2399

E-mail address: vpkempdp@puk.ac.za

Postal address: As on letter head

Thank you for your kind participation.

Mrs Emmerentia du Plessis

Questionnaire to validate statements regarding the contribution of nurses towards health research in South Africa

Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)		1	2	3	4	5	Not sure	Comments
24	<p><i>Example:</i> Capacity building should include <i>informal training</i> in research and research related skills, including:</p> <ul style="list-style-type: none"> o workshops (writing skills, critical thinking skills, research awareness workshops, skills to access research funding, computer skills) o conferences o in-service training o journals/written communication, e.g. Nursing Update 			X				
A The contribution of nurses towards health research								
1	The contribution of nurses towards health research is limited.							
2	Nurse leadership lacks a coordinated effort to promote research conducted by nurses.							
3	Nurses in practice lack research mindedness, lack confidence and skills to conduct research and to practice evidence-based nursing, lack scientific writing skills and work in a bureaucratic system in which research is not encouraged or seen as rewarding.							
4	Nurses who conduct research have generally not gained recognition as researchers.							
5	Health research conducted by nurses is generally defined as 'nursing research' and is seen as of consequence only to the nursing profession.							
6	Health research conducted by nurses is generally not recognized as having an impact on health and health care.							
7	Too little clinical research is being conducted by nurses.							
8	Nurses have gained/are gaining recognition in a limited number of research areas, namely HIV (home-based care, stigma), empowerment of women in rural, poverty-stricken areas, qualitative research and research in public health.							
9	Nurses have gained recognition as fieldworkers, but need to be empowered to develop beyond this role to become more independent researchers.							
10	Nurses possess unique medical and communication skills as well as knowledge of patients, communities and patient behaviour that enables them to act as advisors and gatekeepers during research.							
B A strategy to promote the contribution of nurses towards health research								
11	A research strategy to promote the contribution of nurses towards health research is necessary.							
12	A research strategy to promote the contribution of nurses towards health research requires the commitment of various stakeholders to take responsibility to initiate and drive such a strategy and to facilitate the availability of resources.							
13	A research strategy to promote the contribution of nurses towards health research in South Africa should be realistic and feasible within the current South African context, should not be exclusive, and should promote research within the multi-professional team.							



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	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not sure	Comments
14	The mobilisation of a team of leaders to lead, drive and coordinate the research strategy is necessary.							
14.1	This team of leaders should include experienced nurse researchers, nurse educators (university and college), clinical nurses/nurse practitioners and other relevant stakeholders (funding institutions, medical science, nurse authorities, health policymakers, health managers) who are dedicated to promoting the contribution of nurses towards health research and who take ownership to drive such a strategy.							
14.2	The team of leaders should initiate discussions regarding a strategy as well as barriers to such a strategy.							
14.3	The team of leaders should conduct research on the feasibility and nature of such a strategy.							
14.4	The team of leaders should form partnerships with various stakeholders to create mind shifts and align visions regarding research conducted by nurses and to obtain their commitment and support.							
14.5	The stakeholders include medical researchers, nursing authorities (South African Nursing Council), professional nursing associations, health authorities and policymakers (Department of Health), health care institutions, and funding institutions.							
14.6	The team of leaders should foster a culture of sharing and cooperation amongst nurses: knowledge, skills, data, research results, from onset of training to researchers, leaders (e.g. sharing with peers at undergraduate as well as post-graduate level)							
15	The strategy should aim to strengthen nurses as researchers by means of research capacity building.							
15.1	Research capacity building should start with creating research-mindedness and a research culture amongst nurses.							
15.2	The creation of research-mindedness should precede the development of research skills.							
15.3	The development of <i>research-mindedness</i> should include: <ul style="list-style-type: none"> • Creating awareness of the value of health research (e.g. adding new knowledge and justifying the existence of the profession), and the need to conduct research. • Reflection on: <ul style="list-style-type: none"> ○ Nurses as researchers. ○ Nurses as part of the health research team. ○ Nurses' knowledge and skills of research. ○ Research as being rewarding, e.g. related areas where research conducted by nurses has had an impact (see "Research conducted by nurses") ○ Research as part of nursing, by demystifying research, by creating awareness of research problems in practice and of available data in practice. • Promoting critical thinking and identifying research problems in practice. • Promotion of understanding of the research process and skills to interpret and evaluate research articles. 							

	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not sure	Comments
15.4	Capacity building should include <i>informal training</i> in research and research related skills, including: <ul style="list-style-type: none"> o workshops (writing skills, critical thinking skills, research awareness workshops, skills to access research funding, computer skills) o conferences o in-service training o journals/written communication, e.g. Nursing Update 							
15.5	Research capacity building should be introduced at <i>undergraduate level</i> to instil a research culture and develop the potential of nurses to conduct research, leading to research oriented nurses who are confident in being involved in research.							
15.6	<i>Undergraduate training</i> should encourage questioning attitudes, critical thinking and problem solving skills, give attention to study skills and research based learning, facilitate students to conduct research; and contain sufficient exposure to research methods to foster interest in research.							
15.7	Universities should re-introduce the <i>honours degree</i> for nurses in order to adequately prepare nurses regarding research methodology.							
15.8	<i>Post-basic training</i> should include a small research project to facilitate the notion that research is part of nursing practice.							
15.9	During <i>post-graduate training</i> , post-graduate students' rationale, motivation and commitment to conduct research should be explored, and a research orientation "to improve practice" should be encouraged.							
15.10	<i>Post-graduate programmes</i> should offer the following: <ul style="list-style-type: none"> • Opportunities for students to share knowledge with peers; • Exposure to a variety of research methodologies; • A strong research component (cutting edge, in-depth research); • Training in and emphasising the use of a variety of methodologies (both qualitative and quantitative methods); • Greater emphasis on statistics; • Encouragement of students to disseminate and utilize research results, e.g. encouraging them to indicate dissemination plans and implementation contracts in research protocols, to submit at least one article when submitting their thesis/dissertation. • Encouragement of ongoing research. 							
15.11	<i>Educators and study leaders</i> should be empowered, by means of re-training and advanced research methodology courses, to be competent and creative in teaching research methodology and in guiding and monitoring post-graduate students in the appropriate use of research design and methodology.							
15.12	Study leaders should encourage the <i>dissemination and utilization of research results</i> .							
15.13	Study leaders should act as <i>mentors</i> for students by transferring/fostering a <i>positive attitude</i> regarding research, involving students in research, and being involved in students' research, e.g. collaborative research projects to strengthen their skills, to expose them to a variety of research skills and to stimulate interest.							

	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not	Comments
15.14	<i>Post-doctoral, doctoral, master's degree and undergraduate students should be involved in various sub-studies and phases of collaborative research.</i>							
15.15	<i>Study leaders should strengthen their own research profile to build their capacity to provide leadership and to be recognised as leaders.</i>							
15.16	Research capacity building should include promoting research as a career: <ul style="list-style-type: none"> • Career pathways, posts, joint appointments (academic and clinical) need to be created for nurses who have the potential to become researchers and are interested in research. • To retain nurses who have completed higher degrees in practice • To promote the contribution of their research towards health care. • Nurses should be supported to follow research as a career in terms of academic posts with a strong focus on research, rather than a straight research career. 							
15.17	Research capacity building should include the encouragement of nurses to become involved in research: <ul style="list-style-type: none"> • Nurses should take the responsibility to be involved in research, as it is seen as part of life-long learning and professional development. • Nurses' research skills should be strengthened. • They should be encouraged to conduct research on small scale, under supervision, and to publish research results. • They should build research teams or become part of research teams. • They should be encouraged to document experiences. • They should be prepared for/assisted in implementing findings/for practicing evidence-based. • They should be empowered to develop beyond the profile of fieldworkers/research assistants. 							
15.18	Research leadership amongst nurses should be encouraged: <ul style="list-style-type: none"> • Nurses should be encouraged to engage in post-doctoral research. • Nurses should be encouraged to be involved in collaborative research. 							
16	The strategy should aim to strengthen research conducted by nurses.							
16.1	Research conducted by nurses should be strengthened by improving the methodology used by nurses: <ul style="list-style-type: none"> • Nurses' experience and strengths in conducting qualitative research should be recognized and developed. • Developing skilfulness in quantitative research methodology and addressing the belief that quantitative research is not the realm of nurses. • A more balanced use of both qualitative and quantitative research methodology should be encouraged. A combination of methods might be appropriate and should be considered. Different methodologies need to be explored to solve the problem, thus enhancing research validity. • Research methodology used should be appropriate to the research topic or question. • Specific, specialized methodologies should be followed. • Nurses should be competent in a variety of methods, and not identify exclusively with one type of research. • Strategies to address research of poor quality (e.g. monotonous, superficial, lacking in applicability) should be developed and implemented 							

	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not sure	Comments
16.2	<p>Research conducted by nurses should be strengthened by improving nurses' skilfulness in conducting research:</p> <ul style="list-style-type: none"> • Follow-up research/cyclic approach. • Specialization in a specific method. • Training/re-training in research methodology (see "Capacity Building"). • Encouraging creativity, conducting rich, in-depth research. • New authors/forthcoming researchers to provide leadership and guidance regarding research skills and methodology. • Consulting experts. 							
16.3	<p>Research conducted by nurses should be strengthened by considering specialization in a specific research methodology:</p> <ul style="list-style-type: none"> • The limited amount of research being done by nurses should receive attention before focusing on specialization. • Nurses should rather focus on developing a broad base of research skills, and be allowed to follow a natural process specialization. • Specialization should not be limiting, and the diverse nature of nursing, research priorities, appropriateness of research design in relation to the research problem, choice and capacity of researchers should be taken into consideration. • Researchers and post-doctoral students could be encouraged to specialize in a specific methodology. This might be beneficial for building a track record and career in research, positively influencing the recognition of nurses as researchers. 							
16.4	<p>Research conducted by nurses should be strengthened by taking the following into consideration:</p> <p>Research should add value, and should not only be of academic value, but of practice value as well. The researcher's orientation should be to improve health care and systems.</p> <p>Researchers should be competent.</p> <p>Researchers should be connected to communities and patient care.</p> <p>Research should be conducted in an ethical and honest manner.</p> <p>Larger studies, follow-up research and translational studies to enhance the quality and implementation of research.</p>							
16.5	<p>Research of high quality should be encouraged, as it has a better chance of being disseminated and utilized:</p> <ul style="list-style-type: none"> ○ Because of its intrinsic value ○ It might build the researcher's confidence to implement research results ○ It might be published and disseminated more easily, quicker. ○ It might be considered as best practice and included in evidence-based practice 							
16.6	<p>Areas in which nurses have made a contribution should be emphasized, e.g. qualitative research, nursing education, nursing management, HIV issues, home-based care and HIV/AIDS, stigma and HIV, empowerment of women in poverty-stricken rural areas, emerging area of <i>public health studies</i>)</p>							
17	<p>Research priorities should be set:</p> <ul style="list-style-type: none"> ○ at national and provincial level ○ by using established models for setting priorities ○ by means of systematic reviews and careful analysis of health needs and issues of communities. ○ based on the burden of disease and demands for health care. ○ within the wider priorities for all health research. ○ taking international health research priorities into consideration, in order to be competitive globally and to enrich own priorities. ○ during a conference held to decide on research priorities. 							

	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not sure	Comments
17.1	Stakeholders involved in identifying research priorities should include <ul style="list-style-type: none"> o practicing nurses o nurses in academic/research posts o health related team members o Academic/research leaders o Communities should be consulted. 							
17.2	Stakeholders setting research priorities should take the following challenges into consideration: <ul style="list-style-type: none"> • Collaborative research (which is necessary when setting priorities) does not take place yet; nurses do not conduct exercises to establish priorities or to plan collaborative research. • Research is not seen as part of the role of nursing. • It is difficult to set priorities for a whole profession such as nursing or even for fields/sub-fields in nursing. • The risks involved in following a single list of health research priorities for nurses includes that a priority list might exclude important problems. • Different/a variety of factors, not only a single list of research priorities, should influence researchers when planning research, such as: <ul style="list-style-type: none"> • The needs of consumers, community being served; • Access to data; • Objectives and context of researcher/s; • Passion of researcher; and • Problems arising in specific fields or services. 							
17.3	Current priorities include:							
17.3.1	The quality of nursing care/health care and the impact thereof: <ul style="list-style-type: none"> • Questions of relevance to the health status of the country which bears directly on effective nursing care. • Improvement of nursing care. • Health care education • Standards of the profession, nursing care, quality nursing care. • Effect of cost-targets on quality nursing care. • Provider behaviour. • Patient satisfaction. • Access to care and equity. • Impact of interventions (preventive and promotive care) • In-depth research on the impact of health education campaigns/behaviour change programmes/health promotion and impact on health status of the South African population. 							
17.3.2	Health systems research <ul style="list-style-type: none"> • Health systems research and implementation of recommendations to support health programmes. • Impact of health sector reform on service delivery and outcomes of these on health status. 							
17.3.3	HIV and AIDS <ul style="list-style-type: none"> • Impact on the elderly • HIV prevention • Orphan care 							
17.3.4	HIV/AIDS as a national research priority is emphasized too heavily, and current national priorities need to be revised.							

	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not sure	Comments
17.3.5	Health care staffing levels and mix and impact thereof: <ul style="list-style-type: none"> • De-professionalization of nurses • Commoditisation of nurses • Focus on caregivers and effect of utilizing caregivers in health care on the quality of care. • Determination of staffing mix and levels. • Recruitment and retention of nurses in rural areas. • Training of more nurses. • Migration of health professionals: development of a procedure to determine exact losses. 							
18	The strategy should aim to improve collaborative research, as collaboration is seen as essential to promote the contribution of nurses towards health research.							
18.1	Nurses should be encouraged to be part of research teams, or to initiate collaborative research projects. They should have confidence to take leadership in teams.							
18.2	Nurses should collaborate with: <ul style="list-style-type: none"> • Communities, guided by the nature of the research project, the communities' capacity and willingness to collaborate and by relevant ethical principles. • People who can add value, with practitioners in any/all fields which impact on the health and well-being of patients. • Nurses in practice and nurses in academic/research institutions. • The science and technology sector, which can do much in developing a critical mass of excellent nurse researchers that will be leaders in the field. • Teams that are not necessarily defined by discipline but by topic of research. 							
18.3	Collaboration should take place at the following levels: <ul style="list-style-type: none"> • At local, national as well as international level. • Interdisciplinary, intradisciplinary, multidisciplinary, intersectoral, intrasectoral. 							
18.4	Nurses should initiate or take part in collaborative research, as it has the potential to: <ul style="list-style-type: none"> • Strengthen relationships/partnerships with other disciplines and the community; • Improve the quality and credibility of research conducted by nurses; • Create opportunities for capacity building and mentorship, and for nurses to develop as team leaders/principal investigators; • Lead to increased access to funding; • Increase the impact of research on health care; • Improve ownership of research; • Foster a holistic approach to health care; and • Promote the dissemination and utilization of health research conducted by nurses. 							
18.5	Nurses should take the following challenges into consideration: <ul style="list-style-type: none"> • The individual strengths and inputs of each individual researcher in the team should be acknowledged for the purpose of a track record and promotion. • Nurses should have the opportunity to be empowered in writing and critical thinking skills so as to develop beyond the profile of a fieldworker in order to become part of the initiating group in collaborative research projects, independent researchers or research leaders. • Collaborative research requires realistic expectations and dedication, and should not be attempted without specific reason/outcomes. 							
19	The strategy should aim to improve the dissemination and utilization of research conducted by nurses							
	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not	Comments

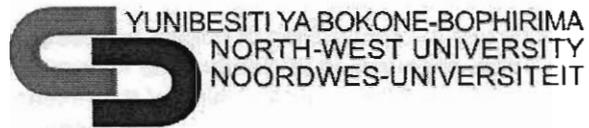
19.1	The notion that it is the responsibility of nurses to disseminate and utilize research should be fostered. Nurses' ability to conduct relevant research needs improvement, and they should be encouraged to conduct research as a cyclic process, with depth and continuity, that should be followed up and serve as a basis for further research.								
19.2	Opportunities to present research, such as annual/bi-annual presentation of research by nurses in South Africa, should be created.								
19.3	Nurses should submit their work to journals that are read by a cross-section of health care providers, and not only to nursing journals, especially clinical research.								
19.4	Practicing nurses should have the opportunity to conduct and publish small research projects in journals. Nurse educators and managers should encourage this.								
19.5	To influence practice, publications that are less formal and more accessible in language and lay-out should be made available to policymakers, funding institutions, concerned authorities, implementers of health programmes, nurse practitioners, the community and participants in the research, e.g. by means of: <ul style="list-style-type: none"> • Newspapers • Radio • Pamphlets • General health magazines 								
19.6	Nurse managers should encourage evidence-based practice, e.g. by means of: <ul style="list-style-type: none"> • In-service training • Journal clubs and small discussion groups to discuss recent research findings on a regular basis and have implementation plans prepared, if relevant. • Journals should be available in units to facilitate reading, understanding and criticizing published research. 								
19.7	Literature concerning the utilization of research is available and should be studied.								
19.8	Writing workshops should be held to encourage and motivate nurses to write up more of their research immediately after completion of research.								
19.9	Collaborative research could improve the implementation of findings, as nurses' skills and knowledge are then more visible and can be recognized, which promotes credibility and implementation.								
19.10	Research utilization requires a concerted effort by policy makers, health service administrators and academics together to make an impact. Cooperation between researchers/academics and services should be promoted and expanded. Cross-functional teams between different health institutions should be created to promote the communication and utilization of research results.								
19.11	Publications on the strengths/contributions of health research conducted by nurses are necessary and should be encouraged, e.g. nursing management, nursing education etc.								

	Please indicate your agreement/disagreement: (1 = Strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree)	1	2	3	4	5	Not sure	Comments
19.12	To improve the recognition of nurses as researchers, nurses should be encouraged to clearly state their nursing background and emphasize the rationale/value of the research when they communicate/present/disseminate their research.							
19.13	The strategy should improve access to research related resources, namely funding, human resources, infrastructure and information.							
19.14	The improvement of the availability of resources is the responsibility of all stakeholders involved in research.							
19.15	Centres of excellence should be developed, so that resources are centralised, and then decentralization and partnerships can take place from there.							
C General statements								
20	The strategy might become cyclic in nature, as the improved recognition of health research conducted by nurses, gained by implementing the strategy, might have the effect that more support for and commitment to the strategy is obtained.							
21	The implementation of the strategy and the effect thereof should be documented and used to create mind shifts and obtain more support and commitment.							

Additional comments:

Thank you for your participation.

VPKEMDP c:\documents and settings\administrator\my documents\emmerentia\phd\second round of the delphi study.doc

**School of Nursing Science**

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7 February 2006

Dear XXX

Thank you very much for your participation. The second round yielded valuable results. A panel of 31 experts participated, and there was agreement on most items. Items could be organised in rank order, based on the mean (as indication of central tendency), percentage agreement and standard deviation (as indication of dispersion) of each item, and a further questionnaire could be developed.

**INVITATION TO PARTICIPATE IN THE THIRD ROUND OF THE DELPHI STUDY:
THE CONTRIBUTION OF NURSES TOWARDS HEALTH RESEARCH IN SOUTH AFRICA**

You are requested to participate in this last round. This is an essential round, which serves to explore whether there are any further convergence of opinion amongst participants.

Please complete the attached questionnaire. It consists of 3 pages, and will only take about 15 minutes to complete. The questionnaire mainly consists of items on which agreement of 90% or higher was achieved, and items are organised in rank order of highest agreement to lowest agreement. Alongside each item the correlating number from the previous questionnaire, as well as your previous score per item are indicated.

You are asked to indicate your agreement or disagreement with each item. You are also requested to give a rationale for any changes from your previous opinion, and/or to comment. *The results will be interpreted as your opinion on aspects essential for a realistic strategy to promote the contribution of nurses towards health research.*

I thank you for your continuous efforts. You are welcome to contact me if you have any questions about the questionnaire.

Please send the completed questionnaire, within the next two weeks, to:

Mrs Emmerentia du Plessis
Fax number: (018) 299 2399
E-mail address: vpkempdp@puk.ac.za
Postal address: As on letter head

Mrs Emmerentia du Plessis

Questionnaire Round 3

Item (with number of correlating item in previous round)	List of items describing essential aspects of a strategy to enhance the contribution of nurses towards health research in South Africa (In rank order according to mean (M), percentage agreement (PA) and standard deviation (SD) of results of previous round)	Please indicate your opinion: (1=Strongly agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly disagree)					Your opinion in the previous round was:	Please give a rationale for any changes in your opinion from the previous round and/or any other comments
		1	2	3	4	5		
5 (3)	<i>Example: Health research is a priority.</i>			X			Neutral	No comment
A	A strategy to promote the contribution of nurses towards health research							
1. (11)	A research strategy to promote the contribution of nurses towards health research is necessary. (M=1.63, PA=86.67, SD=0.90)							
2. (13)	A research strategy to promote the contribution of nurses towards health research in South Africa should be realistic and feasible within the current South African context, should not be exclusive, and should promote research within the multi-professional team. (M=1.65, PA=90.32%, SD=0.66)							
3. (12)	A research strategy to promote the contribution of nurses towards health research requires the commitment of various stakeholders to take responsibility to initiate and drive such a strategy and to facilitate the availability of resources. (M=1.71, PA=90.32%, SD=0.87)							
B.	Essential aspects of a strategy to promote the contribution of nurse towards health research:							
B.1	Research Capacity Building							
1. (15)	The strategy should aim to strengthen nurses as researchers by means of research capacity building. (M=1.39, PA=96.55%, SD=0.99)							
2. (15.6)	Undergraduate training should encourage questioning attitudes, critical thinking and problem solving skills, give attention to study skills and research based learning, facilitate students to conduct research; and contain sufficient exposure to research methods to foster interest in research. (M=1.19, PA=100%, SD=0.40)							
3. (15.9)	During post-graduate training, post-graduate students' rationale, motivation and commitment to conduct research should be explored, and a research orientation "to improve practice" should be encouraged. (M=1.55, PA=100%, SD=0.51)							
4. (15.5)	Research capacity building should be introduced at undergraduate level to instil a research culture and develop the potential of nurses to conduct research, leading to research oriented nurses who are confident in being involved in research. (M=1.29, PA=96.77%, SD=0.53)							
5. (15.18)	Research leadership amongst nurses should be encouraged. (M=1.32, PA=96.77%, SD=0.54)							
6. (15.15)	Study leaders should strengthen their own research profile to build their capacity to provide leadership and to be recognised as leaders. (M=1.45, PA=96.77%, SD=0.81)							
7. (15.17)	Research capacity building should include the encouragement of nurses to become involved in research. (M=1.45, PA=96.77%, SD=0.81)							
8. (15.13)	Study leaders should act as mentors for students by transferring/fostering a positive attitude regarding research, involving students in research, and being involved in students' research, e.g. collaborative research projects to strengthen their skills, to expose them to a variety of research skills and to stimulate interest. (M=1.55, PA=96.77%, SD=0.81)							
9. (15.10)	Post-graduate programmes should offer the following (M=1.65, PA=96.77%, SD=0.80):							
9.1	Opportunities for students to share knowledge with peers;							
9.2	Exposure to a variety of research methodologies;							
9.3	A strong research component (cutting edge, in-depth research);							
9.4	Greater emphasis on statistics;							
9.5	Encouragement of ongoing research.							
10. (15.16)	Research capacity building should include promoting research as a career. (M=1.55, PA=93.55%, SD=0.72)							

Item (with number of correlating item in previous round)	List of items describing essential aspects of a strategy to enhance the contribution of nurses towards health research in South Africa (In rank order according to mean (M), percentage agreement (PA) and standard deviation (SD) of results of previous round)	Please indicate your opinion: (1=Strongly agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly disagree)					Your opinion in the previous round was:	Please give a rationale for any changes in your opinion from the previous round. Any other comments
		1	2	3	4	5		
11. (15.11)	Educators and study leaders should be empowered, by means of re-training and advanced research methodology courses, to be competent and creative in teaching research methodology and in guiding and monitoring post-graduate students in the appropriate use of research design and methodology. (M=1.58, PA=93.55%, SD=0.85)							
12. (15.1)	Research capacity building should start with creating research-mindedness and a research culture amongst nurses. (M=1.61, PA=93.55%, SD=0.84)							
B.2	Collaborative Research							
1. (18.1)	Nurses should be encouraged to be part of research teams, or to initiate collaborative research projects. They should have confidence to take leadership in teams. (M=1.39, PA=100%, SD=0.50)							
2. (18.5)	Regarding collaborative research, nurses should take the following challenges into consideration (M=1.77, PA=93.33%, SD=0.82):							
2.1	The individual strengths and inputs of each individual researcher in the team should be acknowledged for the purpose of a track record and promotion.							
2.2	Nurses should have the opportunity to be empowered in writing and critical thinking skills so as to develop beyond the profile of a fieldworker in order to become part of the initiating group in collaborative research projects, independent researchers or research leaders.							
2.3	Collaborative research requires realistic expectations and dedication, and should not be attempted without specific reason/outcomes.							
3. (19.9)	Collaborative research could improve the implementation of findings, as nurses' skills and knowledge are then more visible and can be recognized, which promotes credibility and implementation. (M=1.77, PA=93.33%, SD=0.82)							
4. (18.2)	Nurses should collaborate with (M=1.77, PA=90.00%, SD=0.86):							
4.1	Communities, guided by the nature of the research project, the communities' capacity and willingness to collaborate and by relevant ethical principles.							
4.2	People who can add value, with practitioners in any/all fields which impact on the health and well-being of patients.							
4.3	Nurses in practice and nurses in academic/research institutions.							
4.4	The science and technology sector, which can do much in developing a critical mass of excellent nurse researchers that will be leaders in the field.							
4.5	Teams that are not necessarily defined by discipline but by topic of research.							
5. (18.3)	Collaboration should take place at the following levels (M=1.77, PA=90.00%, SD=0.88):							
5.1	At local, national as well as international level.							
5.2	Interdisciplinary, intradisciplinary, multidisciplinary, intersectoral, intrasectoral.							
B.3	Dissemination and utilization of research							
1. (19)	The strategy should aim to improve the dissemination and utilization of research conducted by nurses. (M=1.48, PA=96.55%, SD=0.57)							
2. (19.6)	Nurse managers should encourage evidence-based practice. (M=1.52, PA=96.77%, SD=0.81)							
3. (19.3)	Nurses should submit their work to journals that are read by a cross-section of health care providers, and not only to nursing journals, especially clinical research. (M=1.52, PA=93.55%, SD=0.72)							
4. (15.12)	Study leaders should encourage the dissemination and utilization of research results. (M=1.55, PA=93.55%, SD=0.85)							
5. (19.10)	Research utilization requires a concerted effort by policy makers, health service administrators and academics together to make an impact. Cooperation between researchers/academics and services should be promoted and expanded. Cross-functional teams between different health institutions should be created to promote the communication and utilization of research results. (M=1.58, PA=93.55%, SD=0.85)							

Item (with number of correlating item in previous round)	List of items describing essential aspects of a strategy to enhance the contribution of nurses towards health research in South Africa (In rank order according to mean (M), percentage agreement (PA) and standard deviation (SD) of results of previous round)	Please indicate your opinion: (1=Strongly agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly disagree)					Your opinion in the previous round was:	Please give a rationale for any changes in your opinion from the previous round. Any other comments
		1	2	3	4	5		
6. (19.1)	The notion that it is the responsibility of nurses to disseminate and utilize research should be fostered. Nurses' ability to conduct relevant research needs improvement, and they should be encouraged to conduct research as a cyclic process, with depth and continuity, that should be followed up and serve as a basis for further research. (M=1.71, PA=93.55%, SD=0.82)							
7. (19.8)	Writing workshops should be held to encourage and motivate nurses to write up more of their research immediately after completion of research. (M=1.65, PA=90.32%, SD=0.75)							
8. (19.4)	Practicing nurses should have the opportunity to conduct and publish small research projects in journals. Nurse educators and managers should encourage this. (M=1.68, PA=90.32%, SD=0.87)							
B.4	Quality of research conducted by nurses							
1. (16.2)	Research conducted by nurses should be strengthened by improving nurses' skilfulness in conducting research (M=1.50, PA=96.77%, SD=0.95).							
2. (16.1)	Research conducted by nurses should be strengthened by improving the methodology used by nurses. (M=1.53, PA=93.55%, SD=0.98)							
3. (16.5)	Research of high quality should be encouraged, as it has a better chance of being disseminated and utilized. (M=1.61, PA=93.55%, SD=0.84)							
4. (7)	More clinical research should be conducted by nurses. (M=1.67, PA=93.33%, SD=0.71) (In previous questionnaire this item was formulated as: Too little clinical research is conducted by nurses)							
5. (16.4)	Research conducted by nurses should be strengthened by taking the following into consideration (M=1.48, PA=93.10%, SD=0.87):							
5.1	Research should add value, and should not only be of academic value, but of practice value as well. The researcher's orientation should be to improve health care and systems.							
5.2	Researchers should be competent.							
5.3	Researchers should be connected to communities and patient care.							
5.4	Research should be conducted in an ethical and honest manner.							
5.5	Larger studies, follow-up research and translational studies should be conducted to enhance the quality and implementation of research.							
B.5	Leadership							
1. (14.6)	Leadership should foster a culture of sharing and cooperation amongst nurses: knowledge, skills, data, research results, from onset of training to researchers, leaders (e.g. sharing with peers at undergraduate as well as post-graduate level) (M=1.73, PA=90.32%, SD=1.12)							
B.6	Resources							
1. (19.13)	The strategy should improve access to research related resources, namely funding, human resources, infrastructure and information. (M=1.70, PA=90.00%, SD=0.88)							
B.7	Research Priorities							
1. (17)	Research priorities should be set. (M=1.97, PA=80.65%, SD=1.02)							
2.	Current priorities include:							
2.1 (17.3.2)	Health systems research (M=1.72, PA=90.00%, SD=1.14).							
2.2 (17.3.1)	Quality of nursing care/health care (M=1.61, PA=86.67%, SD=1.40).							
2.3 (17.3.5)	Health care staffing levels and mix (M=1.72, PA=80.00%, SD=1.22).							
2.4 (17.3.3)	HIV/AIDS (M=1.90, PA=80.00%, SD=1.21).							

Appendix F

Permission from various authorities to conduct focus group interviews



School of Nursing Science

Tel (018) 299 2397

Fax (018) 299 2399

E-Mail vpkemdp@puk.ac.za

Relevant authority

9 March 2006

Dear XXX

REQUEST TO CONDUCT RESEARCH

My name is Emmerentia du Plessis and I am currently conducting research entitled: The contribution of nurses towards health research. This research forms part of my doctoral studies and has been approved by the North-West University's Ethics Committee.

One of the objectives of the research is to identify the opinion of stakeholders in health research regarding the contribution of nurses towards health research. Stakeholders in this case are seen as entities that influence or are influenced by health research conducted by nurses. Additionally, this research aims at developing a profile of what health research nurses are currently involved with, in order to establish the potential contribution of nurses towards health research. Based on the results of these objectives, a strategy to enhance the contribution of nurses towards health research in South Africa is developed.

This research is conducted in three phases, which are explained in detail in the attached research proposal. The first phase has already been completed. This phase entailed a Delphi survey of three rounds during which a panel of experts gave their opinion on a strategy to improve the contribution of nurses towards health research. Based on these opinions, as well as on literature, a tentative strategy is developed. The second phase will be conducted to develop a profile of research conducted by nurses in South Africa.

I hereby would like to obtain your permission to conduct the third phase of the research in the North-West Province, specifically in the Southern District of the Province. This entails conducting focus group interviews with relevant role-players, the Departmental Research Committee, the Southern District Research Committee as well as institutional managers in the Southern District. These role-players will be invited to participate in focus group discussions during which the feasibility of the strategy will be discussed. The interviews will be conducted by me and it will be audio-taped for the purpose of data-analysis. During the interviews, I will explain the suggested strategy to the group, and then ask the group their opinion on the feasibility of this strategy. Communication techniques such as clarifying, summarizing and reflection will be used to facilitate the discussion. I will apply ethical principles as described in the research proposal.

Regards,

Mrs Emmerentia du Plessis
Ph.D Student

Prof SP Human
Promoter



P R I V A T E H O S P I T A L

PO BOX 7105
Flomwood
2572
Cor. AMETIS AND MARMER ST
WILKOPPIES
KLERKSDORP 2571
Tel: (018) 468-7700
Faks/Fax: (018) 468-7718

AANDAG: Mev Gedina de Wet

12 Junie 2006

Me Emmerentia du Plessis
SKOOL vir VERPLEEGKUNDE

Geagte Me du Plessis,

SKRYWE: 18 April 2006 - Ontvang: 1 Junie 2006
(Uitnodiging om deel te neem aan navorsing)

Goedkeuring word verleen dat u 'n groep professionele verpleegkundiges in bestuurshoedanigheid betrek by u navorsing.

'n Vriendelike dog dringende versoek word aan u gerig om vroegtydig reëlings te tref vir die fokusgroep-onderhoud, indien moontlik minstens 2-3 weke vooraf.

Ons sien daarna uit om deel te neem.

Vriendelike groete


M E van Wyk
VERPLEEGDIENSBESTUURDER
C:\My Documents\MvW\BRUEWE\Uitnodig Navorsing.wpd

School of Nursing Science

Tel (018) 299 2397

Fax (018) 299 2399

E-Mail vpkemdp@puk.ac.za

Prof H Klopper
Director: School of Nursing Science

18 April 2006

Dear Prof Klopper

REQUEST TO CONDUCT FOCUS GROUP INTERVIEWS

I am currently conducting research entitled: The contribution of nurses towards health research in South Africa. This research forms part of my doctoral studies and has been approved by the North-West University's Ethics Committee (number 04K22).

I hereby would like to obtain your permission to conduct focus group interviews of about two hours with the following groups (5 to 15 members) at the School of Nursing Science:

- academic staff members;
- clinical facilitators;
- undergraduate students (fourth year students); and
- post-graduate students (Masters level).

The focus group interviews forms part of the third phase of the research, which is conducted to explore the feasibility of the proposed strategy.

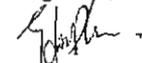
If permission is granted, I undertake to distribute the letters of invitation to the groups via you as the Director (to academic staff members), Mrs Gedina de Wet (to clinical facilitators), Mrs Engela du Plessis (to undergraduate students) and Prof Daleen Koen (to post-graduate students). If possible, I would like to conduct the interviews at the staff meeting room at the School of Nursing Science, or at a place convenient for the group, during May 2006.

The interviews will be conducted by me and it will be audio-recorded for the purpose of data-analysis. During the interviews, I will explain the proposed strategy to the groups, and then ask their opinion on the feasibility of this strategy. Communication techniques such as clarifying, summarizing and reflection will be used to facilitate the discussion. I will apply ethical principles such as ensuring anonymity, confidentiality and obtaining written permission from each participant.

More information about the research is attached.

I hope to hear from you soon.

Regards,



Mrs Emmerentia du Plessis
Ph.D Student

Goedgekeur
H Klopper
20/4/2006



POTCHEFSTROOM CAMPUS
Private Bag X6001, Potchefstroom, South Africa, 2520
Tel: (018) 299-1111 • Fax: (018) 299-2799
Internet: <http://www.nwu.ac.za>



Research project: The contribution of nurses towards health research in South Africa
(approved by the North-West University's Ethics Committee (number 04K22).
Promotor: Prof SP Human (UNISA)

Objectives of the study

One of the objectives of the research is to identify the opinion of stakeholders in health research regarding the contribution of nurses towards health research. Stakeholders in this case are seen as entities that influence or are influenced by health research conducted by nurses. Additionally, this research aims at developing a profile of what health research nurses are currently involved with, in order to establish the potential contribution of nurses towards health research. Based on the results of these objectives, a strategy to enhance the contribution of nurses towards health research in South Africa is developed.

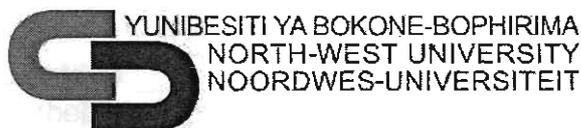
Phases of the study

This research is conducted in three phases. The first phase has already been completed. This phase entailed a Delphi survey of three rounds during which a panel of experts gave their opinion on a strategy to improve the contribution of nurses towards health research. Based on these opinions, as well as on literature, a tentative strategy is developed. The second phase will be conducted to develop a profile of research conducted by nurses in South Africa and the third phase entails conducting focus group interviews with relevant stakeholders in health and health research in order to explore the feasibility of the strategy.

The results of these phases will be used to develop a feasible strategy to promote the contribution of nurses towards health research in South Africa.

Appendix G

Written invitation to participants in the focus group interviews



YUNIBESITI YA BOKONE-BOPHIRIMA
NORTH-WEST UNIVERSITY
NOORDWES-UNIVERSITEIT

School of Nursing Science

Tel (018) 299 2397

Fax (018) 299 2399

E-Mail vpkempdp@puk.ac.za

2 May 2006

Dear XXX

INVITATION TO PARTICIPATE IN RESEARCH

My name is Emmerentia du Plessis and I am currently conducting research entitled: The contribution of nurses towards health research. This research forms part of my doctoral studies and has been approved by the North-West University's Ethics Committee (no 04K22).

I hereby would like to invite you to participate in my research. Participation entails participating in a focus group interview of about two hours. During the focus group interview I will briefly present a proposed strategy to promote the contribution of nurses towards health research. I will then ask your opinion on the strategy itself as well as on the feasibility of the strategy.

The strategy is developed based on the results of the first phase of the research, during which a panel of experts indicated, amongst other, that nursing educators might play a key role in such a strategy.

The interviews will be conducted by me and it will be audio-taped for the purpose of data-analysis. During the interviews, I will first obtain informed consent. I will then explain the proposed strategy to you, and ask your opinion on the feasibility of this strategy. Communication techniques such as clarifying, summarizing and reflection will be used to facilitate the discussion. I will apply ethical principles, and thereby ensure that the principles of informed consent, confidentiality, anonymity and no harm are applied. You might benefit by the research in the long-term in that your participation will provide valuable inputs into the refinement of the mentioned strategy.

Participation is voluntary, and you are under no obligation to participate. If you decide to participate, I will appreciate it if you contact Mrs Christa Pretorius so that we can arrange a date, time and venue for the interview.

Regards,

Mrs Emmerentia du Plessis
Ph.D Student

Prof SP Human (UNISA)
Promoter

Appendix H Consent form for participation in focus group interviews

Date: _____/_____/_____

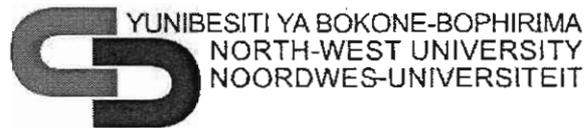
I am a _____ (state current position) and I hereby consent to participate in the research entitled: *The contribution of nurses towards health research* by participating in a focus group interview conducted by Mrs Emmerentia du Plessis with the aim of exploring opinions on a strategy to promote the contribution of nurses towards health research. I understand and give consent that the interview is audio-taped for the purpose of data analysis. I also understand that Mrs Emmerentia du Plessis will treat my individual responses as anonymous and confidential, but that a summarized reflection of all data obtained in this phase of the research will be presented in a research report.

I consent to participate in the focus group interview.	
_____	_____
Signature: participant	Witness

I give consent that the focus group interview is audio-taped.	
_____	_____
Signature: Participant	Witness

I undertake to treat the above participant's individual responses as anonymous and confidential.	

Signature: Mrs E. du Plessis	



YUNIBESITI YA BOKONE-BOPHIRIMA
NORTH-WEST UNIVERSITY
NOORDWES-UNIVERSITEIT

School of Nursing Science

Tel (018) 299 2397

Fax (018) 299 2399

E-mail vpkemp@puk.ac.za

June 2006

Dear Participant,

Please discuss the accompanying proposed strategy in your group, using the following questions as a framework for your discussion:

- What is your opinion on the proposed strategy?
- How do you think this strategy could be implemented in your context?
- What related activities are already in place in your context and how can it be linked to the proposed strategy?
- What would you say are obstacles in the implementation of this strategy?
- Who do you think should take ownership to initiate and drive such a strategy?

Please feel free to deviate from these questions and to share any ideas or questions in the group.

Mrs Emmerentia du Plessis

PhD student



POTCHEFSTROOM CAMPUS

Private Bag X6001, Potchefstroom, South Africa, 2520

Tel: (018) 299-1111 • Fax: (018) 299-2799

Internet: <http://www.nwu.ac.za>



Proposed strategy to promote the contribution of nurses in health research	Notes
<p>Vision The vision of the strategy is that nurses make a significant contribution in health research, by engaging in relevant, high quality research that leads to:</p> <ul style="list-style-type: none"> ▪ improvement of the discipline of nursing; ▪ improvement of health and health care; ▪ personal and professional development of nurses; ▪ refinement of research methodologies; ▪ recognition of nurses as researchers; ▪ recognition of nurses as leaders in research; and ▪ recognition of health research conducted by nurses. 	
<p>Purpose The purpose of the strategy is to promote the significance of the contribution of nurses in health research by means of the following:</p> <ul style="list-style-type: none"> ▪ promoting nurses' level of competence, confidence and motivation regarding research; ▪ increasing the degree to which a focused, coordinated and collaborative effort is followed; and ▪ promoting the dissemination and utilization of research. 	
<p>Key role player The research supervisor / educator might play a key role, acting as a research leader and mentor for developing researchers.</p>	
<p>Approaches</p> <ul style="list-style-type: none"> • Research capacity building at undergraduate, post-basic, post-graduate and practice level. • Building partnerships to create cross-functional, multi-disciplinary, multi-sectoral teams who: <ul style="list-style-type: none"> ▪ conduct collaborative research; ▪ promote and advocate for health research; and/or ▪ design and implement evidence-based practice strategies. 	

Appendix J Fields notes for focus group interviews

All interviews held in language (English or Afrikaans) preferred by group.

Interview schedule was available in both English and Afrikaans.

In all interviews, informed consent was obtained and strategy was presented before interview commenced.

Methodological notes only indicated where specific aspects needed to be noted.

Interview 1: M-students (University) (50 minutes)

13 May 2006

Personal notes

- I feel sensitive to non-verbal communication, because I feel anxious about this first interview, I relax later on.
- Group is quiet initially, members relax when they share their own experiences.
- One group member quiet, but contribute non-verbally, agree with group (her silence concerns another group member).
- Group sees concept "strategy" as necessary, both for studies and in practice.
- Group focus on where they are now as researchers, at beginning of development as researchers, needs guidance, orientation, clear guidelines regarding what is expected.
- One member finds it difficult to maintain eye contact (cultural?), but contributes meaningfully.
- Meaningful suggestions: weaning, media, lay terms, nurses in management positions, difficult to obtain support for research, develop some perspectives, insight in each other's perspectives (multi-team).
- Shared experience in research influences perception and attitude towards research.

Methodological notes

- The presentation of the strategy and interview schedule may have the risk that I seem to make suggestions, or that I talk too much at the beginning of the interview: careful in following interviews.
- In following interviews: focus more on feasibility.

Logistical remarks

- Five members, 2 Afrikaans, 3 English



- Sit in a circle, tables and chairs
- One member late, invite into the group, wait for her, orientate her
- Comfortable environment, warm, safe
- Interview held after three day workshop on research methodology
- Pen, tape, lead ready for recording

Lessons learnt

- Respect when potential participant refuse to participate
- In a focus group: still needs individual consent, not "group" consent
- Need a witness for informed consent

Interview 2: Provincial health research committee (50 minutes) 15 May 2006

Personal notes

- Group cohesion, lack in shared experience in research influence perception of research.
- One member have experience in research, creates a feeling of safety for other members to talk about research.
- Initially I have to use facilitating communication techniques, e.g. probing, repeating and explaining questions in order to elicit responses, later on more spontaneous responses.
- One group member dominant talker.
- Group makes practical suggestions, practice-oriented opinions given.
- Group does not take ownership, group's interest in topic questioned, later on group sees value of strategy and makes valuable suggestions for implementation.
- Suggest that definition of research should be re-looked, term "research" creates fear amongst nurses, nurses' interest in research should be explored, practice and theory should meet.
- Group members' input stimulates further input by other group members.
- One member tend to have political focus in responses
- Group feel that strategy should be realistic, should take other influencing factors in practice into consideration.
- Research committee, such as this one, could play a significant role in research support.

Logistical notes

- Six members, interview held in English

- Interview held after meeting, members perceived to be in a hurry, chair person indicates that I do not have to rush.

**Interview 3: Undergraduate students (university) (1 hour 15 minutes)
19 May 2006**

Personal notes

- Focus group creates opportunity for venting feelings
- Group members' perception that research should start at first year with research based curriculum
- Research projects should flow from community project in first year, as they feel proud of this project, it is independent work and they take ownership of this project.
- Shared experience in research influences perception/attitude towards research.
- Group says that they need structure and clear guidance in research.

Logistical notes

- Six members, 5 Afrikaans, 1 English.
- Sit in circle, tables and chairs
- Warm, safe, comfortable room
- Some responses by group members not audible on tape

Interview 4: Multi professional team (clinical practice) (15 minutes)

26 May 2006

Personal notes

- Interview held at closure of meeting, not much time available, but group members understand what is expected and respond meaningfully
- Some members of committee choose not to participate and leave room.
- Group dynamics in meeting could be carried over in interview: group seems quiet, serious.
- I realize that the strategy can not be an isolated effort, but integrating effort as part of other existing strategies/activities in practice and the academic sector.
- Target teams active in research, build partnerships, create research aptitude e.g. by means of collaborative research project, help with analysis of data, interpretation, use existing data gathering systems (monthly statistics), nurses experience success in this

type of research, are motivated to be involved in research, see that research makes a difference.

- Group cohesion is important, stability of group important in attitude towards research.
- One member interested in research, might motivate others.

Logistical notes

- Seven members
- Comfortable, warm room

Interview 5: Academic staff members (nurses), university (1 hour 15 minutes)

29 May 2006

Personal notes

- Group members quiet for a while, think about strategy, read through interview schedule, clarify meaning of "strategy" in this context. They confuse me in that they do not immediately understand what is expected of them. Instructions repeated.
- Group dynamics influences attitude, perception of research, each other and influences purposefulness
- Conversation does not flow, each participant give own input, next participant does not follow-up on previous input, introduce new theme. This may be limiting in reaching a goal, building trust. In terms of implementation of strategy: give opportunity for exploration of meaningful suggestions, acknowledgement of inputs to build trust and group cohesion.
- Group members focus on students not being critical thinkers, group differ in perceptions on taking responsibility in promoting research aptitude, do not take ownership for implementing the strategy, focus on undergraduate education.

Methodological notes

- I'm cautious to point out that participants do not give acknowledgment to each other's suggestions/inputs, as it is not the aim of the interview. It might have contributed to the results if some suggestions were explored more.

Logistical notes

- Warm, comfortable room; in circle, tables and chairs
- Eight participants, interview in Afrikaans

Interview 6: Clinical facilitators (1 hour 15 minutes)

30 May 2006

Personal notes

- Members participate spontaneously; understand what is expected of them.
- Group focus on nursing practice: staff shortages, nurses' negative attitude towards research, access to information, computer literacy, non-questioning attitude of nurses in practice, nurses not aware that research is part of practice.
- Suggest: mentor in ward, small research projects to motivate nurses to be involved in research.
- Management should encourage nurses to be involved in research.
- Undergraduate students: research-awareness should be created.

Logistical notes

- Warm, comfortable room.
- Members late, others have to wait, not concerned about waiting.
- One member ill, got out of bed to attend interview.
- Interview in Afrikaans.

Interview 7: Post-registration students, nurses in practice (1 hour)

15 June 2006

Personal notes

- Member clarify whether strategy is applicable to nursing as a discipline, other member indicate that members of other disciplines should be included.
- Group indicate that nurses are not recognised as researchers, or professionals
- Research results should be translated into practical guidelines
- Management should create conducive working environment, should avail reward for research
- Nurses currently do not do research
- People who do research should commit, be responsible, be involved, show enthusiasm
- Strategy questioned as being idealistic.
- Seem to have negative perception of research, scared of research.

Logistical notes

- Interview in English, held in class room after giving informal training on research to group, my voice sounds as if I'm still "teaching".

- Big group: all class members (20) decided to stay for focus group, mainly 8 members participants verbally, others non-verbally (nod or shake head).

Interview 8: Multi-professional team (academic sector) (1 hour) 19 June 2006

Personal notes

Participants spontaneously starts conversation, participates enthusiastically.

Meaningful suggestions, link between practice and theory emphasised, suggest that nurses in practice have to be research-minded, reach out to academic sector for assistance, and to make academic sector aware of trends/patterns in need of research.

Logistical notes

Four participants, interview conducted in Afrikaans.

Interview 9: Tutors, nursing college (50 minutes)

5 July 2006

Personal notes

- Participants quiet; seem to be not interested in interview, relax later on, meaningful inputs.
- Participants focus on support, empowerment of nurse educator in research, need for research forum verbalised; multiple roles of nurse educator, do not have time for research, teaching research, guiding students in research; "red tape" in research process de-motivating.

Logistical notes

- Four members, interview in English
- Warm, comfortable room.
- Telephone call interrupts interview.

Interview 10: Undergraduate students (nursing college) (40 minutes)

5 July 2006

Personal notes

- Students have class in nursing residence, not conducive environment for learning/teaching. I became aware of dedication of these students to study in spite of difficult circumstances.

- Ice breaker: what is research? They view research as big project, outside their scope of practice, one member see research as part of daily practice.
- After interview one member says that she now have confidence to attempt to do research. This illustrates value of focus group interview as opportunity for venting feelings, changing perceptions of research.

Logistical notes

- I have to wait for students, not sure whether they were informed of interview.
- Students seem to be apathic initially, relaxes later and participates enthusiastically.
- Interview in open room, other students passing through room, disturbing.
- Six participants, interview in English.

Interview 11: Nurses in management positions in practice (private sector) (1 hour 30 minutes)

11 July 2006

Personal notes

- Introduction and ice-breaker spontaneously elicits debriefing discussion on research, education and nursing practice.
- Group has limited trust in academic sector as support system, advocate for nursing as a profession.
- Only introduce interview schedule 30 minutes after start of interview, as members needed debriefing towards me, seeing me as a representative of the university.
- Reaction to strategy the same as explained above: research do not have impact on practice, no time for research in practice, will feel more positive if research makes a difference in practice.
- Group dynamics have influence on attitude/perception of research.

Methodological notes

- Inclusion in group of nurses in different positions in hierarchy of management structure might have limited spontaneous inputs from nurses in "lower" ranks.

Logistical notes

- Interview held at meeting room at hospital, in Afrikaans.

- Twelve participants present, mainly 8 participate, others indicate agreement/disagreement non-verbally.
- One member dominant talker, leader in group atmosphere.

Appendix K Example of a focus group interview

Interview nine: Tutors

5 July 2006, 12:30

(50 minutes)

Letter of invitation explained

Ice breaker: Your interest in research? "Research something big, difficult, time consuming".

Informed consent obtained

Strategy presented

R = Researcher

P = Participants (1,2,3,4)

Dialogue

Side A

R: Clarify time available: 1 hour "if it goes that long ..." (P1).

R: Explains interview schedule and strategy. "I'd really like to hear your opinion on the strategy."

Silence – few seconds, participants (p's) read through document.

P1: I just want to understand, before I comment.

R: Mm-mm?

P1: So, for, for the proposed strategy is this one, and you want our opinion on this proposed strategy?

R: Yes.

Silence – few seconds.

P1: For me, I should say, this vision, I'm at the vision ...

R: Mmm.

P1: The vision of the strategy I think it addresses what needs to be done, because according to this it is to improve the contribution of nurses. You see, the refinement of methodologies, if you could explain that to me, because I don't disagree, but I don't understand this one.

R: It means that if nurses are engaged in research, and they, for example, conduct focus groups again and again and again, the methodology might be refined, because if might be found that it's described in the text books in one way, but when you actually conduct the focus group there might be something that could be refined.

P's: Mmm.

P2: Can I say something about the vision? You are finished?

P1: Yes.

P2: Ok, thank you. I think the nurses themselves, here, regarding the vision, as tabled in this document I think the nurses themselves are the people that should steer this process. We know that, all of us, we have done research when we did our degrees, and to speak the honest truth, we just read the research to pass that portion, that paper of research (P's: Mmm). Then you are confronted with teaching the research like I experienced. I had a short (can't hear word) to the (institution's name) those days, before they merged with (institution's name). I had to teach research to the community health nurses, that is the only time where research did make sense to me, because I invited this guy from the technikon, né, I can't remember his name, he was too good, somebody gave me the name, so I just invited him just to put me at ease, and I found out that, the fear that we build around us regarding research, we can break through that. That's why I say I think that we as nurses, we have to look at that and steer the whole thing from this purpose, the vision, and improving the discipline of nursing. I think it can be improved, a lot of things, because now when you get research you always think of the difficult things and what have you, but I think if you can all of us especially the nurse educators because we are the people that are supposed to be teaching. If we could break this anxiety and the fear we will be able to improve on the health strategies, even in our teaching methodologies here at the college, (can't hear one word) research related to that. And I think the obstacles in this vision could be, we have already highlighted, né, the number of learners that we have, and I think the fear of research too, you could say, is an obstacle, ja, because you would have this theory in mind, and you'd be afraid, I remember one day I said the ladies must formulate research related problems, that we should look at. I had three that I worked out, but you have this fear, I must share, when the person gives hers: but will I be able to can analyze and say, ok, this is a researchable problem, I think the fear is the major obstacle here with the research, the vision here, if you could break that, you can break loose from that too, as nurse educators I think we should be right, and the number of learners we have said, and the time frame we don't have. Because if we look at the groups that we said are busy with research themes, topics, the post-registration groups, theatre and primary health. Those people's programmes are just a year, and within that time frame you can't say you are done with research. That is the other thing, it's the time frame that we do not have. Maybe even our programmes are too full, of the D4, to can really, really accommodate, you know, a full blown research project for the learners, they have an advantage because the programme runs over 4 years. You could really start from level one, but I think because we are busy with re-ricurriculation we may maybe find a corner where we can say we start it here in first year, up to this far, and when they reach fourth year maybe they can write a full proposal, the research proposal, ok, and related activities that are in place, we have mentioned the post-registration programmes that are running here, and at third year level we do introduce them to research in the community health nursing science, they do the proposal, how to, the proposal format itself, and the methodology, but we don't have time now to can say: can we really say our learners are ready if they must do post-registration studies at the university, because it's just introduction of this concept.

R: Mmm. Thank you very much for that valuable inputs. Um, before we go on to other comments, I just want to follow up on: how do you think that fear can be lessened?

P2: By being exposed to frequent workshops (can't hear word) of research.

R: Ok.

P2: Yes, I think that could, because I went to a whole week's seminar of research at (institution's name), and you know, some of the things that I thought I would never understand, that I said I read to pass the paper they did make sense, because in groups we formulated problems, in groups we analysed things and it did make sense. I think if we can be can be empowered in that regard I'm sure we will all be confident to handle any research matter as tutors.

R: Mmm.

P1: I just want to say something again, né, I, concerning nurses themselves (can't hear few words) recognition of nurses as researchers, but I think it's important because you'll find that now, if again it's fear, sometimes, most of the time, people research just to have a masters and to pass and then they forget about the whole thing, and as a result nurses will never be recognized that they are researchers, you find that if there's a symposium or whatever, if they ask for the papers, it's mostly doctors who will give their topics, only a few nurses, and you ask yourself: where are the nurses so it goes again with the fact that they are still not, I don't know whether to say confident as nurses, or is it because of the fear that (P1) just said, because this fear, like I said, it starts from the students, in the basic courses because once you come with, ok, they will be able to say what is research, basic things, but we want to get (can't hear) post-graduate.

R: Mmm. So, it might be that tutor's fear of research might be carried over to students and they would follow that same attitude towards, or have that same fear of research?

P1: Mm, actually I don't understand because if the topic of research is introduced to the learners they don't know anything about it, I don't know what makes them to be negative, I really don't understand. Maybe they don't understand, just like when we studied.

P2: And I think the other thing that stagnates us in a corner as nurses, I have realized one thing: if a nurse must do research, I don't know in the other faculties, but I haven't heard from the people that are busy with research, that they have seen my problems as nurses, you bring in a proposal, what I've realized your supervisor wants you to do what she wants (P's: Mmm) If you came up with ideas after you have collected data, it's thrashed down, and made corrections and they came back and you send them back and again, again, I've seen a proposal that's sent in, and I say I'm not going to continue, you are given corrections, you correct, and those very things they said you must do are being corrected (P's laugh) I said no, there's something wrong with the nurses, really, I do not know whether it is also, Emmerentia will tell us, but, the nurses that are already there, maybe they also are not sure of research. Hence, we need to reinforce those that are already researchers, they should also be empowered to be free, and let go of the idea that if I bring in my data, my findings, this person wants me to evolve around what she thinks is right (P's: Mmm) That is the other thing I discovered and it discourages a lot of nurses to go on with research, because you say to yourself I was told when you do research you bring in data and you analyse and give your report, and the outcome, but here is the supervisor now, because she's not for this, she will tell you: no, no, no, go and correct. Maybe that's another thing that makes the nurses not to be involved in doing research at all, maybe if you could work on that, it can also help us.

R: If you have the confidence that your voice will be heard, and the process and the feedback won't quiet that voice.

P1: Mm, mm, exactly.

P3: Also maybe not just the fear but the red tape and the time that it takes to get it approved, I understand there must be a national register that people know who is doing research and what and to collect it, but like us in the diploma course on the learners, by the time you've got the permission and everything, a year is finished, or two years, and some of our learners exit on the way, so even if you say they are four years in training, they might not be the same group at the end. And also going through, the research must go through the institutional research committee, then the district one, then the provincial one, and then only you get it approved. So, that's why I say even if it can be on a small scale, or institutional level thing, (P2: Mmm), and then also to present it and get the information on that.

P4: (continuously non-verbally communicates involvement in interview): And besides that, with the research committee, we had a topic that we discussed that we are going to continue with it with the students, unfortunately the topic had to be changed, like (P2) explained that the supervisor decided that we should change to another topic (P3: Mmm), so it's becoming a

problem when we want to continue with it, and then the other point is still the phobia, we really need to be empowered really, we have that phobia whether we like it or not, we do have it and probably that is why even our students are having this phobia.

R: Mm.

P2: You know, just to share, I had this, eh, encounter with a lady, I can't remember whether she was from (country's name) or where, (country's name) I can't remember, I don't think it's (country's name), their curriculum for the basic training, it is a requirement at fourth year level, the learner must submit a research proposal, as one of the assessment tools that they have, but you know, I never followed-up, I think I should rekindle that interest, and check how they do it, because she said to me – they can not pass the program if your proposal is not approved, and corrected and you have passed it (P's talk at the same time, consider suggestion).

P1: Maybe start at second year.

P2: Second year, mm.

R: Mm.

P4: They can even research in the practical situation, because there are problems as well that they can identify the problem and then formulate a research problem and then continue with that.

P1: But again the numbers, unless you take ...

P2: Work in groups.

P1: Exactly.

P4: Unless you take a few at second year level, a few in third year level, and the last group maybe at fourth year level.

P's: Mmm.

R: You're starting to think of ways you can overcome obstacles, time, work load and, maybe thinking of requiring them to submit a research proposal in order to finish the course, and also mentioning that it might be on a smaller scale, not necessarily a big research project, and done in groups.

P's: Mm.

P2: Yes, it could be of a limited scope, just to do, and still it means we have to step up our skills as well, as tutors, that's where we should start, to test the ground and see: are we still there, or not.

P3: Ja, because you must follow all the steps, whether it's on small scale or a bigger scale.

P1: Just a follow-up, I'm just thinking when do they do their field work, where do we fit it into their curriculum?

P2: When they do their community-based things, I think some of their hours can be taken for research. (P3 agree). There could be means of (P4: Ja, as you say). We are busy with re-circulation, né, we could see if that could be possible. Maybe we are over-teaching a lot of extra things that we need to prune out from the curriculum (laughs) to accommodate that.

R: Mmm.

Silence.

R: Any other comments on the vision of the strategy?

P2: Ja, the recognition, I know, event at that tertiary, at the university, technikons, the nurse researchers are not taken seriously, like (P1) said, you are just done to finish your study and then the people sit down. There are so many people that stagnate at the level of their doctorates, and they don't become professors because maybe they are not recognised at the universities, né, they are working or at the technikons. I think that also needs to be looked at, that nurses need to be recognised as researchers and if their contributions are not used I'm thinking of (name's) research, that she used for the (name of province) here, are we implementing that as the province, because that was a good dissertation that she did. Maybe the nurses get disillusioned also, because they do research and you are told, ok, give us your dissertation, and you don't see anywhere when it's implemented, exactly. And the other thing that I want to share here, it's the, we say sometimes we want to use the dissertations on the research results of other researchers, and I found out, that is my experience on my side, that I looked at this, and I started saying, ok, I can remember the theory on how to evaluate the report of the research, and I thought, I said, let me look at things that will be relevant here, so that when I go to the class, I can say to the learners, here is the report I studied and this is what I found out. You know, it took me more than a week to go through that, and one day just, I said let me go back to this document and you know it's surprising, I could find sporadic things that I could recognize and say this can be implemented, you know, maybe we also ignore our colleagues that have done research (P's: Mm) that we don't utilize their dissertations. Yes, I'm sure it can make them want to go and do their (?), if they see the things they've produced, are they utilized. Mmm, I think so.

R: Mmm.

P4: And even those who are stagnant like us, maybe we will get interested in doing and continuing with research.

R: And that also indicate that maybe we need skills in how to implement research and how to, as you said, evaluate a research report in order to understand how could I implement research.

P's: Mmm.

R: The purpose of the strategy links to the vision and the strategy should aim to (read from the document).

P1: I think we have covered this.

P's: Mmm.

P2: And utilizing the research results. And I think we should also as nurses take the lead in that, yes. And maybe sometimes you find that you have a constraints as to maybe the services, like at the college, let me come to us, at the college you maybe could get researchers that have researched or maybe seen drop out of learners from the college, on the D4, I remember Council did that once, they sent out a questionnaire when we did that, I think it was the very first group of the integrated, general and midwifery, they sent out a questionnaire to find out about the newly qualified nurse of this integrated programme, so I think here at the college it's very rare that you find things, I remember this lady did something on modular teaching, I can't remember, but all in all what I wanted to say was, here as nurse educators I think we should also look at things and remove the fear that we said is bugging us and look at researchers that have done research on nursing education and see what is that we can pick up and utilize, because if we don't take the lead nobody's going to push us and say did you see this, did you see that? I think that's a good thing.

P3: Also in the purpose it says to improve the contribution of the nurses in health research, in other words we should also actively utilize those people and the knowledge that they've gained. Just as she said, we must (draw?) in those people, that they can also explain or tell you more, not just something you receive at the college or maybe see on the shelf in a library, but that you can utilize it and ask them come and show me this, come explain this to the class.

R: Mmm.

P2: Or maybe I think we could, let in the (province), né, under the leadership of the researchers at both campuses of the university that we form a, like we have a professional society for nurse educators, we could have, a, (P1: a research association, laughs) a research something, it can be called anything, but, I'm sure that also can motivate the people.

R: And create awareness (P2: Yes) and have links between different institutions and (P2:Yes) being aware of what research is going on, and people will then be able to invite each other to share expertise and research.

P1: I just want so say, Emmerentia, um, because you did your research, what was it, where is it now? What I'm trying to say is: did you see anything that was implemented, or was it just in the books? That's all.

R: My own research? (P1: Mmm). My master's degree is one of those who landed on the library shelf. Yes, it was not implemented. And I think a great deal of responsibility lies with me to distribute the information. I did publish an article on that but I, for instance, I wasn't lecturing on psychiatric nursing science at that time, and I think if I was I could include that in the subject, or if I was still in practice then I could also implement that in my practice. For my doctoral degree I plan on implementing the results, because I think it's my responsibility. I've now got all of this information from you and it's such valuable information, it would get lost if I don't implement it.

P1: But still I think it's not only you who must use your information. The people who that theme relate to are the ones that must use your information. Sometimes when you read something, or you come across something, when you just share with the learners that this is an interesting thing (telephone rings) and I really don't know how to make that this information is really used.

R: So you feel that research should be implemented, but there's obstacles in how to (telephone call for one of participants, distracting).

P2: Mm, there are. The red tape and all that. And a person would tell you there is a policy in place for that. That is why I feel if we could have this research committee, we can break the ground and do more you know, I'm sure, under the leadership of the two university researchers I think they can involve us and we can see maybe can get into (?) Because the protocols and the policies sometimes, they obstruct progress, but I think we should be brave enough, to question and ask.

R: Mmm. Thank you. Let's look at the key role player. You already mentioned that the nurse educator might play an important role, taking responsibility, sharing information, acting as a research leader and a mentor, meaning we should strengthen our own research profiles and also carry over a positive attitude, a positive perception of research.

P2: Mmm.

P1: This research capacity building under the approaches at undergraduate level and post-basic level, isn't that already what we try to see when we say if maybe somebody would come and try to cascade the (?) of research, maybe it's (band stop).

Side B

P1: ... the learners that fear we must try and understand.]

R: Mm, let someone from outside explain research.

P's: Yes.

R: Mmm.

P2: And you know, I think research, I've experienced that research is more understandable and we have it hands on if done in a workshop set-up. If you sit and listen, it's boring, but if you give people, like say, ok, write down researchable problems and tell me whatever, it makes sense that way. If we could have this group that I, we, proposed that you can say, can steer all research capacity building of nurse educators in the province, and we have a year programme that we look forward, maybe quarterly, or whatever the case may be, we know we have a big seminar, we can go on at home ground and when we go to the seminars at three monthly intervals then we give feedback and reports of what have you been doing. If we have this steering group that we say it's a provincial research committee of nurse educators. I think we can be the winners and I think as nurse educators we will not fear even if we are amongst scientists, researchers, (P's laugh), astronauts. We can contribute something also (laughs).

R: Yes, we will feel knowledgeable and confident.

P2: Yes, that is the major obstacle.

P3: Ja, because when you lack confidence you don't want to talk, you don't want to contribute, you don't want to ask nothing, you're so glad somebody else take the chance to talk or ask something (P2: Mmm).

P4: You don't want to take the heat (P3: Mmm).

P1: Like that workshop, Emmerentia, you were there ...

R: Mmm.

P1: That workshop at least, um, I think if a person who doesn't understand, or who have forgotten, like us, that was the time when we said, ok, formulate a research problem, choose a problem, that was like (P2) was saying in a workshop everybody was interested to come up with something, you can think of many things you can research on, but unfortunately it ended at that because we pick up one, and that was the one that we were going to work on and it was now also stopped, you see, then you get ...

P3: De-motivated.

P's agree.

R: Mmm. It seems that research asks a lot of determination and carrying on ...

P1: Mmm.

P3: And especially when you've in a situation, like us with learners, you see something that is there, but when you must go through all the red tape or something and it's taken down, ag, then you just think, ag, just stop it, I'm not going to even to try. I'm not even going to try.

P1: Mmm. It's as if you can just, eh, if it worked, if it was possible, that you do your own research,

you don't give it to anyone, and when it's finished you say: here.

P's laugh.

P1: When you've finished the process (laughs).

P3: Even if you don't do all the scientific steps of it, and but you come up with results.

P4: And then you hand in (can't hear).

P's laugh.

P2: I see also, Emmerentia's got what we've already touched on, this building partnerships to create cross-functional, multi-disciplinary, multi-sectoral teams to conduct collaborative research, advocate for health research, or design and implement evidence-based practice strategies. I want to align myself with that, because we've already mentioned that, because we learn from other disciplines, like we know in nursing we've borrowed from so many disciplines. I think even with research if we are together like we were talking about this committee of the province, it should not only be comprised of nurses, we should tap from expertise from other disciplines and have this committee of the province, I think, even making other people recognize that nurses really are researchers.

R: Mmm.

P2: Yes.

R: We need also inputs from other disciplines.

P2: Yes. (P's: Mmm).

R: But at the same time we need to take responsibility and ...

P2: Of our own, yes.

P3: And I can say from experience just by talking that the nurses are really eager to do something. But when there's an obstacle in their way, then they're de-motivated. But they really want to, there's lots of ideas. If I take the learners, the number of learners that we have: cross-infection in the hospitals, taking it there, um, overloading everything, even the patients, there's a lot of things.

R: Nurses are eager but there's such a lot of obstacles.

P2: And red tape, that you have to have study leave, you have to have this, but, I think, even the money, financial constraints for research. Because you have to have cameras, you have to have maybe video cameras, tape recorders, some of us can not afford that. If there's no sponsorship available. But fortunately the province has got the sponsorship for research, they do give if you apply and ...

Silence – few seconds

R: Any other comments?

P3: And the undergraduate (can't hear) courses.

P2: I just want to share this now, one thing that I have experienced as a person is that, um, when I was sharing the experience at the technikon, né, this gentleman came and you know I was

jittery but because we had to conduct interviews to get data just to have feel how to do that, and when he left I said guys let's talk about us, how did we experience the whole session. I started first, I said, you know what, I said I'm so uncomfortable, because I was even questioning my skills to conduct an ordinary interview to get information, and funny enough it was just the group itself and me and this gentleman that we have invited, sometimes you find that people want to do those days, but you have this hesitancy: but now, will I be able to do, (P's agree) to reach out and to get the proper thing and, I think if we can break that fear that will be ok for us, really, you get this raw data and you say how do I start analysing now? Will I do the right thing and everything (P's laugh). Anyway, I think, because people have got theoretical background, it will be easy if you get a mentor that can put us through there, the actual process itself.

R: What you're saying now confirms a recurrent theme that you've been mentioning in the discussion and that is that research need to have a safe environment, nurse need to have a safe environment to be free to ask questions that they don't know, because on a nurse educator level you are already a competent person, and then you might think that people will not see you as competent when you ask questions about research if you don't know about it (P's: Mmm, it is true) and you also need a mentor to guide you through, and not de-motivate by giving corrections, but just a safe feeling of: I can continue.

P3: I also think the mentors is only a few perhaps, I don't have it black on white, but, like at the college, if we must utilize the people that we've got, they've got knowledge and skills on different levels, but not by paper that they've got a master's degree or something like that so we will have to allow people to (can't hear).

R: Mmm. Thank you very much for your inputs, I appreciate it a lot.

Appendix L Work protocol for data analysis in focus group interviews

Dear Co-coder,

Work protocol for analysis (open-coding) of research results of focus group interviews

Please follow the following guidelines when analyzing the transcriptions of the focus group interviews.

Important notes: The opinions of participants (words and themes) are the units of analysis. Look for statements/judgements that could be linked to the words: We feel, We believe, We think, We know, We agree, We disagree.

The level of analysis: focus on proximity analysis (recurrent opinions (concepts)), but if affect is apparent (e.g. descriptive words, punctuation marks, metaphors) note these as well.

Guidelines:

1. Get sense of the whole by browsing through transcriptions, asking: what is it about?
2. Keep the relevant research objectives in mind, which are:
 - a. to verify the proposed strategy and to explore its feasibility within the Southern District of the North West Province;
 - b. to refine the proposed strategy to promote the research contribution of nurses.
3. Read through the transcripts, carefully, identifying opinions by underlying/highlighting relevant phrases.

4. Note opinions in the left margin, note own thoughts (relating to underlying meaning, affect as identified, appropriateness of responses to questions) in right margin.
5. Cluster similar opinions together to form columns.
6. Give descriptive names to columns to form categories and sub-categories.
7. Identify similarities in categories and sub-categories and re-group or reduce if necessary.
8. Write summary of own thoughts/impressions.

Please contact me if you need further information.

Regards,

Mrs Emmerentia du Plessis

Appendix M Confirmation to use Nexus database
Emmerentia du Plessis - RE: Gebruik van Nexus databasis in PhD navorsing

From: "Henda van der Berg" <henda@nrf.ac.za>
To: "Emmerentia du Plessis" <VPKEMDP@puknet.puk.ac.za>
Date: 2006/05/02 11:21
Subject: RE: Gebruik van Nexus databasis in PhD navorsing
CC: "Henda van der Berg" <henda@nrf.ac.za>

Beste Emmerentia

~~Die inligting van die Nexus Databasis mag vir navorsing gebruik word. Die persoonlike inligting van navorsers is vertroulik en die Electronic Communication Transaction Bill (ECT Bill) sal vir jou meer inligting hieromtrent verskaf. Die databasis is die eiendom van die NRF en mag as sulks nie gereplikeer word en toeganklik gemaak word vir ander gebruikers nie. Erkenning aan die NRF en 'n bibliografiese verwysing sal voldoende wees, bv.~~

National Research Foundation. Current and completed research projects database. NRF: Pretoria, 2006.
 [Available at <http://www.nrf.ac.za/nexus>. Referenced on [spesifieke datum wat die inligting ontrek is]

Alie sukses met jou studies.

Groete
 Henda

Henda van der Berg

Information Services and Advice
 National Research Foundation
 Phone +27 12 481 4016
<http://www.nrf.ac.za/nexus>
<http://stardata.nrf.ac.za/html/workshopCodata.html>

From: Emmerentia du Plessis [mailto:VPKEMDP@puknet.puk.ac.za]
Sent: 25 April 2006 12:15 PM
To: Henda van der Berg
Subject: Gebruik van Nexus databasis in PhD navorsing

Geagte Henda,

Ek is tans besig met PhD studies, getiteld: The contribution of nurses towards health research. Die navorsing is deur die Noordwes Universiteit se etiekkomitee goedgekeur. As deel van die navorsing beplan ek om die Nexus databasis te gebruik om 'n profiel op te stel van huidige en afgehandelde navorsing deur verpleegkundiges. Hiermee doen ek graag navraag tov die vereistes vir etiese gebruik van die Nexus databasis vir hierdie doel, bv. erkenning aan die NRF in 'n verslag oor my navorsing, vertroulikheid, intellektuele eiendom.

Groete,
 Emmerentia

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Appendix N Ethical approval

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30 November 2004

Geagte mev Du Plessis

GOEDKEURING VIR NAVORSINGSPROJEK MET MENSE (KWALITATIEWE NAVORSING)

Hiermee wens ek u in kennis te stel dat u projek getiteld "*The contribution of nurses towards health research in South Africa*" deur die Etiëkkomitee goedgekeur is met nommer 04K22.

(Hierdie is werklik 'n goeie voorbeeld van hoe 'n navorsingsvoorlegging moet lyk!)

Gebruik asseblief laasgenoemde nommer in alle korrespondensie rakende bogenoemde projek en let daarop dat daar van projekteleiers verwag word om jaarliks in Junie op die voorgeskrewe vorm (wat voorsien sal word) aan die Etiëkkomitee verslag te doen insake etiese aspekte van hulle projekte asook van publikasies wat daaruit voortgespruit het.

Goedkeuring van die Etiëkkomitee is vir 'n termyn van hoogstens 5 jaar geldig (volgens Senaatsbesluit van 4 November 1992, art 9.13.2). Vir die voortsetting van projekte na verstryking van hierdie tydperk moet opnuut goedkeuring verkry word.

Die Etiëkkomitee wens u alle voorspoed met u werk toe.

Vriendelike groete



ESTELLE LE ROUX
NAMENS SEKRETARIAAT



Manuscript One

**Health research conducted by nurses –
making our contribution count**



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Manuscripts are voluntary contributions submitted for exclusive review for publication in the *Journal of Nursing Scholarship*. Manuscripts containing original material are accepted for consideration if neither the article nor any part of its essential substance, tables, or figures has been or will be published or submitted elsewhere before appearing in JNS.

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The Publication Manual of the American Psychological Association (APA), Fifth Edition, provides the format for references, headings, and all other matters. Check here for additional information about APA style: <http://www.vanguard.edu/faculty/ddegelman/index.dm?docid=796>

Note below that JNS guidelines differ slightly from APA guidelines, for example, the JNS requirement of a structured abstract and additional information about authors.

- Manuscripts should be 12 font, double-spaced, with standard margins (about 1 inch). Fancy typefaces, italics, underlining, and bolding should not be used except as prescribed in the APA guide lines.
- Manuscripts must not exceed 20 pages, including abstract, text, references, tables, and figures. The author is responsible for compliance with APA format and for the accuracy of all information, including citations and verification of all references with citations in the text. Spelling may be in either English (American or British).

Content

The content of a typical manuscript includes:

- Title page
 - Title
 - Author information
 - Acknowledgements (if appropriate)
 - Precis
- Abstract and key words
- Text
 - Introduction
 - Background
 - Methods
 - Findings
 - Discussion
 - Conclusions
- References
- Tables and figures

Title page

Title

The title should indicate the focus of the article in as few words as possible. It should not contain a colon or other complex structure. Titles should not exceed about 10 words.

Running header

This header is an abbreviated wording of the title; it usually is not more than four or five words.

Author information Indicate for each author:

(a) name; (b) degrees and certifications; (c) Sigma Theta Tau International chapter, if applicable; (d) title or position, institution, and location; and (e) to whom correspondence should be sent, with full address, phone and fax numbers, and E-mail address; provide E-mail addresses for all co-authors.

Acknowledgements

If any acknowledgements are to be included, they should be briefly stated, such as name of funding source and grant number.

Precis

This one-sentence summary of the published article is printed with the title in the Table of Contents.

Abstract

A structured abstract with headings should be included as part of the manuscript. The abstract denotes: (a) purpose of the article, without detailed background; (b) design, including type of study, sample, setting, dates of data collection if applicable; (c) methods, such as interventions, measures, types of analysis; (d) findings; and (e) conclusions.

If the manuscript is focused on review or theoretical analysis instead of an empirical study, a

structured abstract still is required, but the organizing construct may be stated instead of a design.

Key words

A few key words that are recommended for use in indexing should be listed at the end of the abstract.

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Successful articles have clear, succinct, and logical organization and flow of content. For additional information, please refer to "Tips for Getting Your Manuscript Accepted."

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The list of references should include only those references that are important to the text. Long lists of references are not desirable because they consume too much space. All citations in the text must be listed in the references, and all references should be cited in the text. References should be the most current available on the topic.

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Each table and figure should be presented on a separate page and uploaded separately. Placement of each table or figure should be noted in the text. Addenda and appendices are not used in JNS.

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The mean time from acceptance to publication is approximately 8 months; however, the range may vary because revisions sometimes require additional time. All manuscripts are edited and copyedited before they are sent to the printer. The corresponding author receives page proofs for approval about 2 months before publication.

Health research conducted by nurses – making our contribution count

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Precis

This overview of the literature on health research conducted by nurses revealed aspects essential to a strategy to promote nurses' research contribution.

Abstract

Purpose: To present an overview on health research globally and in South Africa, as well as particularly on health research conducted by nurses internationally, and in South Africa, in order to identify suggestions on how to promote nurses' research contribution.

Organizing framework: A critical discussion, based on an overview of available literature, using the Ebscohost database (Academic search premier, ERIC, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, MEDLINE, CINAHL, Pre-CINAHL, PsycINFO), is presented.

Conclusions: Conclusions could be drawn regarding aspects essential to a strategy to promote nurses' research contribution. Further research to explore these aspects and to develop a feasible strategy to promote nurses' research contribution in South Africa is recommended.

Key words: Nursing, nurses, research, health research, contribution, South Africa

Introduction

Nurses are important stakeholders in health research. Nurses have the potential to significantly contribute to the improvement of health and health care by means of research (Botes, 2001:17). However, there is concern that the contribution of nurses towards health research could improve (Sajiwandani, 1998:35), specifically in South Africa. This article provides a broad overview of current issues in health research, as well as a more specific discussion of health research conducted by nurses. Conclusions are drawn and suggestions are made regarding aspects that should be included in a strategy to promote the research contribution of nurses.

Literature overview

The literature overview was conducted in the following manner: The Ebscohost database (Academic search premier, ERIC, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, MEDLINE, CINAHL, Pre-CINAHL, PsycINFO) was searched. Key words were used to conduct the search, namely: nursing, nurses, research, health research, contribution, South Africa, international, strategy/strategies. Sources were selected based on its relevance to the topic under discussion and apparent scientific quality. Throughout the process of writing of the literature overview, the content was submitted for peer review.

Health research: a broad overview

From the literature it seems that the current focus in health research internationally and in South Africa is appropriate health research agendas and assisting developing countries in sustainable development and redress (COHRED, 2004). Health research agenda is developed – by agencies such as the Advisory Committee on Health Research (ACHR) and national Essential National Health Research (ENHR) committees – by means of identifying processes and criteria for identifying relevant research priorities (COHRED, 2004; COHRED, 2001; WHO, 2002; AMREF, 2004; NDH, 2001). These priorities are revised regularly, and current as well as future research priorities are identified (MRC, 2002; DST, 2003).

Additionally, it seems that it is a requirement that health research should be conducted by means of relevant methodologies which are tested and evaluated for appropriateness (AMREF, 2004). Furthermore, the dissemination and implementation of research is seen as important and the impact of research needs to be evaluated. The South African Medical Research Council (MRC), for example, specifically aims at encouraging the translation of health research into understandable language (MRC, 2002). This is encouraged in order to facilitate the relevance and impact of research.

It also seems that research is conducted within a network of collaboration and cooperation for the purpose of obtaining resources and enhancing global competitiveness and innovation (DST, 2003; HST, 2003; HST, 2001). In this context, collaboration refers to cooperation amongst researchers and research related stakeholders and also with the community. The community is seen as important stakeholders in identifying research priorities, as collaboration with the community enhances the implementation of research results. The South African Department of Science and Technology, for example, strive to include the community in their activities (DST, 2003). They, as well as the Health Systems Trust, regard public awareness and critical evaluation of research as important, and strive to uplift the scientific literacy of the community (DST, 2003; HST, 2001; HST, 2003; COHRED, 2001).

Infrastructure and resources are deemed to be very important in health research (DST, 2003; HST, 2001, COHRED, 2001). As part of infrastructure, task teams that coordinate and manage research seem to be beneficial. These teams are required to develop research strategies, and review and monitor research activities and research impact, and also review their own activities in order to revise strategies. They also act as advocates of their health research strategies. Resources such as human resources, and therefore capacity building, is also very important. Access to information and funding are also necessary for realizing health research.

The following discussion on health research conducted by nurses reflects similar issues.

Health research conducted by nurses

For the purpose of this article research conducted by nurses is seen as research conducted by nurses on all aspects of health that are of interest to nursing (ICN Fact Sheet, 2004) and that occurs in all environments where nurses are involved (Sajiwandani, 1998). This research requires a rigorous, systematic, scientific and logical inquiry that entails a dynamic process (Sajiwandani, 1998; Freshwater, 2003). There is agreement that research should generate new knowledge that is translated into strategies to influence health care, specifically the practice, education and management of nursing, in order to improve the health and well-being of the community (ICN Fact Sheet, 2004; DENOSA, 2003; Sajiwandani, 1998; Freshwater, 2003; McElmurry, Misner & Buseh, 2003; Kotze, 1984; Searle, 1990; Bergman, 1992; Poggenpoel, 1998).

Health research conducted by nurses is seen as a necessity (McElmurry *et al.*, 2003). The International Council for Nurses (ICN) perceives research as an instrument to facilitate quality care and evidence-based practice (ICN Fact Sheet, 2004). Sajiwandani (1998) additionally mentions that research contributes to cost-effectiveness of nursing care and to the development of policies and systems necessary to address current needs. Another viewpoint is that health

research conducted by nurses is of critical importance for the growth of the nursing profession (DENOSA, 2003; Kirkevold, 1997).

A strategy to promote nurses' research contribution

Throughout related literature, the creation of global as well as national research strategies to promote the contribution of nurses' research is encouraged. Vonderheid, Persaud, Stein-Parburg, Ghebrehiwet, Hanucharnkul, Boontong and Phuphaibul (2001) indicate the importance of and need for the development of a *global strategy* for health research conducted by nurses. The International Council of Nurses (ICN) has indeed developed a strategy with the aim of supporting health research conducted by nurses internationally (ICN Fact Sheet, 2004), while an example of such a strategy at *national level* is that of the United Kingdom, where the government developed a national strategy for health research conducted by nurses (Scott & West, 2001).

In South Africa, there is also a realization of the need for a research strategy (Sajiwandani, 1998; Muller, 1998; Freshwater, 2003). This need for a research strategy in the discipline of nursing is specifically apparent from the fact that, in the South African nursing education context, discrepancies in research capacity building exist. Nurses are trained at both universities and colleges, and the distinction between the programmes offered at these institutions relates to the emphasis put on and preparation to be involved in research. This leads to the

problem that nurses are not equally prepared to be involved in research. In answer to the need for a research strategy, the Democratic Organisation of Nurses in South Africa (DENOSA) accepted responsibility for developing a research strategy for nurses (DENOSA, 2003), but whether this strategy is being implemented is not clear.

Aspects that should be included in a strategy to promote nurses' research contribution

The above-mentioned strategies were studied, and additional suggestions made by several authors (Frank, *as quoted by* Gray & Armstrong, 2003; Grady, 2001; Vonderheid *et al.*, 2001; Pringle, *as quoted by* Gray & Armstrong, 2003) were taken into consideration in order to conclude on aspects that should be included in a strategy to promote nurses' research contribution. It seems that such a strategy should be driven by a coordinating task team that takes responsibility for coordinating research, reviewing and monitoring research activities and the impact thereof, advocating for research conducted by nurses and setting ethical standards. It also seems that the following aspects should be included in a strategy to promote nurses research contribution:

Collaboration

Collaboration in research could substantially benefit all parties involved

(McElmurry *et al.*, 2003). Vonderheid *et al.* (2001) mention that collaboration leads to the appropriate development of research agenda. McElmurry *et al.* (2003) add that collaboration creates beneficial research networks. Collaboration also facilitates goal achievement and the implementation of research results (Sajiwandani, 1998). To achieve collaboration, networks should be cultivated (McElmurry *et al.*, 2003). The ICN research network for example identifies trends in health research and provides linkages between practising nurses, health professionals, policy makers and the community (ICN, 2004a).

Development of research agenda

Global research agenda, in the form of research priorities, should be developed in order to promote the contribution of nurses to health research, and to put nursing on the cutting edge of knowledge production and utilization (Vonderheid *et al.*, 2001; Chung, 2001). McElmurry *et al.* (2003) are of the opinion that the development of priorities also ensures the sustainability of research projects globally. Setting priorities facilitates collective research efforts, builds the body of knowledge and ensures that major health problems are addressed (Vonderheid *et al.*, 2001). Ross, Smith, Mackenzie and Masterson (2004) add that setting priorities aids in addressing changes in organizations and practice, in developing research capacity and in identifying priorities for research funding. These agendas should be set, based on the global impact of health problems, and on the potential of the nursing discipline to have an impact on these problems

(Vonderheid *et al.*, 2001). In addition Alpert, Fjone and Candela (2002) warn that when setting priorities, nurses should not only focus on the behavioural aspects of health, but also on scientific bench research, clinical trials (medication treatments, immunization protocols) and genetic research.

Research priorities developed by the International Council for Nurses (ICN, 2004b) focus on health and illness, as well as on the delivery of care services. In South Africa, research priorities for health research conducted by nurses have been set since 1983, when the South African Nursing Association, now known as DENOSA, initiated a research unit with the task to identify research priorities and revise these priorities every 3-5 years (Paton, 1986). Priorities set by DENOSA in 2004 include topics on clinical practice; education, training and development; management and leadership; health systems and human resources; ethics and human rights and research (DENOSA, 2004).

Although it does not seem that these research priorities are strictly followed in South Africa, it does seem that health research conducted by nurses responds to changes in the health context as well as to technological development (Potgieter, 2003; Ehlers, 2002; Poggenpoel, 1995).

Additionally, the perception exists that a tendency that research is more caregiver-centred than patient-centred has developed (Kortenbout, 1995; Brink, 1992). Although this change was welcomed at first (Kortenbout, 1995), it is now

criticized by Ehlers (2004), who is of opinion that the need for research regarding clinical aspects, or delivery of care, is currently more prominent and should receive attention. The need for clinical research — that is research that investigates nursing practice — is mentioned by several authors (Geyer, 2004; Muller, 2000; Bergman, 1992; Brink, 1992).

Research capacity building

Research capacity building includes developing nurses as research leaders, facilitating research-mindedness amongst professional nurses in practice and fostering research as a career.

Nurse leaders in health research are indispensable (Poggenpoel, 1998). These leaders not only represent the nursing profession at international and national level (Geyer, 2000) but also ensure quality education, support and supervision to nurses as researchers (Zeelie, Bornman & Botes, 2003). There is a small group of nurse research leaders in South Africa, and they represent nurses on e.g. the Medical Research Council, the ENHR committee and the International Network for Doctoral Education for Nurses (INDEN) (Geyer, 2000; Ketefian, 2002; Potgieter, 2003).

However, Gray and Armstrong (2003) as well as Uys (2005) report that there is a serious shortage of nurse research leadership. To overcome this problem,

organisations, for example the International Network for Doctoral Education of Nurses (INDEN), promote the education of nurses at doctoral level (McKenna, 2002). Additionally, McElmurry *et al.* (2003) propose the development and implementation of an academic-research training programme to develop leaders in research.

Additionally, the need for a critical-evaluating culture amongst practicing nurses, who constantly identify research problems in practice, initiate research and implement results, seems to be prominent (Botes, 1993; Zeelie *et al.*, 2003). Nurses have key roles to play in health research (Freshwater, 2003) and can offer new information and unique perspectives regarding the research process (ICN, 2004a). Nurses should therefore be encouraged to be involved in research activities (Sajiwandani, 1998). Although there are nurses who are interested in research (Sajiwandani, 1998), there is concern that nurses do not demonstrate research-mindedness, in spite of the availability of research results and opportunities to be involved in research (Camiah, 1997). This problem is enhanced by the emigration of professional nurses, which leads to an increasingly limited number of nurses involved in health research in South Africa (Potgieter, 2003).

Several barriers facing the development of nurses as researchers have been identified. These include difficulty in balancing clinical and student roles and limited funding; lack of mentorship; lack of training; lack of peer benchmarks; and

lack of time protection (McAlister, *as quoted by* Gray & Armstrong, 2003).

Researchers, nursing lecturers and nursing practitioners should work jointly to develop nurses as researchers (Camiah, 1997). In South Africa specifically, the development of young, black, female researchers is seen as of specific importance (Zeelie *et al.*, 2003). McElmurry *et al.* (2003) argue that the preparation of young scholars for research has not been emphasised enough in the nursing discipline. However, emphasis is now shifting to developing nursing research programmes, developing nursing research capacity and fostering research careers for nurses (Pringle, *as quoted by* Gray & Armstrong, 2003).

Approach/methodology

Following the most appropriate approach/methodology also has an influence on the contribution of nurses in health research. In South Africa, it seems that the need for operational research has been prominent in the past years, as well as an awareness of the need for interdisciplinary research and a holistic approach (Muller, 2000; Poggenpoel, 1995). The value of post-modernistic approaches is also acknowledged (Zeeman, Poggenpoel & Myburgh, 2002). Criticism has been expressed that the unbalanced increase in qualitative studies limits nurses' contribution to health research (Ehlers, 2004). McElmurry *et al.* (2003) as well as Alpert *et al.* (2002) maintain that the balanced utilization of different methods leads to greater depth and understanding of phenomena. Freshwater (2003)

summarizes these opinions by saying that nurses should develop relevant and pragmatic approaches to reflect the reality of clinical nursing practice.

The utilization of health research conducted by nurses

Research-based care and information is becoming increasingly important, especially if current healthcare restructuring and the emphasis on cost-effectiveness is taken into account (DENOSA, 2003). Health research conducted by nurses is a powerful tool to generate new knowledge and evidence to underpin nursing practice (ICN, 2004a). Knowledge generated through research could be used to develop evidence-based practice, improve the quality of care and maximize health outcomes and cost-effectiveness of nursing interventions (ICN Fact Sheet, 2004). The inclusion of research findings in practice and in teaching is therefore of the utmost importance (Camiah, 1997). However, the difference that research conducted by nurses could make in practice, is not always evident (Freshwater, 2003; Kirkevold, 1997; Pringle *(as quoted by Gray & Armstrong, 2003)*). This weakens the development of nursing as a science (Kim, *as quoted by Kirkevold, 1997*).

Strategies to improve the dissemination and utilization of research are suggested in literature. The publication of research to reduce the gap between science and practice is encouraged (O'Donnel, 2000). Research-mindedness amongst nurses, as already discussed, should be facilitated so that nurses question their

own practice, and use research results to solve problems. Nurses should also be represented at policy making level in order to ensure that research results are translated into policy (Sajiwandani, 1998). Career development of nurses as researchers should be facilitated (ICN, 2004a). Governing as well as managing authorities should support and encourage research (Camiah, 1997; Sajiwandani, 1998; Gray & Armstrong, 2003). Collaboration – inter-disciplinary as well as with the community – is also mentioned as a method to increase the utilization of research (Gray & Armstrong, 2003; McElmurry *et al.*, 2003). Funding of research remains essential (Pringle, *as quoted by* Gray & Armstrong, 2003), and the creation of a research network seems to be important (ICN, 2004a). The ICN and international organizations for nursing research also call for better access to information and more opportunities for nurses to publish in international journals (DENOSA, 2003).

Specifically, evidence-based practice (Closs & Cheater, 1999), and integrative research reviews (Melnyk, Fineout-Overholt, Stone & Ackerman, 2000) are suggested to improve the dissemination and utilization of health research conducted by nurses.

Availability of resources

In order for nurses to substantially contribute to health research, funding, as a research-supportive resource should be available. The nursing profession does

not enjoy preference regarding research funding (Freshwater, 2003; Pringle, as quoted by Gray & Armstrong, 2003). Bergman (1992) indicates that the potential of nurses to produce research of high quality is questioned by funding authorities. On the other hand, Zeelie *et al.* (2003) as well as Uys (as quoted by Webb, 1998) are of opinion that increased availability of funding will enable nurses to conduct research of high quality. Within the nursing profession, organisations such as the Democratic Nursing Organisation of South Africa (DENOSA) do support research by means of bursaries. Bergman (1992) also encourages the nursing profession to develop in grant application writing in order to compete favourably with applicants from other disciplines.

In conclusion

Taking current issues in health research in general, as well as health research in the field of nursing into consideration, and at the same time asking: how can nurses' research contribution in South Africa be enhanced, the following conclusions can be drawn:

It seems that nurses' contributions will be improved if they could conduct health research in an environment that supports research. This environment should be characterized by collaboration, capacity building, an authoritative and committed team of leaders taking responsibility to coordinate, promote and advocate health research, as well as the availability of funding and other resources. Capacity

building of nurses as researchers should take place, and nurses should develop as leaders and be in positions where they can influence the implementation of research results.

Nurses should conduct research that is in accordance with appropriate health research priorities, by means of appropriate methods/approaches. New knowledge should be generated through this research, and in order for this new knowledge to be implemented in practice, there should be a process of assimilating it into the existing body of knowledge as well as a process of preparing the target group who is expected to utilize the new knowledge. The nurse as researcher should therefore not only conduct research for the sake of research, but also be willing and be in a position to disseminate and implement research results. The authors conducted further research to explore these conclusions and to develop a feasible strategy to promote nurses' research contribution (Du Plessis & Human, 2006).

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Manuscript Two

A profile of research conducted by nurses in South Africa

Guidelines for authors (Journal of Nursing Scholarship, 2005, 37(4))

The *Journal of Nursing Scholarship* is a peer-reviewed journal, published quarterly for subscribers and members of the society. Scholarly works are invited in the areas of clinical scholarship, health policy and systems, and profession and society. If you are interested in submitting a manuscript for possible publication, please review submission requirements below.

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Manuscripts are voluntary contributions submitted for exclusive review for publication in the *Journal of Nursing Scholarship*. Manuscripts containing original material are accepted for consideration if neither the article nor any part of its essential substance, tables, or figures has been or will be published or submitted elsewhere before appearing in JNS.

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Subsequent communication with the editor will be done via E-mail as much as possible. The information below indicates the required presentation of manuscripts.

Format and style

The Publication Manual of the American Psychological Association (APA), Fifth Edition, provides the format for references, headings, and all other matters. Check here for additional information about APA style: <http://www.vanguard.edu/faculty/ddegelman/index.dm?doc id=796>

Note below that JNS guidelines differ slightly from APA guidelines, for example, the JNS requirement of a structured abstract and additional information about authors.

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Content

The content of a typical manuscript includes:

- Title page

- Title
- Author information
- Acknowledgements (if appropriate)
- Precis

- Abstract and key words
- Text

- Introduction
- Background
- Methods
- Findings
- Discussion
- Conclusions

- References

- Tables and figures

Title page

Title

The title should indicate the focus of the article in as few words as possible. It should not contain a colon or other complex structure. Titles should not exceed about 10 words.

Running header

This header is an abbreviated wording of the title; it usually is not more than four or five words.

Author information Indicate for each author:

(a) name; (b) degrees and certifications; (c) Sigma Theta Tau International chapter, if applicable; (d) title or position, institution, and location; and (e) to whom correspondence should be sent, with full address, phone and fax numbers, and E-mail address; provide E-mail addresses for all co-authors.

Acknowledgements

If any acknowledgements are to be included, they should be briefly stated, such as name of funding source and grant number.

Precis

This one-sentence summary of the published article is printed with the title in the Table of Contents.

Abstract

A structured abstract with headings should be included as part of the manuscript. The abstract denotes: (a) purpose of the article, without detailed background; (b) design, including type of study, sample, setting, dates of data collection if applicable; (c) methods, such as interventions, measures, types of analysis; (d) findings; and (e) conclusions.

If the manuscript is focused on review or theoretical analysis instead of an empirical study, a structured abstract still is required, but the organizing construct may be stated instead of a design.

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The mean time from acceptance to publication is approximately 8 months; however, the range may vary because revisions sometimes require additional time. All manuscripts are edited and copyedited before they are sent to the printer. The corresponding author receives page proofs for approval about 2 months before publication.

A profile of research conducted by nurses in South Africa

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Precis: A profile of research conducted by nurses in South Africa illustrates the value and limitations of this research.

Abstract

Purpose of the article: This article describes a research project in which information available on research conducted by nurses in South Africa were summarised to illustrate the type, value and limitations of research conducted by nurses.

Research design: A quantitative, explorative and descriptive design was followed. Information available in a database maintained by the National Research Foundation and in published articles was analysed within a specific framework.

Methods: Document analysis was used.

Findings: The results of the research are discussed in the form of a profile.

Conclusions: Conclusions were drawn based on the results and relevant literature, and ways in which the value of research conducted by nurses could be improved are recommended.

Key words: Profile, research, contribution, impact, nurses, South Africa

Introduction

While much effort is put into research, the academic and practice value of research, and especially research conducted by nurses, is often questioned (Freshwater, 2003). This is also true in the South African context (Du Plessis & Human, 2006b). Information that might shed light on the value of research conducted by nurses is available, such as that made available in the Nexus database maintained by the National Research Foundation (NRF, 2006) as well as that presented in published articles. However, in its current format this information does not always reveal the nature of the contribution made by the research to the profession.

The authors argued that it would be valuable to analyse the available information and to compose a profile regarding research conducted by nurses in South Africa.

Background

This research formed part of successive phases of research about the research contribution of nurses in the South African context. Prior to this particular phase of the research covered in this article, a Delphi study was conducted with key role players involved in research done by nurses, preceded by an in-depth literature study (Du Plessis and Human, 2006a, Du Plessis and Human, 2006b).

The findings and conclusions derived through the Delphi process and literature study resulted in useful criteria that could be utilised as benchmarks to analyse and compare research done by nurses in South Africa. These criteria covered the more subjective nature of existing perceptions of the nature and value of research done by nurses, as well as the measurable objective standards accepted throughout the scientific world about the validity, reliability and ethical nature of this research.

Perceptions and recommendations

The findings from the literature and Delphi studies showed that research is seen as limited in terms of the large number of qualified nurses in the country and that this research generally does not make a significant impact on the scientific knowledge base of nursing, health and health care, or on health-related policies.

Factors contributing to the limitations in nurses' research were identified. One of these factors is that most research conducted by nurses is specifically defined as 'nursing research' and is of consequence only to the nursing profession, and focuses on nurses and nursing rather than addressing specific issues or clinical and nursing care from which patients, clients and communities can directly benefit. Another limiting factor expressed by participants in the Delphi study was that results from clinical research is largely underutilised, and that more caregiver-centred than patient-centred research is being conducted. In line with these views, recommendations were

made that more clinical research should be conducted, and a more balanced focus on patients and caregivers should be evident.

Other perceptions were that nurses' research contribution is limited by the poor and superficial research methodology being followed. The methodology generally lack creativity and innovative research strategies. There is also a lack in longitudinal studies by nurses. Nurses furthermore tend to use more qualitative than quantitative methods, while a more balanced use of these methods to enable a comprehensive contribution is recommended.

Research is mostly done by nurses in academic nursing departments at universities and by postgraduate students pursuing further academic qualifications and seldom by nurse practitioners. Nurses in academic posts tend not to specialise in research because of their diverse roles and responsibilities, and they therefore do not specialise in research as a discipline, resulting in a limited number of research experts and a lack of confidence when conducting or supervising research.

Another perception was that research conducted by nurses is generally not disseminated widely and effectively enough and results are neither implemented nor utilised appropriately. A culture to prepare nurses to disseminate and utilise research, as well as to prepare target populations to utilise research findings, does not exist. It seems that nurses generally lack confidence and scientific writing skills to produce and disseminate research

reports, to publish and utilise findings after completion of research. Moreover, opportunities to publish in research journals are limited in South Africa.

Recommendations on the dissemination and utilisation of research results included that a process should be followed of assimilating research into the existing body of knowledge, by means of research presentation and publications, and by means of a process of preparing the relevant target group to utilise new knowledge.

Research should be relevant to the current health context and needs in South Africa. Based on the literature study (Du Plessis & Human, 2006a), as well as the Delphi study (Du Plessis & Human, 2006b), several current research priorities could be identified, as randomly listed below:

- Diseases, including HIV/AIDS, sexually transmitted infections, cholera (diarrhoeal diseases), tuberculosis and other respiratory infections, diabetes mellitus, cancer, communicable diseases and malaria;
- Women's health, including reproductive health and gender-based violence
- Youth (adolescents and children) issues;
- Mental health;
- Pharmaceuticals, including drug and policy development and indigenous knowledge;
- Nutrition;
- Social and behavioural issues, such as injury, violence, trauma, holistic care, quality of life and human rights;
- Education;

- Quality of health care, including reduction of patient mortality, infection control, evidence-based practice, equity, effectiveness and access to care;
- Health systems, including health care reform, community- and home-based care, and primary health care;
- Human resources, including staffing, staffing levels and mix and the impact thereof on health service delivery, nursing work force, working environment and job satisfaction, retention and migration and performance appraisal;
- Finances, such as health financing, cost-effectiveness;
- Information and knowledge management;
- Organisational aspects such as policies and government support;
- Issues surrounding nursing as a profession; and
- The implementation of research and ethics in research.

Research questions

Based on the above discussions the following questions were asked:

- Are the perceptions on research that crystallised from the literature study and Delphi study about research conducted by nurses substantiated?
- Does research conducted by nurses in South Africa reflect the above-mentioned recommendations?
- What is the potential contribution of research conducted by nurses?
- What should be done to promote the contribution of research conducted by nurses?

Objectives

The objectives of this part of the research were thus to develop a profile of research conducted by nurses in South Africa in order to:

- explore and describe whether perceptions regarding research conducted by nurses are substantiated;
- determine whether research conducted by nurses reflects the recommendations for research by nurses in the current South African context;
- establish the potential contribution of this research; and to
- formulate recommendations to promote the contribution of research conducted by nurses.

These recommendations will be integrated into an overall study to develop a strategy to promote nurses' health research contribution.

Research methodology

A quantitative explorative and descriptive study, using document analyses as methodology, was conducted during the period August to September 2006.

The research was conducted in two phases.

Phase one: Analysing the Nexus database

A document study (Strydom & Delpont, 2002) was conducted to analyse the Nexus database. Similar methodologies were used by Kotze (1984) and Brink (1992) in overviews of nursing research in South Africa, respectively for the periods 1951-1983 and 1951-1990.

The Nexus database contains information on approximately 148 000 South African research projects from as early as 1919 (NRF, 2006). Titles as well as some abstracts of research projects are listed. These research projects are mostly conducted at higher education institutions for the purpose of obtaining master's degrees or doctoral degrees and for non-qualification purposes. The profile is thus limited to the context of higher education institutions in South Africa. To the knowledge of the authors, no other such comprehensive South African database exists on research being conducted by nurses at institutions/organisations other than higher education institutions.

Prior to conducting the analysis, the researcher confirmed with the relevant person at the NRF that the Nexus database may be used for the purpose of this research. The researcher conveyed that the information will be treated with scientific honesty, anonymity and respect.

The researcher thereafter obtained the assistance of an information librarian to gain access to the database, and to identify research projects conducted at nursing departments at higher education institutions in South Africa. To

ensure that recent data was used for data analysis, research projects completed in the period 2001-2005 (n=298), as well as research projects listed as “current” and commencing in the period 2002-2005 (n=228) were identified.

The relevant titles, with relevant information, listed in the Nexus database were analysed against critical questions developed based on the perceptions and recommendations as discussed. In order to answer these questions, data on the Nexus database were coded and sorted on Excel work sheets and frequencies were calculated manually. The guidelines of a statistical consultant were followed throughout this process.

Phase two: Identifying and analysing relevant articles

To enrich data, and to enhance the validity of the document analysis (Strydom & Delport, 2002) articles based on the research projects listed in the Nexus database were identified and analysed. To identify completed research projects (2001-2003) that were published in academic journals, title searches on databases (namely Ebscohost (Academic Search Premier, ERIC, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, MEDLINE, CINAHL, Pre-CINAHL, PsycINFO), Scopus, SAE Publications, RSAT and Google) were conducted. These searches were limited to the period 2001-2003, taking the time lapse between completion of research and publication into consideration.

To ensure accuracy and completeness, the title searches were conducted independently by the researcher and an information librarian. Initially only 9 articles were found. The researcher then scrutinised content lists of two South African accredited journals for the period 2001 to 2006, and found an additional 15 articles. Out of a list of 216 research projects only 24 articles could thus be found.

These articles were also subjected to document analysis. General information could be identified, such as the time lapse between completion and publication, the purpose (master's degree, doctoral degree or non-qualification purposes) of the described project, and whether the research was funded and/or part of collaborative research. The main research themes of articles were explored, as well as the quality and the potential value of the research.

Ethical aspects and rigour

Research only commenced after ethical approval was obtained from the ethics committee of the North-West University (reference no. 04K22). Also, permission was obtained from the National Research Foundation to utilise the Nexus database. The anonymity of nurses conducting current and completed research was preserved by withholding their names and relevant institutions. To ensure rigor results are reflected as accurately and honestly as possible, and the research process was monitored by research experts.

Results of phase one

Data obtained in phase one were synthesised into a profile, using main research themes as an outline. The following graph provides a visual presentation of the main themes of completed and current research in the period 2002-2005.

(Place Graph 1 here)

An in-depth discussion on this profile is presented in order to reflect on the potential value of this research. This discussion reveals whether perceptions about research conducted by nurses are substantiated, and whether recommendations to improve the value of this research are being followed. In this discussion, the following is referred to:

- The main themes, with specific foci;
- Information on whether the research seems to be patient-centred, caregiver-centred, service management-centred and/or clinical research;
- Although no specific conclusions can be drawn about the methodology followed in the listed research based on the titles alone, some research titles give an indication of the broad methodological approaches followed, and this is also included in the discussion. The discussion of research methodology followed by nurses is continued in the discussion of the published research articles;

- The potential outcome as a further indication of the potential value of the research;
- Information on the context and area of research; and
- Relevant additional information.

The discussion of the profile includes information on completed research (2001-2005) and current research (2002-2005).

A discussion of the profile of research conducted by nurses at higher education institutions

Diseases

The profile of current and completed research indicates that nurses mainly conduct research about the diseases of HIV/AIDS, cancer, diabetes mellitus, hypertension, malaria and tuberculosis.

HIV/AIDS

As this is such a prominent disease in South Africa, HIV/AIDS-related research is presented as a separate main theme in Graph 1. A number of 37 (12.42%) completed research projects and 31 (13.59%) current projects focus on HIV/AIDS. Completed research focus on:

- the needs, experiences and coping mechanisms of people living with HIV/AIDS;

- caregivers, mainly in home-based care;
- prevention;
- the management and evaluation of HIV/AIDS programmes;
- the needs and care of children living with HIV/AIDS;
- community perception of HIV/AIDS;
- choices in infant feeding to prevent transmission from mother to child;
- antenatal care to HIV positive women;
- clinical research (treatment of meningitis);
- cost of treatment; counselling from an African perspective; and
- human resources, specifically the capability of midwives to care for people living with HIV/AIDS.

In current projects there is a slightly stronger focus on caregivers, specifically support of caregivers, while attention is also given to health care provision; psycho-social issues in relation to people living with HIV/AIDS; prevention, specifically the prevention of mother to child transmission; as well as perceptions of youth on HIV/AIDS. A clinical study on the treatment of oropharyngeal candidiasis is also being conducted.

In both current and completed research on HIV/AIDS, research is being conducted at in-patient settings, primary health care, within specific communities and in schools. Of interest is that this research is not only being conducted in areas in South Africa, but also on areas in countries such as Malawi, Lesotho, Swaziland and Ghana.

Completed research projects on HIV/AIDS seem to be more patient-centred (n=27) than caregiver-centred (n=6). Current research reflects a more balanced picture, namely that 12 studies are caregiver-centred and 12 are patient-centred. In this case caregivers include lay caregivers in communities, and not only nurses. A small number of projects focus on the management of services and on clinical research.

The broad methodological approaches are stated in only five titles in current research, and in eight titles of completed research. These include case study, critical analysis, description, impact study, investigation, assessment, model construction, evaluation and exploration.

Only eight completed titles indicated what the potential impact of these projects might be, namely a counselling approach from an African perspective, guidelines for antenatal care for HIV-positive women, a model for home-based palliative care, profiles of people living with HIV/AIDS, a strategy for the management of HIV/AIDS and programmes focussing on the community and on children. Only one current project stated the expected outcome of the study, namely an empowerment programme for youth.

Cancer

Research on this disease receives less attention. A total of six (2.01%) projects on cancer were completed in the past five years, while one (0.44%) current project investigates this topic. The focus in both completed and

current research is on women with breast cancer, prevention of cancer, experiences of both nurses and patients, effects on children, coping and cultural factors. More patient-centred (n=5) than caregiver-centred (n=2) research was/is being conducted. The caregiver-centred studies are about competence in caring and the experience of caregivers. The outcomes and methodological approaches of this research are not stated in any of these titles.

Diabetes mellitus

Only three projects are listed, but it would appear that the research may be of academic and practice value, as it is about national guidelines for the management of diabetes mellitus and foot care practises (completed: 0.67%) as well as the management of patients with diabetic keto-acidosis (current: 0.44%).

Hypertension

Only one title (0.34%) specifically refers to hypertension, and this completed study focussed on related cultural beliefs and values of Shangaans. The outcome of this study is not stated in the title.

Malaria

Two completed studies (0.67%) had malaria as a main theme. One study was about the management of this disease in a specific area in South Africa, and the other was a community study in Namibia. Both these studies were thus patient-centred. A study with malaria as a sub-theme is discussed under the main theme "Children".

Tuberculosis

Completed studies (n=3, 1.01%) on tuberculosis focus on a community tuberculosis profile, adherence to treatment and the effectiveness of the "Directly Observed Treatment" (DOT) programme to control the disease, while current research (n=3, 1.32%) focuses more on the quality of treatment and the knowledge of patients on treatment. Both completed and current research takes South Africa as the area of focus, and these research projects are mainly patient-centred. A study with tuberculosis as a sub-theme is discussed under the main theme "Children".

Children

A number of 12 (4.03%) research projects with children as the primary focus were completed in the past five years. Children under 5 years of age received attention, especially regarding growth monitoring. Other aspects that were investigated were child abuse and neglect, accessibility of the "Integrated

Manual of Childhood Illnesses" (IMCI), life style risks, cultural aspects related to homecare of children with measles, infant feeding patterns, risk factors in diarrhoeal diseases and the management of childhood respiratory diseases.

Current studies (n=8, 3.51%) put even more emphasis on the growth and development of children less than 5 years of age. Current research also includes studies on health promotion (perceptions of mothers about vaccination of children), contributing factors to the prevalence of malaria among children less than 5 years of age; and support of caregivers of children with tuberculosis.

Completed research was conducted in contexts such as primary health care, the community and specifically the rural community. These studies were all patient-centred and took place in different areas in South Africa, as well as in Kenya. Only one title indicated the outcome of the research, namely a strategy for routine screening of children for hidden sexual abuse. Methodological approaches were indicated for four projects, namely explorations, a description and an epidemiological approach.

Current research reflects the same picture, as research is being completed in similar contexts in areas in South Africa, Tanzania and Zimbabwe. Four of these studies centre on patients, while the remaining four studies focus on the management of services for children. Two titles give an indication of the outcome, namely a comprehensive growth monitoring assessment tool, and a

model for the support of caregivers of children with tuberculosis. No methodological approaches are indicated in these titles.

Youth

Current (n=8, 3.51%) and completed (n=9, 3.02%) research includes studies about youth. Recurrent themes in both completed and current research are reproductive health (sexually transmitted infections, contraceptives, sex education, and behavioural practices), sexual abuse, life style and values, youth at risk and empowerment of youth. Intergenerational support also receives attention (current research project).

The completed research projects were conducted in schools and tertiary education institutions in areas in South Africa, Malawi and Namibia. No outcomes are specifically mentioned in titles, and the methodological approaches – as indicated in four titles – include evaluation, investigations and analysis. Most of these studies (n=8) are patient-centred, and one is about the management of services for the youth.

Current research is being undertaken mainly in areas in South Africa, and the majority (n=6) are also patient-centred, while one study is caregiver-centred and one focuses on management of services for the youth. Two titles mention outcomes, namely a comprehensive health promotion model for high school pupils, and a model for intergenerational support of youth. Methodological approaches that were indicated include exploration and a participative study.

Women's health

This topic seems to be a research priority for nurses. A number of 37 (12.41%) completed research projects and 25 (10.96%) current research projects centre on women's health.

Completed research covers topics such as obstetrics, post-natal care, pregnancy termination and reproductive health. Topics on obstetrics vary, for example women-centred childbirth, use of the obstetric partogram, pain management during labour, complications during childbirth, experiences of women during labour and pushing techniques during the second stage of labour. Post-natal themes are about adaptation at home and early discharge. Services to adolescents regarding termination of pregnancy, as well as the accessibility of termination of pregnancy services are also investigated. A number of projects relating to reproductive health focus mainly on teenage pregnancy and teenage motherhood, to such an extent that these projects might be seen as complementary research.

Current research on women's health focuses on similar aspects, namely antenatal care, termination of pregnancy, obstetrics, post-natal care and reproductive health. Among these studies, the quality of antenatal care is researched, and in relation to reproductive health, contraceptive use is investigated. Research on obstetrics includes themes relating to cultural aspects of child birth, traditional birth attendants and home births. Termination

of pregnancy is investigated from different viewpoints, confirming that complementary research on this topic is being conducted. A current research project that might be either a duplication or complementary research of a completed research project involves investigation into early discharge.

Completed research took place in contexts such as hospitals, primary health care and specific programmes. Areas in which research took place include Malawi, Lesotho and South Africa. According to the titles of the projects 23 projects were patient-centred, while the remaining studies were caregiver-centred, clinical studies, epidemiological studies and service management studies. Two titles stated outcomes, namely a model for women-centred childbirth and standards for peri-natal teaching. Methodological approaches were mentioned in ten titles, and include assessment, a case study, evaluations, explorations, investigations, quality assurance and a systemic review.

Current research seems to be similar to completed research with regards to the context and areas. A similar focus are on patients (n=15), while 4 studies are caregiver-centred and 6 are about the management of services. One title indicates the outcome of the study, namely a parent interaction care programme. Methodological approaches include analysis, determining, exploration and a phenomenological investigation (4 titles indicated methodological approach).

Mental health

Completed research (n=26; 872%) on mental health explores a variety of themes, for example adolescent suicide; domestic violence; family therapy; management of patients with Alzheimer's disease and patients with schizophrenia; rehabilitation; and holistic care. Current research (n=13; 5.7%) also includes a variety of topics such as violence and trauma, self care, reflexology, depression, dementia relapse and – as in completed research – psychosocial rehabilitation.

Both completed and current research explores the community, primary health care services and hospital settings as context, and was/is being conducted in areas in South Africa, Lesotho and Ethiopia. One study takes place in the USA. As with other priorities, the majority of studies are patient-centred, while caregiver-centred, service management, epidemiological and clinical studies also were/are being conducted.

Outcomes of completed research are indicated in three titles and include an approach for the promotion of mental health in a corporate environment, a profile of stroke patients and a screening instrument for mental illness amongst black patients at primary health clinics.

Outcomes of current research (indicated in 6 titles) include a model for the facilitation of mental health of men who perpetrate domestic violence, a model for support of nurses as facilitators of nurse addict support groups, a model

relating to fostering the mental health of traumatised children, a health promotion model for the facilitation of self-care for the attainment of wholeness of women in midlife; a model for mergers and acquisitions (companies) as well as a model for the empowerment of families with mentally handicapped children.

Methodological approaches are mentioned only in completed research (n=9) and include analysis, assessment, determination, evaluation, exploration, investigation, needs assessment and survey.

Health care delivery

A relatively high number of completed (n=31; 10.40%) and current (n=46; 20.17%) research projects are about health care delivery.

Completed research on health care delivery shows that nurses researched varying themes relating to critical care (mainly about support of family members of a patient in the critical care unit), quality assurance, rehabilitation, occupational health, community involvement, health systems (one study about the interface between services) and pre/post-operative care. A number of clinical studies were also conducted, for example about arterial blood gas measurement, pressure ulcer risk assessment and treatment modalities, the installation of normal saline solution during endotracheal suctioning and oxygen therapy after extubation of the neonate.

Current research investigates the same issues, and also looks at evidence-based practice, the elderly, financial management of services and traditional medicine. Circumcision and the related health risks is a theme that receives attention in both completed and current research.

In completed research, nine studies seem to be clinical in nature while two studies have an epidemiological focus, five focus on the caregiver in terms of quality of services and 15 studies are about the management of services. Research was done in areas in South Africa, Malawi, Zimbabwe and the United Arab Emirates (n=1) in community-, hospital- and military contexts (n=1). Eight titles of the completed research indicated the outcome: guidelines for respiratory management of post-extubation patients, models for community participation and familial support in decisions about terminating life support; a profile of injuries at a trauma unit, a programme for familial support in the intensive care unit, standards for nursing of a patient with a traumatic brain injury, and nursing of a patient with an abdominal aneurysm; as well as a system for self-evaluation of nurses in terms of quality assurance. Methodological approaches are indicated in a total of 17 titles as analysis, assessments, comparisons, enquiry, evaluations, explorations, investigations and a survey. Current research has similar patterns in terms of focus, context, area, outcomes and methodological approach.

Human resources

Fifty-six (18.79%) research projects on topics relating to human resources in health and nursing have been completed over the past five years, and 46 (20.18%) such studies are currently being conducted. Completed research projects were about competency issues, coping, ethics, gender issues, leadership, management of services, migration of nurses, professional development and training, quality of conduct, staffing issues, support, trade unions and work environment. Current research also investigates these issues, as well as issues about lay caregivers, debriefing, job satisfaction, legal liability, roles and functions of nurses and trans-cultural nursing. Staffing issues, such as retention of nurses and staff shortages is a recurrent theme in current and completed research.

Research projects that have been completed in the past five years were conducted in communities, primary health care services and hospitals in South Africa, Botswana, Lesotho, Malawi, Namibia, and the Seychelles. As implied, these studies focus on caregivers and management of services. Seven titles indicate the outcomes of these studies: models for professional maturity, self-empowerment, training of peer debriefing, and workload in trauma nursing care; a profile of nursing personnel at primary health care clinics and systems for professional development and quality clinical decision-making. Eight titles refer to the methodological approaches followed: analysis, appraisal, explorations, investigations and value clarification.

Current research is also taking place in hospitals and communities in areas in South Africa, Botswana, Mauritius, and in Saudi Arabia, specifically regarding migration and patient's experience of receiving care from foreign nurses. Current projects are also caregiver-centred and service management-centred. Only three titles indicate the outcome: models for staff retention and professional development as well as a retirement profile of nurses. Assessment, comparative studies, investigations, and a trans-cultural study are indicated in nine titles as methodological approaches.

Nurse education

A number of 43 (18.86%) research projects on nurse education are currently being conducted. These projects are about academic success; different approaches in education, such as community-based and problem-based education; clinical accompaniment; clinical competence; support of educators; assessment of learners; experiences of learners; quality of education and critical thinking skills. The contexts in which this research is taking place include clinical settings as well as educational settings. Research is taking place in areas in South Africa, Angola, Namibia and Tanzania. Outcomes are stated in 6 titles as a model for the integration of spiritual care; an instrument for the empowerment of nurse educators; a programme relating to critical thinking of community health nursing preceptors; strategies to promote critical thinking skills of learners and the implementation of outcomes-based and problem-based approaches; and a model for distance education.

Methodological approaches include descriptive studies, evaluation, investigations and a comparative study.

A number of 37 (12.42%) research projects on nurse education have been completed in the past five years. The topics covered in these research projects are similar to those in current research. The context is also academic and practice settings, and research took place in areas in South Africa, Malawi, Rwanda, Zimbabwe and the United Arab Emirates (n=1, about the learning environment). Outcomes (n=6) include guidelines for the facilitation of academic success and the improvement of clinical competencies, a model for culturally congruent care (perception of nurse educators), standards for value sensitive clinical accompaniment and a strategy to promote cultural interaction between learners. Methodological approaches are indicated in 10 titles and include: exploration, analysis, comparison, investigations, grounded theory analysis and evaluations.

The discipline of nursing

Although a limited number of research projects (completed: n=2 (0.67%); current: n=4 (1.75%)) focus on this topic, important research on the history of nursing and black pioneers in nursing in South Africa is being and has been conducted.

Additional information

Additional information available on the Nexus database was also analysed. This information includes language (English or Afrikaans), higher education institution and purpose of research (master's degree, doctoral degree or non-qualification).

Analysis of this information revealed that the majority of research is in English. Furthermore, main themes were linked to institutions and purpose of research, and no significant patterns could be identified, such as specific niche areas at specific institutions.

Patterns could be identified in changes in the purpose of research over time. Graph 2 presents the purpose of research of completed research in the period 2001-2005, while Graph 3 presents the purpose of research of current research in the period 2002-2005.

(Place Graph 2 and 3 here)

These graphs show that there is a downward trend in research with the purpose of obtaining a master's degree. Varying percentages regarding research for obtaining a doctoral degree and non-qualification research show an upward trend.

Results of phase two: Enrichment of profile data

The purpose of phase two was to enrich the data collected during phase one and to serve as verification of findings. General information on the articles were therefore sorted and analysed.

General information

Time lapse

The average time lapse between the completion of the project, as indicated on the Nexus database and the publication of the article, was determined. It seems that for these articles an average time of 1.58 years elapsed between completion and publication, with only two articles published in the same year of completion (one for a non-qualification purpose, and one for the purpose of a master's degree), and one article published five years after completion of the project (purpose: master's degree).

Purpose of the research

The purposes of the projects described in the articles resemble the same pattern as for the total number of completed and current projects (refer to Graph 2 and 3), namely that the majority were for the purpose of a master's degree, three for the purpose of a doctoral degree and one for non-

qualification purposes. This confirms that nursing seems to be a relatively young research profession, as mentioned by Brink (1992).

Authorship

The articles were mostly written by nurses in academic positions, with main authors mostly master's or doctoral degree students who were in practice at the time of the study. One article included a statistician as co-author, while one other article was written by researchers in different disciplines working at different higher educational institutions.

Funding

Only in four articles did the authors indicate that the research was funded: in two articles the source of funding was indicated, namely one project by the National Research Foundation and the other by the Medical Research Council. Of these articles, authors indicated in three articles that the research was part of a bigger project.

Main research themes

Varying themes are described in the articles. The prominence of the themes on teenage pregnancies; and nursing care of patients and their families in critical care units seen in research listed in the Nexus database are also

evident in the articles. However, there is no inter-reference to similar articles, although some of these articles are written by the same authors.

Other main themes covered in the articles are clinical decision-making, care of HIV/AIDS patients and support of their families as caregivers; human resource issues such as relationships among nursing personnel and value clarification; women's health issues, including obstetrics and cancer related themes; mental health-related themes; nursing education issues and nursing care of patients with diabetes mellitus.

Quality of research

Main characteristics of the research

Compared to principles for research of high quality, as described by authors such as Burns and Grove (2005) as well as Babbie and Mouton (2004), the research described in the articles seems to be of good quality, specifically in terms of thorough description of the process followed. In addition, main themes of research are relevant to current research priorities, and problem statements and rationales for research are adequately described and delineated. Some authors mention philosophical frameworks, and these frameworks are used as basis in the development of data gathering instruments (e.g. in a consumer satisfaction study) as well as basis in developing recommendations (e.g. a study with nursing accompaniment of family members with a loved one in the critical care unit). In the majority of

articles, relevant terminology is effectively described. Literature is used appropriately, namely referring to a variety of authors, and using recent literature.

However, in some cases there seems to be a gap between the purpose of the research and the actual outcome(s) of the research, for example “to improve care (purpose) by *formulating* guidelines (product)”, as opposed to a more logical formulation: “to develop valid standards”.

Of interest is that different schools of thought in research methodology are evident, as some debatable terminology is used to describe approaches and methods, such as “semi-structured phenomenological interview” (1 article), “in-depth phenomenological interviews according to an interview schedule” (1 article) and presenting results of phenomenological research in numerical format (1 article).

Research design

With regard to the research design it was found that more qualitative than quantitative research designs were indeed used. The decisions regarding the design are in general described adequately and the designs seem to be appropriate to the problem statements, research questions and objectives. Ten articles describe “qualitative, explorative, descriptive, contextual research”, three describe “qualitative, phenomenological, explorative, descriptive, contextual research”, and in one article a “qualitative ethno-

nursing” design was followed. Quantitative research (n=4) is mainly described as “explorative and descriptive” and as an “explorative descriptive survey”, while two researchers used a retrospective study design in which records were analysed. Two articles present literature reviews and in two articles research with a quality assurance approach are described.

Sampling techniques

Sampling techniques seem relatively appropriate, but little attention is given to describing recruitment of participants, which may raise questions about ethical conduct. Sample sizes in the qualitative research vary from one focus group interview to 17 individual interviews. The biggest sample in quantitative research is 1 458 participants, although the author indicated that this sample was representative only of a certain cluster in a population, and not of the whole population.

Small sample sizes and lack of generalisation are repetitively described as a limitation, and a recommendation that follow-up research with comparable and/or bigger samples should be conducted, was common.

Data gathering and data analysis

Steps and approaches in data gathering and analysis are described thoroughly, enabling audit of the research. Data gathering methods such as

face-to-face interviews, focus group interviews, narrative sketches, self-report questionnaires and structured interviews were mostly used.

In quantitative research, computer software such as SPSS is mainly used for data analysis, while computer software for qualitative analysis, for instance NUD*IST, are described in only two articles. Content analysis according to Tesch's guidelines (Creswell, 1994) is mainly used for qualitative data analysis.

Results and findings

Results are also described comprehensively and appropriately. The description of some background information of participants for contextualisation, in both qualitative and quantitative research, enhances the quality of the research. What was also seen as more effective was the measure followed in some articles to give feedback to participants on results for the purpose of validation.

The majority of authors describe limitations of the research, measures to ensure trustworthiness, mostly Guba's model (Krefting, 1991), or validity and reliability; and ethical conduct.

Potential value of the research described in the articles

Contribution to the body of knowledge of nursing

All articles have as an end product valuable recommendations that hold potential regarding academic and practice value, e.g. one article presents a conceptualisation of a clinical decision-making system as an alternative to the nursing process, which may be of particular academic value, while several articles describe findings on clinical disorders and treatment (e.g. regarding post-traumatic stress disorder and diabetes mellitus) as well as recommendations (e.g. guidelines for counselling; guidelines for childbirth education classes) that may positively influence practice and policy. Additionally, the thorough description of research methodology in these articles creates methodological value. Some authors mentioned that the research in itself also had value in that it created awareness among participants as well as that researchers have gained insight and understanding about the specific topic under investigation.

Nature of recommendations

Looking more specifically at recommendations, it was evident in most articles that recommendations are made for clinical practice, education and – to a lesser extent – research. These recommendations seem to be logically based on findings and relevant literature, and in most cases it can be seen as an appropriate answer to the research questions. However, it was found that in

the majority of articles (n=22) the formulation of recommendations – “should be”, “must be”, “could”, “study can provide meaningful data to (role players)”, “various (role players) should take the necessary steps” – does not communicate how/if further dissemination and/or implementation of the results and/or recommendations is taking place. Based on this formulation, the assumption can be made that it is the general perception among nurses who conduct research that it is acceptable that their research responsibility “stops here”, which might be a major limiting factor in nurses’ research contribution.

This finding was further evident when “recommendations for research” were specifically explored. Recommendations for research were not formulated in all articles, but if formulated, recommendations for related as well as follow-up research were made. However, the formulation of these guidelines also creates the impression that researchers have not adequately taken ownership to conduct follow-up research, as phrases such as “can be” and “needs to be” are used throughout, as opposed to phrases such as “will” and “is being planned”. Data in the Nexus database confirm that little follow-up research (similar topic, same author) is being conducted.

Limitations of this research

Limitations mainly involve using an existing database for document analysis, in this case the Nexus database. The NRF (2006) states that, although they strive to ensure that the database is as accurate and complete, they do not

claim that it is. Strydom and Delpont (2002) confirm that a disadvantage of using such an existing database is that it might be incorrect and outdated.

Furthermore, although care was taken to ensure that all relevant articles are identified, some articles might have been overlooked. The authors therefore do not claim that the profile based on the database is a complete or accurate reflection, but rather a substantial overview of research conducted by nurses.

Another disadvantage of document analysis is that it might be subjected to bias (Strydom & Delpont, 2002), as the researcher might be subjective in interpretation of document data. Measures to counter this disadvantage was inter-document analysis (database as well as articles), acquiring the assistance of the information librarians and statistical consultant, and continuously presenting the research to the research promoter for critical feedback and guidance.

Conclusions

There seems to be both strengths and weaknesses in research conducted by nurses.

Strengths in research conducted by nurses

Strengths include that research conducted by nurses is of good quality and has the intent to contribute to the body of knowledge and improve health and

health care. It is of potential value not only for the discipline of nursing but for other health-related disciplines as well. In addition, research conducted by nurses is relevant to current research priorities. Another positive aspect is that it seems that nursing departments at higher education institutions contribute to the professional development of nurses in African countries. It also seems that some nursing departments have positively identified and utilised the migration of South African nurses to Saudi Arabia and the United Arab Emirates as an opportunity to conduct research in those countries and to retain the intellectual skills of those nurses. Additionally, there is a vast amount of usable recommendations on relevant aspects in health and health care available, generated by nurses through research.

Limitations in research conducted by nurses

However, a concern is that the contribution of this research is limited by several factors. There seems to be stagnation in the methodology used by nurses, which is a cause for concern. This stagnation is evident from the fact that concerning aspects – such as small sample sizes, a perceived lack of implementation of research results and recommendations, lack of follow-up research, use of mainly descriptive, explorative designs – were also identified in earlier studies by Kotze (1984) and Brink (1992). Another concern, also identified in these studies, is that there seems to be lack in coordination or focus in research conducted by nurses.

Additionally, the current culture in research, namely that research results is published in journals with apparently limited ownership by researchers to implemented findings, places nurses in practice in the difficult position of having to access and utilise this information without direct support from researchers.

Another limiting factor is that there appears to be little opportunities for debate on research matters; for instance, the current format of South African scientific journals does not provide adequate opportunity for debate and critical discussion of articles. This limits the opportunity to further explore the value of research described in articles.

Recommendations

Based on the results, conclusions and relevant literature, general as well as specific recommendations with regards to improving the value of research conducted by nurses could be formulated.

General recommendations

- Reports should be made on the strengths in research conducted by nurses and this information should be disseminated, also in lay media and multi-disciplinary journals, in order to build the recognition of health research conducted by nurses.

- Systematic reviews on prominent themes, such as teenage pregnancy and humane nursing in critical care units, should be encouraged to reveal a discernable focus in research conducted by nurses in South Africa, as well as to translate research findings into guidelines that nurses can use in practice.
- Weaknesses in research conducted by nurses should be explored by means of further research, and creating opportunities for debate.
- Further research should focus on reasons for the stagnation in research conducted by nurses.
- Debate should be initiated at national level, in organisations such as the Forum for Nursing Departments at Universities in South Africa (FUNDISA) the Democratic Nurses Association of South Africa (DENOSA) and the South African Nursing Council (SANC), and in research journals.
- Debate should focus on the impact of research conducted by nurses, research methodological issues as well as on the perception of the contribution of research, the responsibility of researchers in the implementation of research results, follow-up research, the rationale of doing research, methodological issues and preparation of nurses in academic posts to act as supervisors in research who encourage master's and doctoral degree students to implement results and conduct follow-up research.
- With regard to the description of research, it is recommended that the value of research might be more evident if the potential outcome of the research is indicated in research titles; and the formulation of recommendations based

on research should communicate ownership of researchers to implement the results and conduct follow-up research on this implementation.

- Opportunities to implement research results should be created: it might for instance be valuable that nurses who are in practice positions at the time of study, remain in practice positions in order to facilitate the process of implementing research results. Moreover, the measure of validating research results with participants might be a starting point of implementing research results in the context where the research has taken place.
- Funding is not readily available for research conducted by nurses. This may contribute to the total lack of longitudinal studies by nurses.

Specific recommendations

- Follow-up research is being conducted to further explore the potential contribution of research conducted by nurses: the authors of the articles analysed in this research are being contacted and their opinion obtained on the impact of the research described in the articles.
- A report of this research will be provided to the manager of the Nexus database, in order to motivate for the revision of this database to more evidently communicate the potential value of research conducted by nurses. It should be stated what the researchers' background/qualifications as nurses are; whether the research is part of collaborative research project; whether it is funded; and what its intended implementation is, and abstracts should be available for all listed research projects.

- A report of this research will be sent to relevant national bodies in nursing in South Africa (FUNDISA, DENOSA, SANC) to motivate for the establishment of a research database for research conducted by nurses, as well as for national debate on improving the value of research conducted by nurses.

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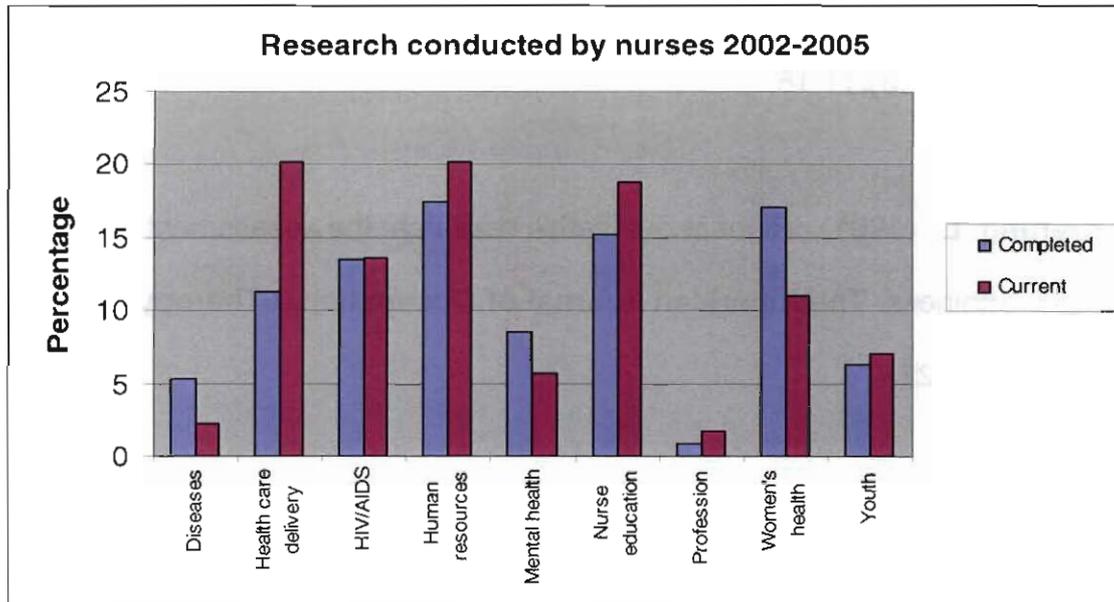
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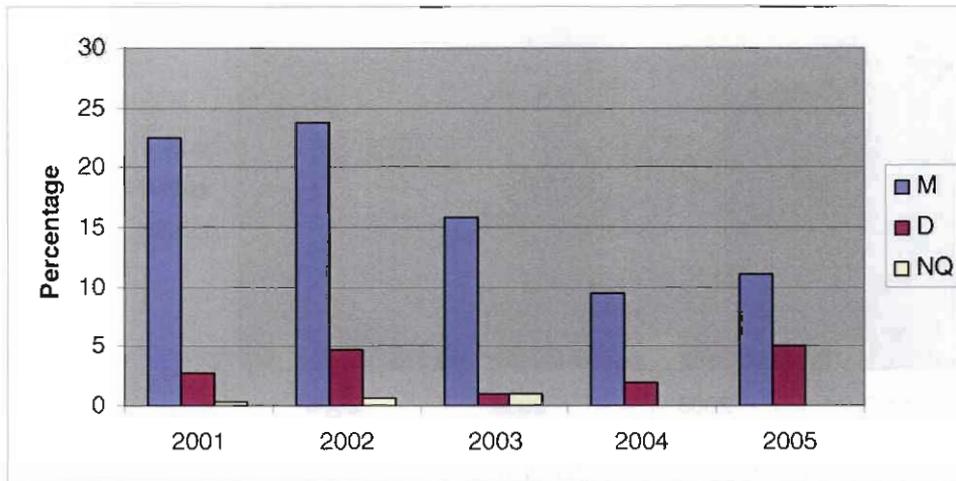
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Graph 1: Main themes in research conducted by nurses 2002-2005

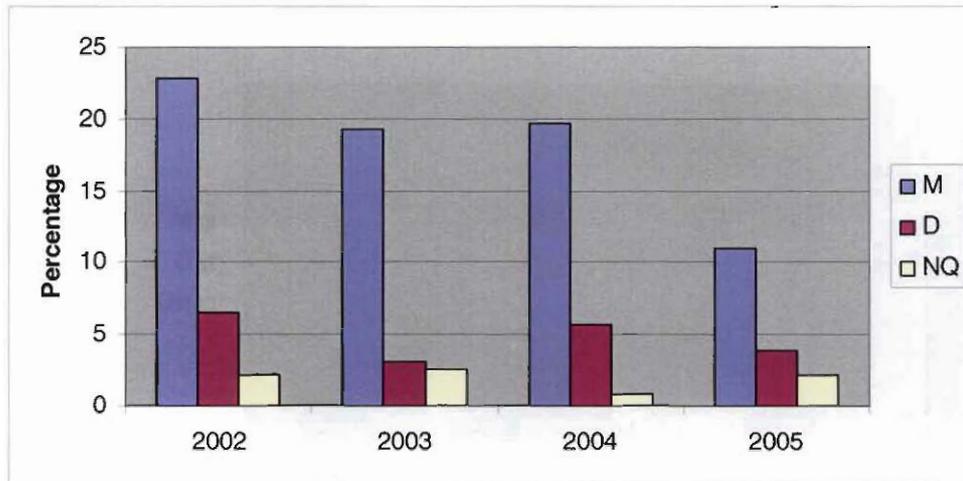


Graph 2: Purpose of completed research 2001-2005*



* M=Master's degree; D=Doctoral degree; NQ=Non-qualification research

Graph 3: Purpose of current research 2002-2005 *



* M=Master's degree; D=Doctoral degree; NQ=Non-qualification research

Manuscript Three

The art of the Delphi technique: scientific application

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FOUCAULT T, M 1984: Nietzsche, genealogy, history. (In: Rainbow, P ed. 1984: The Foucault reader. Harmondsworth: Penguin, pp 76-100.)

Examples of text references:

The ethical measures adhered to during this research process are those set out by DENOSA (Democratic Nurses Association of South Africa, 1998:3-7).

Stein, Brailowsky and Will (1995: 1 05), however, note that points of divergence are seen even within rodents of the same species. Yet sex differences do occur both in response to injury and in recovery of function, female rats in normal oestrus showing less oedema following frontal cortical contusions than males, and more severe oedema than females who are not in oestrus (Stein *et al.* 1995: 1 05).

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**THE ART OF THE DELPHI TECHNIQUE:
SCIENTIFIC APPLICATION**

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ABSTRACT

The initial use of the Delphi technique was forecasting in order to be able to plan ahead. More recently the Delphi technique is used as a constructive method in facilitating controlled, rationale group communication to build knowledge for decision making.

Although the Delphi technique is widely used, its scientific merit is questioned. This article illuminates the application, limitations and value of the Delphi technique, and suggest measures to improve the scientific merit of this technique. A subsequent article illustrates the application of the Delphi technique (Du Plessis & Human, 2006).

Key words: Delphi technique, scientific merit, process, application.

OPSOMMING

Die aanvanklike toepassing van die Delphi-tegniek was voorspelling met die doel om vooruit te kan beplan. Meer onlangs word die Delphi-tegniek gebruik as 'n konstruktiewe metode om gekontroleerde, rasionele groepkommunikasie te fasiliteer om kennis vir besluitneming te ontwikkel.

Alhoewel die Delphi-tegniek wyd toegepas word, word die wetenskaplikheid daarvan bevraagteken. Die artikel verhelder die toepassing, beperkinge en waarde van die Delphi-tegniek, en stel maatreëls om die wetenskaplike waarde van dié tegniek te verbeter, voor. Die hieropvolgende artikel (Du Plessis & Human, 2006) illustreer die toepassing van die Delphi-tegniek.

Sleutelwoorde: Delphi-tegniek, wetenskaplikheid, proses, toepassing.

INTRODUCTION

The Delphi technique lends its name from Greek mythology, from the ancient story of the oracle of Delphi. This was a holy place where the master of Delphi, Apollo, known for his ability to forecast the future, was consulted (Goodman, 1987:729; Powell Kennedy, 2004:505). The initial use of the Delphi technique was indeed forecasting in order to plan ahead.

The Delphi technique was developed by the Rand Corporation in the period of the late 1940's to the early 1970's, as a novel tool used in "Project Delphi" to estimate the probable effects of a massive atomic bombing attack on the United States to enable effective decision making by the defence force of the day (Helmer, 1975:xix; Sackman, 1974:iii; Linstone & Turoff, 1975:10). These early developments were headed by two scientists, Olaf Helmer and Norman Dalkey, striving to develop the Delphi technique as a scientifically sound research technique, although Helmer (1975:xix) acknowledged that at that time, the Delphi technique was "*more of an art than a science*". They therefore repeatedly conducted research to prove that the Delphi technique produced valid research results. In one of these studies, Dalkey and Rourke (1971:iii) in fact found that the Delphi technique was not only useful to elicit and effectively reflect opinions based on factual estimates, as in the original study, but also opinions based on intuition and judgement. At that time, Fushfeld (1971:4) agreed that Delphi research elicited sound scientific evidence, and added that the Delphi technique has proven that the statistical summary of individuals' opinions "*are more accurate than predictors derived from group interaction or*

single individuals". Sackman (1974:iii), however, later heavily criticised the scientific merit of this technique, recommending against its further use by the Rand Corporation until it's scientific merit could be proven.

In spite of this criticism, the Delphi technique continued to be implemented by a number of disciplines, including health sciences. The definition of, rationale for using this technique and characteristics of the Delphi technique are discussed. Thereafter the process followed in the Delphi technique is explained. Integrated in these discussions, measures to enhance the technique's scientific merit are suggested. The subsequent article, entitled: "Opinions on a strategy to promote nurses' research contribution in South Africa" (Du Plessis & Human, 2006) serves as an example of a study in which the Delphi technique was used.

DEFINITION

From the above information, it seems that the Delphi technique was initially developed as a very specific tool in specific circumstances, and was later developed as a research tool for a wider scope of application. For example, one of the objectives of the original study was to:

"obtain the most reliable consensus of opinion of a group of experts ... by a series of intensive questionnaires interspersed with controlled opinion feedback" (Linstone & Turoff, 1975:10).

One could argue that if the above statement is seen as a definition of the Delphi technique, it might be lacking in comprehensiveness and the ability to act as universal guideline. Interestingly, it seems that a pattern in literature exists that authors, such as Powell (2003:376), refer to this statement as *the* definition of the Delphi technique, as well as that researchers and authors generally use narrow definitions to describe the Delphi technique. De Villiers, De Villiers and Kent (2005:1) refer to the Delphi technique as a series of questionnaires to generate expert opinion in an anonymous fashion which takes place over a series of rounds. Burns and Grove (2005:407) define it as a method to measure the judgements of a group of experts, for the purpose of making decisions, assessing priorities or making forecasts. Brink (2002:208) focuses on the aspect of consensus, by indicating that the technique is a data collection method that uses several rounds of questions to seek a consensus on a particular topic from a group of experts on the topic.

Indeed, Linstone and Turoff (1975:3) acknowledged the difficulty in providing an exact definition of the Delphi technique because of its adaptable nature, but attempted to, in broad terms, define the Delphi technique as:

“a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem”.

This definition provides a broader perspective on the Delphi technique and describes its core namely that a group communication process is involved and that there is a need for decision making to deal with a specific issue.

RATIONALE BEHIND USING THE DELPHI TECHNIQUE

Cook, Brismeé and Sizer (2005:6) as well as Powell (2003:376) indicate that the Delphi technique is used in situations where vague, unknown or contradictory opinions exist, while limited scientific evidence to guide evidence-based decision making exists. Linstone and Turoff (1975:11) indicated that this technique is specifically valuable when groups of experts are geographically dispersed. Additionally, the Delphi technique is used in situations where group bias and group dynamics, such as power and group pressure, might play a role in forcing individual group members to conform to group opinion (Ganssle, 2004:2; Garavalia & Gredler, 2004:376-377). The use of the Delphi technique reduces the influence these factors might have (Deshpande, Shiffman & Nadkarni, 2005:50). This technique thus has value in the health care sector which is characterized by multi-disciplinary teams and hierarchical structures (Beech, 1999:284).

Hasson, Keeney and McKenna (2000:1009), however, warn that the decision to use the Delphi technique requires careful consideration of various factors, for example the researchers' competence as well as resources and logistical considerations. Powell (2003:377) agrees and states that the technique should only be used if it is the opinion of the researcher that the use of the

technique can provide more accurate opinions than methods obtaining data from either individuals or interacting groups. Most importantly, the research problem should guide the decision on a research method, and alternative research methods should be considered to ensure that the most appropriate research method is used (Powell, 2003:377).

Linstone and Turoff (1975:11) insightfully indicated that “*problems linked to group communication and decisions that lend themselves to the use of group involvement*” are appropriate to explore by means of the Delphi technique. Furthermore, Hasson *et al.* (2000:1009) as well as McKenna (1994:1222) refer to research objectives, as identified by Linstone and Turoff, which indicate the appropriate use of this technique, namely:

- “To explore or expose underlying assumptions or information leading to differing judgements;
- To seek out information which may generate a consensus on the part of the respondent group;
- To correlate informed judgements on a topic spanning a wide range of disciplines;
- To educate the respondent group as to the diverse and interrelated aspects of the topic.”

The following are examples of research problems or research objectives that were explored by means of the Delphi technique in recent research:

- Almasio, Niero, Angioli, Ascione, Minoli, Oprandi, Pinzello, Verme and Andriulli (2005:382) identified a research problem that the usefulness of liver biopsy in chronic viral hepatitis was not clear and experts insight on this matter varied considerably;
- One of the objectives of research conducted by Avery, Savelyich, Sheikh, Gantrill, Morris, Fernando, Bainbridge, Horsfield, and Teasdale (2005:4) was to identify and reach consensus on key clinical scenarios involving patient safety for which general practitioners might benefit from information technology support, particularly in relation to medicines management;
- Carrol (2004:33) identified the problem that no study has yet elucidated the core clinical skills that nurses working in medical assessment units should possess;
- Research conducted by Cohen, Harle, Woll, Despa, and Munsell (2004:1011) enabled oncology nurses to identify research priorities as a starting point in the development of a clinical nursing research program at a large comprehensive cancer centre;
- Cook *et al.* (2005:59) identified the research problem that clinical spine instability is poorly defined and difficult to diagnose;
- French, Anderson, Burnard, Holmes, Mashaba, Wong, and Bingh-Hua (1996:595) identified the need that *"curricula in different countries were different and that there was room for exploration into areas of commonality and difference"*, especially in the view of the need that student nurses has to develop a global perspective.

- Du Plessis and Human (2006) explored the opinions of stakeholders in research on nurses' research contribution in South Africa.

CHARACTERISTICS OF THE DELPHI TECHNIQUE

To further clarify the uniqueness and appropriate use of the Delphi technique, the distinguishing characteristics of the technique is discussed.

Different authors (Almasio *et al.*, 2005:382; Armstrong, Parsons & Barker, 2000:298; Beech, 1999:285; Deshpande *et al.*, 2005:50; Powell, 2003:377; McKenna, 1994:1222; Goodman, 1987:730) describe core characteristics of the Delphi technique. These characteristics can be summarized as anonymity, iteration and controlled feedback, statistical group response and the use of experts as participants, as discussed below. These characteristics distinguish the Delphi technique from other group data collection methods, and therefore it could also be referred to as the essential requirements of the Delphi technique.

Anonymity

Anonymity is employed to create the advantage that participants freely and honestly express their opinions, without the inhibiting factors of peer group pressure and group bias. Anonymity is achieved by asking participants, who do not meet each other face-to-face, to anonymously and individually complete questionnaires. The risk exists that the anonymity of participants

and their responses might lead to a lack of accountability in responses. This could be counteracted by careful selection of participants, as well as by asking participants to justify their responses.

Another important aspect to keep in mind is that the person coordinating the research should have access to some identifying information in order to return results of a previous round to participants for further consideration. True anonymity is therefore not always possible, and the argument is that one should rather refer to quasi-anonymity. To enhance anonymity identifying information should be separated from responses, and responses should be given a code, before data analysis takes place.

Iteration and controlled feedback

The Delphi technique employs repeated rounds of data collection and analysis until a specific group opinion or judgement becomes evident. The aim of this process is to facilitate or discover group opinion representative of the specific group of participants.

Statistical group response

During the execution of the sequential rounds, participants' opinion or judgement is communicated to them by means of a statistical summary of the group's view. This enables participants to re-evaluate their own opinion in light of the group's opinion.

Selection of experts as respondents

The Delphi technique is also characterised by the use of a panel of experts as participants in order to obtain knowledgeable opinion. There seems to be ambiguity regarding the term 'expert' as used in relation to the Delphi technique. It is argued that there are no universal measures to identify these 'experts'. For some issues no formal definition of "expert" exists, for example quality of life issues. The requirement of at least being an informed advocate is then used to identify participants. Researchers using the Delphi technique should clearly define the concept "experts" as used in their research.

RESEARCH PROCESS

The research process used in the Delphi technique is subsequently discussed by referring to the researcher or team of researchers; tasks in the research process; and the nature of the process.

Researcher or team of researchers

The process is carried out by either an individual researcher, as described for example by Garavalia and Gredler (2004:376), or by a research team (Almasio *et al.*, 2005:382; Cohen *et al.*, 2004:1012). From this literature, the general conclusion can be drawn that conducting research in a team enhances the execution of research. For example, it seems valuable to

include, besides researchers in the field of study, managers and opinion makers as well as biostatisticians and/or health science communication experts in the research team to enhance the quality and utilization of the research. Interestingly, in French *et al.*'s (1996:596) study the panel of experts from whom opinions were gathered was also the research team. This raises questions about the objectivity of this research.

Tasks in the research process

The tasks of the researcher or research team using the Delphi technique mirror the tasks of the general research process, but authors specifically mention the following:

- Identifying a problem (Avery *et al.*, 2005:5);
- Designing a strategy for the Delphi study (Almasio *et al.*, 2005:382);
- Developing a broad question (Avery *et al.*, 2005:5) or questionnaire (Garavalia & Gredler, 2004:376);
- Selection of participants (Almasio *et al.*, 2005:382); and
- Conducting and coordinating the process involved in the Delphi technique (Cohen *et al.*, 2004:1012; Garavalia & Gredler, 2004:376).

Pilot testing should also be included in this list of tasks, as Powell (2003:378) indicates that pilot testing is optional but preferable in the Delphi technique, and Hasson *et al.* (2000:1010) indicate that pilot testing should precede the implementation of the technique.

The nature of the research process in Delphi studies

The process followed in the Delphi technique is systematic (Beech, 1999:283) and has a repetitive nature (Evans, Rogers, McGraw, Battle & Furniss, 2004:52). Authors agree that it is a multistage process (Hasson *et al.*, 2000:1008) with multiple, successive rounds (Beech, 1999:283; Deshpande *et al.*, 2005:49; Garavalia & Gredler, 2000:1016). Each stage forms the basis for the next stage (McKenna, 1994:1221) in that it is a repetitive process of response-analysis-feedback-response (Carrol, 2004:34-35). The process is repeated until the views or opinions of participants converge to reach group consensus or until no further substantial change in these opinions can be elicited (Deshpande *et al.*, 2005:49, Evans *et al.*, 2004:53). The number of rounds, usually two or three, is also guided by the time available, cost and participation fatigue (Powell, 2003:378; Hasson *et al.*, 2000:1010).

During the research process, specific attention should be given to clearly describing decisions on the number of rounds and the selection and recruitment of experts as well as the stability of opinions between rounds (Greatorex & Dexter, 2000:1016).

The following diagram was adopted from Couper (as quoted by Burns & Grove, 2005:408) and provides a graphic illustration of the process followed in the Delphi technique:

(Preferred space for diagram 1)

Sampling

It seems that sampling in the Delphi technique has been a topic for debate, as evident from the following discussion. However, broad guidelines regarding the composition of the sample, the sampling technique, recruitment, sample size and representativeness could be identified, and is discussed.

Composition of the sample

The composition of the sample, usually a panel of experts, varies according to the aim of the research. An example is that when the aim of the research is related to forecasting a more homogenous group should be selected. In a research project to identify for example policy issues, all options available need to be identified and the use of a more diverse group might be more appropriate.

Sampling technique

The Delphi technique often makes use of non-random sampling techniques rather than using a random sample of panellists representing the target population (Hasson *et al.*, 2000:1010), although there are some cases where random techniques are used, for example in research done by Evans *et al.*

(2004:54) stratified random sampling were used to ensure a balanced representation of different professional groups.

The non-random sampling approaches used in the Delphi technique includes purposive and convenience sampling. In research done by French *et al.* (1996:596) the principal investigator used convenience sampling to identify institutions in different countries to be included in the study, and then requested the selected institutions to identify possible participants.

Purposive sampling is mostly used, and participants are identified based on selection criteria. These selection criteria are mostly inclusion criteria, for example Armstrong *et al.* (2000:298) defined expertise according to criteria applicable to their study, and then selected nurses complying to this definition, working in a specific setting, who were willing to participate. Exclusion criteria are also used, for example in a study by Almasio *et al.* (2005:382).

Participants should be selected to ensure an adequate scope of expertise and views on the topic, and they should be available to participate within a certain time-frame (Avery *et al.*, 2005:4). Powell (2003:379) adds that potential participants should be willing and able to make a valid contribution, should represent a diversity of viewpoints, should be able to reflect current knowledge and be relatively impartial to the topic being investigated. Hasson *et al.* (2000:1010) also mention these guidelines, but contrastingly mention that participants should be interested in the research topic. Du Plessis and

Human (2006) found that interest in the topic is indeed important, as it contributes to an increased response rate.

A further important aspect – which might be overlooked by researchers – is that researchers should carefully consider potential participants' written communication skills and computer literacy, as the Delphi technique requires completion of questionnaires, increasingly in electronic format (Hasson *et al.*, 2000:1010).

Another key aspect in the Delphi technique is that the qualities of the panel of experts participating in the research have to be described fully so that their credibility as experts on the specific topic can be evaluated (Powell Kennedy, 2004:505).

Recruitment

After selection criteria have been developed a database of experts is compiled (Avery *et al.*, 2005:4; Carrol, 2004:35). Using existing databases, for example nurses listed on practitioner association's databases poses the problem that not all participants who meets the selection criteria is selected, as these databases might be outdated (Hasson *et al.*, 2000:1010). This problem was also encountered in the research project discussed in the subsequent article (Du Plessis & Human, 2006).

After developing or accessing the database, the next step is to gain access to potential participants, and to recruit them for participation. This is a difficult process, and requires effort, as continuous commitment from participants to participate in all rounds has to be obtained (Hasson *et al.*, 2000:1010). A limitation of the Delphi technique is the fact that Delphi studies is characterized by low response rates, especially in the later rounds, as mentioned by Beech (1999:283), Greatorex and Dexter (2000:1022) as well as Evans *et al.* (2004:57). Several reasons for the low response rate might exist, and Greatorex and Dexter (2000:1022) mention a few, namely: minority opinions not being taken into consideration, low motivation, disagreement with the design and content of the study, lack of faith in the initial results of the study and other reasons, such as illness.

Building a research relationship with participants (Hasson *et al.*, 2000:1010) is therefore important. An essential starting point is recruitment letters with detail information about the research project and what participation entails (Armstrong *et al.*, 2000:298). Almasio *et al.* (2005:382) refer to this as an information package, which was, in their case, sent by e-mail. This information package might also include a note indicating that completing the questionnaire implies consent to participate, as in the case of Cohen *et al.* (2004:1011) who argued that, to ensure anonymity, a separate consent form didn't have to be completed. Hasson *et al.* (2000:1010) suggest that face-to-face interviews with potential participants to invite and inform them might be beneficial in recruiting participants, but that it should be kept in mind that this personal contact might have an influence on the research results. It might also be kept

in mind that response rates might increase if potential participants who are to be affected by the outcome of the research are invited to participate (Hasson *et al.*, 2000:1010).

Another suggestion is that gatekeepers could be used to recruit participants and/or to distribute questionnaires (Armstrong *et al.*, 2000:298; Almasio *et al.*, 2005:382) as this enhances anonymity and willingness to participate. Reminder letters or phone calls might also be implemented to enhance the response rate (Carrol, 2004:35; Hasson *et al.*, 2000:1011).

Sample size

There is no recommended sample size in the Delphi technique (Armstrong *et al.*, 2000:299). The sample size varies according to the scope of the problem and resources, e.g. time and money, available (Powell, 2003:378), as well as according to the amount of data needed (Hasson *et al.*, 2000:1010). For example Armstrong *et al.* (2000:299) subjectively decided on a sample size "appearing" to be sufficient to elicit a variety of opinions, and large enough to accommodate possible drop-out. A total study population could also be used, as in research conducted by Garavalia and Gredler (2004:375) (39 participants) and Cohen *et al.* (2004:1011) (a population of 1500 nurses).

Although there is wide variation in the sample size, Powell (2003:378) indicates that the more participants the better, as this increases the number of

panel members giving their opinions and therefore increases the reliability of the collective group opinion.

Representativeness

The Delphi technique does not require the sample size to be statistically representative of the study population. Representativeness is rather assessed on the qualities of the expert panel rather than on the sample size (Powell, 2003:378). A specific consideration in the Delphi technique is that when the response rate declines in subsequent rounds, the representativeness of sub-groups of participants in relation to the initial group of participants should be considered, as described by Almasio *et al.* (2005:384).

Data gathering

Verbs used to describe data gathering by means of the Delphi technique includes exploring (Almasio *et al.*, 2005:382), gathering, aggregating, (Beech, 1999:283), eliciting, identifying (Cohen *et al.*, 2004:1011), assessing (Deshpande *et al.*, 2005:49), collecting (De Villiers *et al.*, 2005:1), harnessing (Powell, 2003:376), obtaining (Linstone & Turoff, 1975:10), posing a question to (Carroll, 2004:35) and bringing together (Ganssle, 2004:2). These verbs imply that the Delphi technique is a survey research method, as confirmed by Cohen *et al.* (2004:1011) and Goodman (1987:729).

The specific data that is gathered is referred to as expert opinion, views, judgement, informed judgement and/or estimates, as used by e.g. Almasio *et al.* (2005:382), Deshpande *et al.* (2005:49) and Ganssle (2004:2).

Data gathering process

The data gathering process is executed in a series of rounds. Powell (2003:377) as well as Williams and Webb (1994:182) report that this process of successive rounds enables systematic control in a research project, and enhances the objectivity and validity of the results obtained. Several authors describe this process, for example Powell (2003:378), Greatorex and Dexter (2000:1023), Hasson *et al.* (2000:1010-1012), Beech (1999:283) and Deshpande *et al.* (2005:49). Drawing on these descriptions, the rounds can be explained as follows:

Many variations of the Delphi exist. In the classic Delphi technique the initial round of the process usually is less structured and serves as an exploratory round to obtain a broad range of views. Qualitative data is thus generated. Data is gathered either by means of an open-ended written questionnaire, or by means of alternative measures, such as focus groups or individual interviews. This enables the collection of rich and large amounts of data. Researchers may opt to limit the amount of data by means of measures such as requesting participants to limit the number of opinions given. Data obtained serve as basis for further rounds.

Semi-structured questionnaires or structured questionnaires can also be used in the first round. These questionnaires might be developed based on literature, or by listing items identified as important by the research team, or existing questionnaires might be used if applicable. Such questionnaires thus provide participants with pre-existing information, and ranking takes place already in round one. This is known as a revised or modified Delphi technique, and is criticised as questionnaires might tend to be biased and may limit available options.

In subsequent round/s of the classic Delphi data generated in round one is analysed, usually by means of qualitative measures, and a list of items is produced. This list of items is communicated to participants, serving as feedback to participants, as well as a stepping stone to the next round, as participants are asked to indicate their agreement or disagreement, or to rank the list of items according to an ordinal scale.

Data generated in the second round is thus quantitative in nature, and is analysed accordingly. Based on this analysis, a third questionnaire is developed, indicating the central tendency and dispersion, usually organised in rank order, of the list of items. This questionnaire is communicated to participants, in order to indicate items that have gained collective opinion. They are asked to reconsider items in light of their initial opinions and to comment. Comments could be included in the analysis of data, providing a fuller indication of all items. This round serves to refine the results from the

previous rounds. The successive rounds of feedback tend to facilitate convergence of group opinion.

Researchers need to explain and thoroughly describe this process in research reports, in order to demonstrate the reliability and validity of the research. Also, criticism relating to the use of questionnaires raises questions about the accurate interpretation of results, as uncertainties about questions and meanings attached can not be further explored or explained by the researcher. Careful consideration should thus be given to the development of the questionnaires.

Data analysis

Data produced in the initial round usually is qualitative of nature, and content analysis is typically used to analyse data (Powell, 2003:379; Hasson *et al.*, 2000:1012). Analysis entails grouping similar themes together (Beech, 1999:285) to produce a list of items. The results of this analysis need to be verified to ensure a fair representation of the data generated in round one (Hasson *et al.*, 2000:1012). Armstrong *et al.* (2000:297) for example requested an additional, independent researcher to verify the analysis of data in order to promote the validity of items generated.

The list of items should be structured in order to produce a questionnaire to use in the following round. Hasson *et al.* (2000:1012) suggest that an informal literature review and meta-analysis might be conducted to aid the

development of the questionnaire. Further important aspects regarding the development of the subsequent questionnaire are that the wording used by participants in the first round should, as far as possible, not be changed and that the researcher should not add items other than produced in the first round (Hasson *et al.*, 2000:1010). Infrequently occurring items should be included in the subsequent questionnaire, based on the principle that participants should decide on the importance of items, not the researcher (Hasson *et al.*, 2000:1010). Additionally, the list of items could be reduced by including only those items that achieved a certain scoring (French *et al.*, 1996:596-7). However, the full list of items should be reflected in the research report.

In subsequent rounds, descriptive (Evans *et al.*, 2004:55; Cohen *et al.*, 2004:1012; Greatorex & Dexter, 2000:1023) as well as inferential (Hasson *et al.*, 2000:1012) statistics are used to summarize data. These statistical summaries are produced for each item and used to determine the level of collective opinion (Hasson *et al.*, 2000:1012). Central tendencies (mean, median, mode) as well as levels of dispersion (standard deviation, inter-quartile range) are of importance (Hasson *et al.*, 2000:1012). Greatorex and Dexter (2000:1016) explain that if the scale according to which participants evaluated items is interval, the mean (as an indication of central tendency) represents group opinion and the standard deviation (as measure of spread) represents the amount of disagreement. A decision should be made regarding an acceptable value of the mean or standard deviation to indicate consensus. According to Greatorex and Dexter (2000:1023) this decision is taken by the researcher and defining such values is subjective.

The issue of consensus is discussed hereafter, but additional remarks regarding statistical analysis in the Delphi technique should first be mentioned, namely that:

- the stability between rounds, in other words change in opinion, should be determined and mentioned (Greatorex & Dexter, 2000:1016) as this is also an indication of consensus;
- data could be used to analyse further aspects, such as differences of opinion between groups in the sample, as was done by Almasio *et al.* (2005:386);
- to uphold anonymity, data can be analysed by independent partners (Almasio *et al.*, 2005:383) and not by the research team.
- It might be valuable to report on each round separately, to enrich the description of the process and results.
- In the research report readers should be informed regarding how to interpret the results.

Consensus

Authors agree that the Delphi technique, alongside brainstorming and the nominal group technique, is a consensus method (Carrol, 2004:34; Avery *et al.*, 2005:4). What distinguishes the Delphi technique from other consensus methods is that it is a group consensus method where anonymity is ensured and group members need not be physically assembled (De Villiers *et al.*, 2005:1).

Powell (2003:377) refers to the achievement of consensus on a complex issue, characterized by uncertainty or lack of empirical evidence, as one of the main advantages of the Delphi technique. McKenna (1994:1223) and Beech (1999:283) also praise the ability of the Delphi technique to guide a group towards consensus and a final decision. However, the concept 'consensus' appears to be subjective and the achievement thereof a debatable matter. Williams and Webb (1994:183) report that consensus might be viewed as arbitrary if not explicitly described by researchers. Also, the danger exists that research results might not reflect true consensus, but a 'watered down best opinion' (Powell, 2003:378, Williams & Webb, 1994:183).

Another crucial aspect to take note of is that group consensus is not always achieved, and if it is achieved it should be the "*most reliable consensus*" (Linstone & Turoff, 1975:10). This implies that the process through which consensus is achieved as well as non-consensus if applicable, should be described in detail so that other researchers and evaluators could establish the quality of the work done.

Furthermore, the interpretation of the meaning of consensus in a particular study should be explained. According to Hasson *et al.* (2000:1011) there is no universally agreed upon level of consensus and that consensus depends on the aim of the research, the sample size and resources. Powell (2003:379) explains that consensus might be expressed as percentage agreement or in terms such as "most participants agreed". The latter is criticised for being too

vague. Avery *et al.* (2005:4) for instance defined consensus as having been achieved if 90% or more of the panel members rated statements as 'important' or 'very important' after the second round.

Hasson *et al.* (2000:1011) as well as Grotorex and Dexter (2000:1022) warn that, in spite of the fact that anonymity is ensured to limit group members' influence on each other, the danger exists that consensus might be achieved because of panellists simply conforming to the collective group opinion (Halo effect). Researchers should thus not only take final responses, but also the stability of responses between rounds, into consideration when interpreting results (Powell, 2003:379). They should also describe how consensus was achieved, and measures should be implemented to limit the Halo effect, for example asking participants who deviated from their initial opinions to provide reasons for changing their opinions.

Consensus should not be seen as the "correct answer", and should be interpreted as the opinion of a specific group of experts on a given topic. It is recommended that the results of the Delphi technique are validated, e.g. the results could be used as a guide to structure further discussion in workshops, focus group interviews, nominal groups and/or debates (French *et al.*, 1996:597; Carrol, 2004:33; Hasson *et al.*, 2000:1013).

CONCLUSION

The Delphi technique could be seen as having “added value”.

Its *advantages* include that it has the ability to elicit quantitative data similar to other survey research, but also to explore qualitative data such as attitudes and moral judgements (Beech, 1999:284). Furthermore, participating in this type of research might be a motivating and educational experience for participants. Participation might be viewed as an interesting exercise as it might stimulate new ideas (McKenna, 1994:1223). Additionally, the iterative nature of the research gives participants an indication of how their responses are utilized (Garavalia & Gredler, 2004:375). This might lead to sharing of responsibility and a wider acceptance of results (Beech, 1999:287; McKenna, 1994:1223). For example, Cohen *et al.* (2004:1011) found Delphi research to be a useful way of involving nurses in research, as it created research awareness and communicated research as being rewarding. The Delphi technique thus have the ability to elicit follow-up research, guide further research and give direction in a discipline such as nursing (Cohen *et al.*, 2004:1011; McKenna, 1994:1223).

In general, the Delphi technique is also viewed as cost-effective (Beech, 1999:283, Williams & Webb, 1994:180). It has the ability to generate large amounts of data (Beech, 1999:283); it is a flexible approach (Powell, 2003) and enables data collection from participants who might be geographically separated (Evans *et al.*, 2004:57). Although this type of research tend to be

time-consuming, it might be completed in a relatively short time span (Armstrong *et al.*, 2000:298, Evans *et al.*, 2004:57, Powell, 2003:377, Williams & Webb, 1994:182).

Looking at the *limitations* of the Delphi technique, as discussed throughout this article, one can understand why its respectability as a research approach is often questioned. Powell (2003:377) as well as Beech (1994:283) report criticism that indicate that the outcome of the Delphi technique could at best be viewed as subjective opinions regarding problems that can not otherwise be explored by means of more precise scientific instruments.

On the other hand, the advantages of the Delphi technique, as described, demonstrate the unmistakable value of this technique. It thus seems that the utilization of this technique is advisable, but when utilizing the Delphi technique, it should be used with caution, and great emphasis should be placed on measures to enhance validity and reliability, as discussed in this article. The following article (Du Plessis & Human, 2006) is an example of the application of the Delphi technique.

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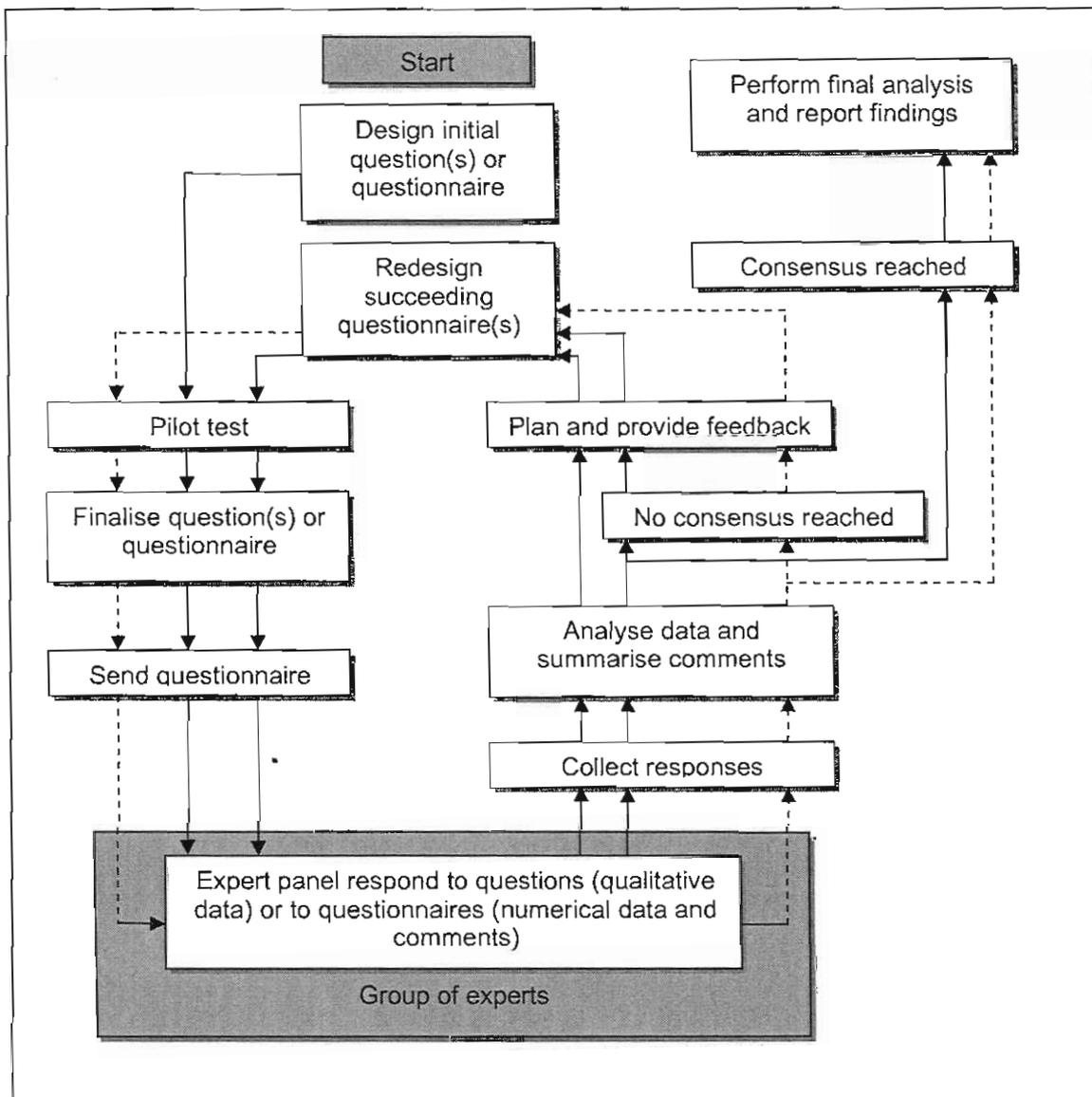
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Diagram 1: The process followed in the Delphi technique *



*Multiple arrows indicate repeated rounds

Manuscript Four

**Opinions on a strategy to promote
nurses' research contribution in South Africa**

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The ethical measures adhered to during this research process are those set out by DENOSA (Democratic Nurses Association of South Africa, 1998:3-7).

Stein, Brailowsky and Will (1995: 1 05), however, note that points of divergence are seen even within rodents of the same species. Yet sex differences do occur both in response to injury and in recovery of function, female rats in normal oestrus showing less oedema following frontal cortical contusions than males, and more severe oedema than females who are not in oestrus (Stein *et al.* 1995: 1 05).

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ABSTRACT

The purpose of this article is to report on a Delphi study. This Delphi study was conducted to explore the opinions of a panel of experts in research on nurses' research contribution and to develop a strategy to promote this contribution. A qualitative and quantitative, descriptive design was used. A Delphi study consisting of three successive rounds was conducted from January 2005 to February 2006. A panel of experts (round one: n=28; round two: n=31; round three: n=18), selected from multiple health-related and health research related clusters, participated. Professional nurses in academic/educational positions were the main participants. Multi-disciplinary team members, other than nurses, at international as well as national level also made valuable contributions as part of the panel. Data were gathered by circulating a list of open-ended questions (round one) as well as questionnaires (rounds two and three). Analysis was done using open coding and descriptive statistics.

Findings were processed and in an anonymous way, fed back to panellists to re-assess and change if necessary. In this way outcomes in the various rounds resulted in a move towards consensus in opinions between the panellists and elements essential to develop a strategy to improve research done by nurses, could be identified.

Resultate is verwerk en op 'n anonieme wyse teruggevoer aan paneellede, vir heroorweging en verandering indien nodig. Op hierdie manier het die uitkomst van die onderskeie rondtes gelei tot ooreenstemming in opinies tussen die paneellede en kern-elemente vir 'n strategie om navorsing deur verpleegkundiges te verbeter, kon geïdentifiseer word.

'n Raamwerk vir die verdere verkenning van 'n strategie is geformuleer, gebaseer op die bevindinge van die Delphi-studie.

Sleutelwoorde: Strategie, bydrae, impak, gesondheidsnavorsing, verpleegkundiges, Delphi-tegniek, navorsingskapasiteitsbou, samewerking, verspreiding en gebruik, navorsingsleierskap, navorsingsprioriteite, kwaliteit van gesondheidsnavorsing.

The researcher also protected participants from possible discomfort by ensuring voluntary participation, anonymity and confidentiality.

RESEARCH DESIGN AND METHOD

The research is of a quantitative as well as a qualitative nature, and a descriptive survey design (Brink, 2002; Burns & Grove, 2005) was followed. The research was conducted using the Delphi technique (Burns & Grove, 2005; McIlfatrick & Keeney, 2003). Data was gathered in successive rounds, of which the first round was more qualitative in nature, and the following two rounds more quantitative. The Delphi technique was utilized because it allowed the researcher to obtain the anonymous opinions of stakeholders. This ensured that stakeholders could share their opinion honestly and freely. Because of the expertise of the participants, it is possible through the Delphi technique to develop a representative group opinion on a relatively unexplored topic (Powell, 2003; Burns & Grove, 2005; Brink, 2002).

The purpose of round one of the Delphi study was to explore the opinions of the panel of experts. Round two served to present the results of the first round to the participating stakeholders for verification and to establish the level of consensus. The final round was conducted to give feedback to the panel of experts on aspects that they strongly agreed upon to determine whether these should be included in a strategy and to explore further convergence to consensus on these aspects. The decision to execute three rounds was based on stability of responses between rounds, as indicated by effect size between means of rounds two and three (Ellis &

responses were therefore interpreted as from one group of participants (n=31). During round three 18 of these experts participated.

From a statistical viewpoint, these response rates seem low. However, the Delphi technique does not require a statistically representative sample, but rather that the qualities of the participants should represent expertise in the topic under investigation (Armstrong, Parsons & Barker, 2000), as was achieved. Table 1 provides information of the qualities of the panel of experts.

(Preferred placement for Table 1)

The adequacy of these samples is further supported by the fact that the results of the overall project are not solely dependent on these samples, but triangulation (Burns & Grove, 2005) was implemented with the successive rounds of Delphi technique, implementation of further phases in the overall research project (not covered in this article), and literature reviews.

Data gathering

During round one data was gathered by means of a list of open-ended questions based on a literature study by Du Plessis and Human (2006a). The development of questionnaires used in successive rounds was based on the results of the previous round, as described by Hasson *et al.* (2000). The list of open-ended questions as well as the subsequent questionnaires was evaluated by independent, experienced researchers and pilot studies were conducted before finalization and distribution.

During round one data was analyzed qualitatively by means of content analysis (Powell, 2003). Similar themes were grouped together to produce a list of opinions. An independent co-coder was appointed to verify that the results were a true reflection of the gathered data (Hasson *et al.*, 2000).

An independent statistical consultant performed statistical data analysis during round two and three. For each individual opinion, statistical summaries were produced. This included cumulative frequencies and mean values as indicators of levels of consensus and standard deviation levels as indicator of disagreement (Greatorex & Dexter, 2000). A smaller mean value and standard deviation value and a higher cumulative frequency value indicated consensus. The minimum level of consensus was set at 90% (cumulative frequency). The rationale for setting a high minimum level of consensus was that it enabled the reduction of the large amount of data to aspects that the panel of experts strongly agreed upon. These were used to develop a strategy to promote the research contribution of nurses.

Table 2 contains the results on which the highest consensus levels were obtained in the successive rounds.

(Preferred placement Table 2)

The opinions of the panel of experts that reached the highest consensus levels are listed in Table 2 in rank order from highest to lowest level of consensus – arranged per sub-theme – based on the cumulative frequency values (%), mean values (M) and standard deviation values (SD) obtained during round two. The results of round

Validity was ensured by including as many as possible participants in the sample, based on the assumption of safety in numbers (Hasson *et al.*, 2000), although the representativeness of the sample was rather judged on the qualities of the expert panel, as explained (refer to Table 1). Additionally, the use of successive rounds helped to increase the *concurrent validity* and *reliability* (Hasson *et al.*, 2000). As the validity of results is also affected by the *response rates* (Hasson *et al.*, 2000) stakeholders who did not react to initial invitations to participate were contacted again and the invitation repeated.

DISCUSSION OF THE RESULTS

Because of the small sample, these results should be seen as the opinion of a certain panel of experts at a certain point in time, as explained by Hasson *et al.* (2000). In order to retain the richness and depth of the findings of round one, opinions were elaborated on by means of accompanying sub-statements. Panel members were requested to assess these opinions and sub-statements as a whole, but some participants found this cumbersome and confusing. In an attempt to limit this problem during round three, explanatory sub-statements were omitted and long statements divided into shorter statements. Follow-up research on these issues is advisable.

Notwithstanding these limitations, valuable results pertaining to two broad themes, namely nurses' research contribution as well as a strategy to promote this contribution, were obtained. Round one produced rich and large amounts of data on

researchers; that the perception of nurses change from being “only part of a workforce” to that of professional health scientists. The panel indicated that the strategy should not necessarily aim to unify efforts by nurses, as a multi-disciplinary context and collaboration across disciplines will then be limited, but should rather be used to direct and focus research efforts. During subsequent rounds consensus was reached on the opinion that a strategy is necessary, but should be feasible and realistic within the South African context and follow a multi-disciplinary approach.

During round one the panel of experts confirmed that research capacity building, a collaborative approach, dissemination and utilization, quality of research conducted by nurses, leadership, resources and research priorities should be included in a strategy. Subsequent rounds revealed that further emphasis was put on these elements and that links between these elements became evident.

Research capacity building

Research capacity building was seen as a core element of a strategy. The highest levels of consensus were reached on items relating to this aspect. Suggestions about research capacity building on which the panel reached consensus are reflected in Table 1. Opinions in round one indicated that the initial focus should be on creating research awareness amongst nurses. However, during subsequent rounds panellists revealed that research capacity building, as presented in Table 1, in itself will create research-mindedness.

were of the opinion that nurses should be more involved in inexpensive, smaller, grass roots projects, to gain experience in conducting research and in seeing the impact of research on health care delivery, while other participants were more in support of bigger research projects, with increased access to funding, more opportunities for international partnerships and an increased impact on health care delivery. This debate might be further explored in follow-up research.

Dissemination and utilization of research results

The panel reached consensus that the dissemination and utilization of research findings conducted by nurses often does not occur. Reasons for this phenomenon are: poor methodology; lack of depth in and follow-up of research; lack of evidence-based practice; a trend with nurses not to regularly buy or subscribe and to read journals or research related material, the lack of critical reading and analyzing skills and inaccessibility of libraries and other resources.

According to the consensus view of panelists, dissemination and utilization of research results are directly related to the building of research capacity, often obtained within a collaborative approach.

Quality of research conducted by nurses

Although opinions on the quality of research conducted by nurses reached consensus levels (refer to Table 1), it seems that the panel put more emphasis on

It was interesting to note that centralized leadership in the form of coordinating body was not emphasized in successive rounds. The only consensus statement related to was that leadership should be provided to foster a culture of sharing and cooperation amongst nurses (see Table 1). The question about who should and will take responsibility of a strategy remained unanswered and needs further exploration.

Resources

During all the Delphi rounds the panelists agreed that resources are necessary in a strategy to promote research (see Table 1). Such resources include funding, infrastructure, human resources and access to information, which generally are limited or difficult to access. Interestingly, team efforts/collaboration was also seen as a resource that will enhance the accessibility of experts and research related resources. The panel further pointed out that research conducted by nurses should be regarded as important by the relevant stakeholders, before they will be willing to avail resources.

Research priorities

Panelists clearly viewed their opinions on current research priorities in South Africa. It was evident that priorities could be grouped into themes such as: issues relating to health systems research; the quality of health care; health care staffing levels and

The research supervisor/educator might play a key role in a strategy to promote the contribution of nurses towards health research by acting as a research leader, a research oriented mentor and by creating opportunities for developing novice nurse researchers.

Research capacity building as a core aspect of a strategy to promote health research conducted by nurses should aim to create a supportive environment in which nurses obtain research related skills and attitudes, including questioning attitudes, critical analytical skills, interest and skills in reading scientific material, writing skills and a broad basis of research skills.

Partnerships with cross-functional, multi-disciplinary teams seems to have the impetus to develop a network of research leaders that will result in a significant increase in the contribution towards health by means of research conducted by nurses.

These conclusions form the bases of a framework for the development of a strategy to promote the contribution of nurses towards health research. It is recommended that follow-up research is conducted with relevant stakeholders in order to verify and explore the application of this proposed strategy. Such research is explained in the following article (Du Plessis & Human, 2006b).

51-53.

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Table 1 Qualities of the panel of experts

Round one	Round two	Round three
<ul style="list-style-type: none"> • Two experts in health research funding at national level (of which one has nursing qualifications). • Two experienced health professionals (one medical doctor, one natural scientist) working as health researchers at national level. • Three nurse leaders at national level, experienced in nursing and in research and serving on regulatory nursing bodies. • Four professional nurses (two from South Africa, two at international level), experienced in health research and serving on international nursing research-related committees. • 11 professional nurses in academic/educational posts in South Africa, experienced in health research, supervising post-graduate students and/or teaching undergraduate students in health research. • Two nurses at practice level, in managerial posts at institutional level and linked to a training facility for nurses. • Three health researchers, from different disciplines (natural sciences) involved in research and linked to organizations with research development as a core objective (one participant at international level, two at national level). 	<ul style="list-style-type: none"> • Two experts in health research funding at national level (of which one has nursing qualifications). • One experienced health professional (one medical doctor) working as a health researcher at national level. • Four nurse leaders at national level, experienced in nursing and in research and serving on regulatory nursing bodies. • Three professional nurses (one from South Africa, two at international level), experienced in health research and serving on international nursing research-related committees. • One professional nurse in academic/educational posts (international), experienced in health research, supervising post-graduate students and/or teaching undergraduate students in health research. • 17 professional nurses in academic/educational posts in South Africa, experienced in health research, supervising post-graduate students and/or teaching undergraduate students in health research. • One professional nurse in research post (independent health research company). • Two health researchers, from different disciplines (natural sciences) involved in research and linked to organizations with research development as a core objective (one participant at international level, one at national level). 	<ul style="list-style-type: none"> • One experienced health professional (medical doctor) working as a health researcher at national level. • Three nurse leaders at national level experienced in nursing and in research and serving on regulatory nursing bodies. • Two professional nurses (one from South Africa, one at international level), experience in health research and serving on international nursing research-related committees. • 10 professional nurses in academic/educational posts in South Africa experienced in health research, supervising post-graduate students and/or teaching undergraduate students in health research. • Two health researchers, from different disciplines (natural sciences) involved in research and linked to organizations with research development as a core objective (one participant at international level, one at national level)

Nurses should collaborate with: ($M=1.77$, $\%=90.00$, $SD=0.86$)				
Communities, guided by the nature of the research project, the communities' capacity and willingness to collaborate and by relevant ethical principles.	1.76	88.24	0.66	0.02
People who can add value, with practitioners in any/all fields which impact on the health and well-being of patients.	1.76	88.24	0.66	0.02
Nurses in practice and nurses in academic/research institutions.	1.65	94.12	0.61	0.20
The science and technology sector, which can do much in developing a critical mass of excellent nurse researchers that will be leaders in the field.	1.76	94.12	0.56	0.02
Teams that are not necessarily defined by discipline but by topic of research.	1.82	88.24	0.64	0.08
Collaboration should take place at the following levels: ($M=1.77$, $\%=90.00$, $SD=0.88$)				
At local, national as well as international level.	1.53	94.12	0.62	0.39
Interdisciplinary, intradisciplinary, multidisciplinary, intersectoral, intrasectoral.	1.53	94.12	0.62	0.39
Dissemination and utilization				
The strategy should aim to improve the dissemination and utilization of research conducted by nurses. ($M=1.48$, $\%=96.55$, $SD=0.57$)	1.53	94.12	0.62	0.08
Nurse managers should encourage evidence-based practice. ($M=1.52$, $\%=96.77$, $SD=0.81$)	1.47	94.12	0.65	0.08
Nurses should submit their work to journals that are read by a cross-section of health care providers, and not only to nursing journals, especially clinical research. ($M=1.52$, $\%=93.55$, $SD=0.72$)	1.56	93.75	0.81	0.05
Study leaders should encourage the dissemination and utilization of research results. ($M=1.55$, $\%=93.55$, $SD=0.85$)	1.50	93.75	0.63	0.08
Research utilization requires a concerted effort by policy makers, health service administrators and academics together to make an impact. Cooperation between researchers/academics and services should be promoted and expanded. Cross-functional teams between different health institutions should be created to promote the communication and utilization of research results. ($M=1.58$, $\%=93.55$, $SD=0.85$)	1.56	93.75	0.63	0.03
The notion that it is the responsibility of nurses to disseminate and utilize research should be fostered. Nurses' ability to conduct relevant research needs improvement, and they should be encouraged to conduct research as a cyclic process, with depth and continuity, that should be followed up and serve as a basis for further research. ($M=1.71$, $\%=93.55$, $SD=0.82$)	1.81	93.75	0.54	0.19
Writing workshops should be held to encourage and motivate nurses to write up more of their research immediately after completion of research. ($M=1.65$, $\%=90.32$, $SD=0.75$)	1.56	93.75	0.63	0.14
Practicing nurses should have the opportunity to conduct and publish small research projects in journals. Nurse educators and managers should encourage this. ($M=1.68$, $\%=90.32$, $SD=0.87$)				
Quality of research conducted by nurses				
Research conducted by nurses should be strengthened by improving nurses' skilfulness in conducting research ($M=1.50$, $\%=96.77$, $SD=0.95$).	1.69	93.75	0.60	0.32
Research conducted by nurses should be strengthened by improving the methodology used by nurses. ($M=1.53$, $\%=93.55$, $SD=0.98$)	1.47	93.33	0.64	0.09
Research of high quality should be encouraged, as it has a better chance of being disseminated and utilized. ($M=1.61$, $\%=93.55\%$, $SD=0.84$)	1.63	93.75	0.62	0.03
More clinical research should be conducted by nurses. ($M=1.67$, $\%=93.33$, $SD=0.71$)	1.81	87.50	0.65	0.22
Research conducted by nurses should be strengthened by taking the following into consideration ($M=1.48$, $\%=93.10$, $SD=0.87$):				
Research should add value, and should not only be of academic value, but of practice value as well. The researcher's orientation should be to improve health care and systems.	1.56	93.75	0.63	0.13
Researchers should be competent.	1.56	93.75	0.63	0.13
Researchers should be connected to communities and patient care	2.00	68.75	0.91	0.54
Research should be conducted in an ethical and honest manner.	1.38	93.75	0.63	0.16
Larger studies, follow-up research and translational studies should be conducted to enhance the quality and implementation of research.	1.81	81.25	0.75	0.44
Leadership				
Leadership should foster a culture of sharing and cooperation amongst nurses: knowledge, skills, data, research results, from onset of training to researchers, leaders (e.g. sharing with peers at undergraduate as well as post-graduate level) ($M=1.73$, $\%=90.32$, $SD=1.12$)	1.94	81.25	0.85	0.25
Resources				
The strategy should improve access to research related resources, namely funding, human resources, infrastructure and information. ($M=1.70$, $\%=90.00$, $SD=0.88$)	1.69	93.75	0.60	0.02

*Guidelines for interpretation of effect size 0.2 – small effect; 0.5- medium effect; 0.8 large effect (Ellis & Steyn, 2003)

Manuscript Five

Exploring a strategy to promote nurses' research contribution

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FOUCAULT, M 1984: Nietzsche, genealogy, history. (In: Rainbow, P ed. 1984: The Foucault reader. Harmondsworth: Penguin, pp 76-100.)

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The ethical measures adhered to during this research process are those set out by DENOSA (Democratic Nurses Association of South Africa, 1998:3-7).

Stein, Brailowsky and Will (1995: 1 05), however, note that points of divergence are seen even within rodents of the same species. Yet sex differences do occur both in response to injury and in recovery of function, female rats in normal oestrus showing less oedema following frontal cortical contusions than males, and more severe oedema than females who are not in oestrus (Stein *et al.* 1995: 1 05).

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EXPLORING A STRATEGY TO PROMOTE NURSES' RESEARCH CONTRIBUTION

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ABSTRACT

This article describes research that was conducted in the Southern District of the North-West Province to further explore a proposed strategy to promote the research contribution of nurses. The proposed strategy is the product of a preceding Delphi study (Du Plessis & Human, 2006b). The need for such a strategy is evident from the seemingly limited recognition of the significance of research conducted by nurses. This research aimed to verify the proposed strategy and to explore the feasibility of this strategy in the above-mentioned district, as a preparation for the implementation of the strategy. A qualitative, explorative and descriptive design was followed. Purposive sampling according to selection criteria was used to select participants from a population of stakeholders in the above-mentioned district who are perceived to influence and to be influenced by research. Data gathering took place by means of 11 focus group interviews, after which data saturation was reached, and open coding was employed to analyse data. An independent co-coder assisted with data analysis, and consensus was reached on the results of the research. Results could be categorised into opinions on the strategy, obstacles in the implementation of the strategy and suggestions for the implementation of the strategy. The recommendations refer to the results and

conclusions, namely that the latter two aspects describe a refined strategy with suggestions for the implementation of the strategy.

Key words: Nurses, research, contribution, feasibility, strategy.

OPSOMMING

Hierdie artikel beskryf navorsing wat in die Suidelike Distrik van die Noordwesprovinsie uitgevoer is om 'n voorgestelde strategie om die navorsingsbydrae van verpleegkundiges te verbeter, verder te verken. Die voorgestelde strategie is die produk van 'n voorafgaande Delphi-studie (Du Plessis & Human, 2006b). Die behoefte aan so 'n strategie blyk uit die skynbaar beperkte erkenning van die betekenisvolheid van navorsing deur verpleegkundiges. Hierdie navorsing het ten doel gehad om die voorgestelde strategie te staaf en om die uitvoerbaarheid daarvan in die genoemde distrik te verken. 'n Kwalitatiewe, verkennende en beskrywende ontwerp is gevolg. Doelgerigte steekproefneming, volgens seleksiekriteria, is gebruik om deelnemers uit 'n populasie van belanghebbendes wat beskou word as groepe wat 'n invloed op navorsing het en wat deur navorsing beïnvloed word, te identifiseer. Data-insameling het plaasgevind deur 11 fokusgroeponderhoude, waarna dataversadiging bereik is en data-analise deur middel van oop kodering uitgevoer is. 'n Onafhanklike medekodeerder het gehelp met data-analise, en ooreenstemming is bereik ten opsigte van die resultate van die navorsing. Resultate kon gekategoriseer word in opinies oor die strategie, hindernisse in die implementering van die strategie en voorstelle vir die

implementering van die strategie. Die aanbevelings verwys terug na die resultate en gevolgtrekkings, naamlik dat die laaste twee aspekte 'n hersiene strategie en voorstelle vir die implementering van hierdie strategie beskryf.

Sleutelwoorde: Verpleegkundiges, navorsing, bydrae, uitvoerbaarheid, strategie.

BACKGROUND AND RATIONALE

This research forms part of a research project on a strategy to promote the contribution towards research by nurses. Involvement in research is one of the essential roles of the nurse to further develop the scientific body of knowledge of the nursing profession (Wright, 2005:5). However, the perception exists that nurses are not adequately involved in research, and that research conducted by nurses generally does not have an impact on the science of nursing (MacVicar, 1998:1305). It is therefore not always recognised in the health sector as research of high quality (Ehlers, 2001:2; Du Plessis & Human, 2006a). In the preceding phase of this research, the authors conducted a Delphi study to obtain the opinion of a group of research experts on nurses' contribution to research, and how this contribution might be improved, specifically in the South African context (Du Plessis & Human, 2006b).

The Delphi study emphasised the need for the formulation and implementation of a strategy to promote nurses' contribution to research. In the context of this study the concept "strategy" refers to a framework or scheme that directs a course of action in a specific situation (Grunig & Repper as quoted by Steyn & Puth, 2000:29). Based on the findings of the Delphi study, a proposed strategy was formulated (refer to Table 2). This strategy implies a clear vision, specific objectives, involvement of key role players and approaches that might be followed in order to promote nurses' contribution to research.

The authors realised that in order to effectively implement this strategy, a definite “buy-in” into the process is necessary and its feasibility should be verified by means of follow-up research. In line with the view that findings of a Delphi study should be verified in further explorative discussions (Carrol, 2004:33; Hasson, Keeney & McKenna, 2000:1013), the follow-up research was conducted and is described in this article.

PURPOSE

The purpose of this research was to verify a proposed strategy to improve nurses' health research contribution and to explore the feasibility of this strategy. This follow-up process was conducted in preparation of the implementation of the strategy in the Southern District of the North West Province.

RESEARCH METHODOLOGY

The research methodology addresses the research design and the research method. This is described in order that the quality of the research may be evident, and also that the research might be repeated in similar contexts, therefore increasing the reliability of the research. Throughout this study general ethical principles (World Medical Association, 2002:1-5; Brink, 2002:37-54; Strydom, 2002:62-75) as well as guidelines to promote trustworthiness (Krefting, 1991:215) were followed.

Ethical aspects

The researcher obtained permission from the ethics committee of the North-West University (reference no. 04K22). The researcher ensured that she was equipped to conduct the research and she was guided by an experienced promoter to ensure a high level of scientific rigour throughout the research. To ensure that principles of respect, justice and beneficence of participants were followed, the researcher viewed participants to be autonomous, and therefore provided adequate information regarding the aims and methods of the research, institutional affiliation as well as anticipated benefits and potential risks and discomfort. This information created the opportunity for them to choose to participate on a voluntary basis, abstain or withdraw from the research at any time without reprisal. Fair selection and treatment was ensured through scientific sampling, and by clearly indicating what was expected from participants. The researcher also protected participants from possible discomfort by ensuring voluntary participation, anonymity and confidentiality. Audio-taped recordings of interviews and transcripts were marked by means of codes, and discarded after completion of the research.

Trustworthiness

Guba's model of trustworthiness was followed (Krefting, 1991:215). The following strategies were implemented: *Prolonged engagement*, namely that adequate time was spent with each group of participants, allowing time for the establishment of rapport, so that participants could feel comfortable and safe enough to share opinions that they might have viewed as sensitive. Questions were rephrased and/or repeated as applicable and facilitative communication techniques were used to ensure adequate exploration of the topic. A further strategy, *reflexivity*, was employed, namely that the researcher wrote field notes directly after each focus group interview, specifically on the logistics, method of interviewing and personal feelings and thoughts. This enabled the researcher to maintain a critical, questioning thought process throughout data gathering, limiting the threat of becoming over-involved.

Furthermore, the researcher's *trustworthiness as a human research instrument* was evident through her experience and skills in research, interviewing and scientific writing skills, which she gained during basic and advanced studies and through practicing as a psychiatric nurse; and as a lecturer and research supervisor.

A *dense description* of the research process and of characteristics of participants are provided, ensuring that the research is auditable. Furthermore, the involvement of co-coders during data analysis, and consensus discussions between these co-coders and the researcher enhanced the consistency of the results. Peer examination and triangulation also contributed to the Trustworthiness of the research.

Research design

An explorative and descriptive qualitative design was followed. According to Burns and Grove (2005:232) this design is appropriate when more information about a relatively unexplored field of study is needed, as in this case.

The context within which the research took place was the Southern District of the North West Province. A literature study preceding the Delphi study indicated that there were specific research related stakeholders that might play a role in promoting nurses' research contribution (Du Plessis & Human, 2006b). These stakeholders are entities who influence or are influenced by research. Within the Southern District of the North West Province prominent research stakeholders include academics/educators, clinical facilitators, undergraduate, post-registration and postgraduate students at a nursing department at a local university and a nursing college; a health research

committee steered by the Provincial Department of Health; multi-disciplinary teams, including nurses conducting research or working at health care institutions in this District and nurses practicing in clinical settings.

Research method

A discussion of sampling, data gathering and data analysis follows.

Sampling

Purposive sampling, as described by Babbie and Mouton (2004:166) was utilised to select potential focus groups from the above-mentioned study population for participation in this research. Selection criteria for inclusion in the focus groups included that participants:

- should have been willing to participate in a group;
- participated voluntarily, after informed consent were obtained; and
- should have formed part of a group of stakeholders who influence or are influenced by research conducted by nurses in the Southern District of the North-West Province.

The sample size was determined by data saturation, as described by Woods and Catanzaro (1988:565). Although recurrent themes could be identified after 11 focus group interviews, the nature of the participating groups was homogenous (refer to Table 1) and had unique foci within their own context. This is noted as a limitation of the research, and a more comprehensive level

of data saturation might have been obtained if stakeholders were not interviewed in homogenous groups (as listed in Table 1) but rather in heterogenous groups with participants from various clusters of stakeholders in each group. Another limitation is that it might have been meaningful to include more “nurses in practice” in the sample, as they seem to be the main target group of the strategy.

Preferred space for Table 1

Data gathering

Data gathering took place by means of focus group interviews. Focus group interviews are well planned group discussions to obtain a group’s opinion on a specific topic (Kingry, Tiedje & Friedman, 1990:124), and were therefore appropriate in this research.

After obtaining permission from the ethics committee, relevant authorities were contacted and permission obtained to contact potential individual participants and to conduct the focus group interviews. In order to obtain voluntary, informed participation the researcher then sent written invitations to each potential participant in the identified groups. These written invitations were followed by telephonic and/or face to face contact in order to answer questions and make appointments for the focus group interviews. Prior to the focus group interviews, informed consent was obtained. During the interviews the proposed strategy (see Table 2) were briefly presented.

(Preferred space for Table 2)

Participants' opinion on the strategy itself as well as on the feasibility of the strategy were then explored. Their thoughts and ideas were probed by a list of open-ended questions, which was not followed strictly but was used as a point of departure in the discussions. These questions were formulated based on the results of the Delphi technique, and included the following items:

- What is your opinion on the proposed strategy?
- How do you think this strategy could be implemented in your context?
- What related activities are already in place in your context and how can it be linked to the proposed strategy?
- What would you say are obstacles in the implementation of this strategy?
- Who do you think should take ownership to initiate and drive such a strategy?

The interviews were conducted by the researcher, who has proven skills and experience in conducting qualitative research interviews. Communication techniques such as clarifying, summarising and reflection, as described by Kneisl, Wilson & Trigoboff (2004:154-155), were used to facilitate the discussion. The interviews were conducted at the various groups' work/study places, as convenient to the participants, and were audio-taped and transcribed for the purpose of data-analysis. Field notes were taken by the

researcher and were used in conjunction with transcriptions during data analysis. Throughout this process confidentiality and privacy were ensured.

Data analysis

Data analysis took place by means of open-coding (Babbie & Mouton, 2004:499). Categories of results, with sub-categories, were created by coding words and themes – as units of analysis – and grouping these codes together in logical themes. An independent co-coder assisted in data analysis and a consensus meeting between the researcher and the co-coder was held to verify the consistency of the results.

LITERATURE CONTROL

A literature control was performed in order to ground findings in literature, as well as to identify similarities and differences, as explained by Burns and Grove (2005:95).

RESULTS

Recurrent themes were evident in all interviews, to which different groups gave varying emphasis, depending on their unique context and current focus. Recurrent themes could be grouped into categories, namely opinions on the strategy, obstacles in the implementation of the strategy and suggestions regarding the implementation of the strategy (refer to Table 3).

Preferred space for Table 3: Results of focus group interviews

The detail of the results is discussed below and quotes from participants – in italics and in brackets – are presented to further explain the categories.

Opinions on the strategy (Table 3, Column A)

The strategy is seen as necessary, relevant and valuable

Participants verified that the strategy is necessary, relevant and valuable (*“Ek dink persoonlik dat so ’n strategie, um, baie nodig en sinvol is.” (I personally think that such a strategy is necessary and meaningful)*). They confirmed that the strategy might be valuable in promoting nurses’ competence and confidence regarding research, and added that it might also strengthen nurses’ perception of themselves as professionals (*“We must be competent enough to say: We say ...)*). Several authors (Camiah, 1997:1194; Zeelie, Bornman & Botes, 2003:6; Hackman, 2000:222) also refer to the necessity of research related strategies to bring about recognition of the nursing profession, but they focus more on strategies to improve research utilisation and strategies for education in research, indicating that the strategy proposed in this research does not focus on isolated aspects, but suggests a more comprehensive approach. Another viewpoint from literature on research related strategies is that of Kitson (1996:1647), who warns that putting too much emphasis on research alone to gain recognition for the profession

poses the risk of neglecting the equally important aspect of the practice of nursing care.

The strategy should be realistic and practice-oriented and its implementation might be a challenge and will take time

Although participants in the focus groups viewed the strategy as valuable, they questioned the feasibility and strongly emphasised that the strategy should be realistic, and should aim to benefit health care practice (*"dit klink nice op papier, 'n ideaal"* (*It sounds nice on paper, an ideal*)). Participants in the focus groups viewed the implementation of the strategy as a challenge and mentioned that it will take time (*"but to have it implemented in practice, that would be the challenge"*). These opinions are similar to the opinions of participants in the Delphi study (Du Plessis & Human, 2006b).

Furthermore, similar to the opinions voiced in the Delphi study (Du Plessis & Human, 2006b), participants in the focus groups viewed nurses as having the potential to make a significant research contribution. Nurses are seen as having the potential to make a research contribution as they play a primary role in health care and they are directly involved in patient care where they are in a position to identify trends and implement research results (*"Hulle kan tendense agterkom, op grondvlak."* (*They can identify trends at grassroots level.*)). Additionally, they have clinical skills and knowledge that enable them to judge treatment and practice (*"... and the treatment that the doctor ordered for that patient, as a nurse you'll be seeing that this is not helping."*).

Furthermore, nurses are already involved in research related activities, for instance observation and taking statistics, although they might not be aware of the research potential of these daily activities (*"They take statistics on almost everything. They have these flow sheets – that's going to be in their files. I mean, in other words they actually are already doing research."*). These views are supported in literature, by authors such as Manturo (2003:28).

Nurses should be research-minded in order to play a significant role in research

In order to fulfil a significant role in research, nurses, especially those in practice, should become more research-minded. They should have inquiring minds, question practice, be committed to be actively involved in research and take the initiative to identify research problems in practice by observing trends, and linking observations that might have professional significance (*"Nurses should have inquiring minds and identify research problems from practice, they must question practice itself."*). Watson, Clarke, Swallow and Foster (2005:1043) also express this opinion, but add that while there is a need for nurses to be research-minded, they are also expected to cope in dynamic, demanding health care settings.

Obstacles in the implementation of the strategy (Table 3, Column B)

Nurses are generally not recognised as researchers or professionals and tend not to be research-minded

A main obstacle mentioned by participants in the focus group interviews is that nurses in practice are generally not recognised as researchers, by themselves or by other professions, and they tend not to be research-minded or to be involved in research. Uys (as quoted by Webb, 1998:485) as well as Micevski, Sarkissian, Byrne and Smirnis (2004:229) share this opinion. Participants in this research explained their opinion by saying that nurses are generally not motivated to do research or to take leadership in research. Nurses seemingly have a clinical, practical aptitude rather than an aptitude for research (*"Nurses, they are doers, they are not thinkers."*).

Additionally, nurses in practice are currently not viewed as professionals or independent practitioners and are not involved in research projects as equal partners, which discourages them even further from getting involved in research (*"Verpleegkundiges word nie erken as professionele lui [nie]."* (*Nurses are not acknowledged as professionals.*); *"They tend to play a submissive role."*; *"We are not involved as equal partners, and not informed about the outcome of research."*). This opinion is verified by Dolan (1999:1009) and Uys (as quoted by Webb, 1998:486), who confirm that nurses tend to be submissive in the presence of specifically medical professionals.

The lack of research-mindedness is the result of a number of factors

Participants mentioned factors that might be both the cause and the result of a lack of research-mindedness. One of these factors are that nurses seemingly do not see research as part of their role, but view research as the responsibility of academic institutions (*"... sien dit as taak van universiteit, akademië, wag vir ander om navorsing vir ons te doen, en ons is eintlik die mense wat met pasiënte werk ..."* (... see it as the task of the university, academics, wait for others to do research for us, and actually we are the people who work with patients ...)). Furthermore, although nurses value research as necessary to practice scientifically and cost-effectively and to contribute towards their ability to engage in scientific conversations with multi-disciplinary team members, they currently do not see how research improves practice, and therefore do not regard research as something worth doing (*"[Navorsing is] soos 'n hond wat karre jaag."* ([Research is] like a dog chasing cars (achieves nothing); *"Resultate word nie geïmplementeer, indien wel sal ons belangstel in navorsing."* (Results are not implemented, if it were, we would be interested in research.)).

Another factor, mentioned in both the Delphi and the focus group studies, is that nurses in practice do not always have the necessary resources, knowledge or skills to do research. Participants in the focus groups emphasised that nurses may lack confidence to conduct or be involved in research because they perceive and fear research as something extensive

and difficult (*"Nurses lack knowledge and skills in research, all nurses at work should be empowered with knowledge and skills."*; *"... we are scared of making fools of ourselves."*; *"Ek is bang vir navorsing."* (I am scared of research.)). These obstacles are also described in literature (Olade, 2003:14; Weeks & Satusky, 2005:42), but not specifically mentioned in relation to one another as described above.

Furthermore, participants in the focus groups pointed out that nurses currently focus on surviving difficult work circumstances, namely work overload, staff shortages and lack of time, and view research as additional work for which they do not have time or energy (*"Current work circumstances are difficult."*); (*"[Daar is] eerder 'n kultuur van oorlewing, navorsing moet voorgestel word as iets wat koste en tyd spaar."* ([There is] rather a culture of survival, research should be presented as something saving cost and time.)). Pienaar (2005) discusses the difficult work circumstances of nurses, while Micevsky, Sarkissian, Byrne and Smirnis (2004:229) confirm that these difficult work circumstances limit nurses' involvement in research.

At the same time, the perception exists that nurses in management positions usually do not support nurses to conduct research, as they tend not to show interest in research and do not encourage staff members to be involved in research (*"They are just too busy to even consider nursing research."*). Olade (2004:14) also refer to this barrier, indicating that a lack of encouragement from management leads to a lack of interest in research.

Another major obstacle is that nurses who are involved in research tend not to disseminate or implement research results. A revealing result was that nurses in practice who are involved in practice-oriented research do not view it as important, or do not have the confidence to disseminate the results of research, even if they utilise research results. Furthermore, nurses who conduct research for the purpose of obtaining an advanced qualification tend to not implement results. This phenomenon is also described in the Delphi study (Du Plessis & Human, 2006). Rolfe (2001:49), on the other hand, explains that this lack of dissemination and utilisation might stem from the social sciences paradigm that the purpose of research is to develop theory, rather than to improve practice. He therefore argues that it is not necessarily because of limited research-mindedness that research is not utilised in practice, but rather that current research does not answer to the needs of the ever-changing practical context (Rolfe, 2001:52).

A further gap is that although formal training in research at undergraduate level is being offered, the importance of being continuously involved in research is not necessarily emphasised enough and interest in research is not fostered enough (*"I don't think there's enough, um, urge to the students, they don't urge students enough to be part of research, to read research, to get a bit more information."*). Participants also mentioned that there seems to be a significant gap between training in research methodology at undergraduate and post-graduate level (*"You have lost some of the basic research skills, and to start afresh, is a big, big challenge, and that is why some of us don't complete, you know, the post-graduate [education]."*).

Suggestions for the implementation of the strategy (Table 3, Column C)

In order to improve the feasibility of the strategy, participants made suggestions regarding the implementation of the strategy. These suggestions could be grouped together into suggestions on demystifying research as an entwined part of practice and as being of value, encouraging nurses to disseminate and utilise research, facilitating research-mindedness by means of research capacity building and opinions on partners with specific roles in the strategy.

Demystifying research as an integral part of practice and as being of value

Participants in the focus groups were of the opinion that research should be demystified and should be shown as being an integral part of the daily activities and professional role of the nurse, and being practically realisable and manageable. This entwinement of research within professional practice should be emphasised (*“Kommunikeer vervlegtheid” (Communicate entwinement)*). Rolfe (2001:55) also argues that theory and practice cannot be separated, and that theory and practice is mutually enhancing.

Participants further suggested that an intrinsic need to be involved in research should be stimulated (*“Research should not be imposed on you, it should come from within.”; “... need to get nurses interested in research, by raising*

awareness of the value of research to improve practice, to strengthen nurses' confidence as practitioner, and to improve the acknowledgement of nurses as professionals and researchers."). This need might be stimulated by creating awareness of the personal reward and practice value of research. Hundley, Milne, Leighton-Beck, Graham and Fitzmaurice (2000:87) also found that nurses do not appreciate the importance of research unless its value is clear to them. MacVicar (1998:1314) specifically describes the personal reward of being involved in research, namely a feeling of control, self-direction and autonomy; backing for questions; being able to speak to other professions about research; access to knowledge and keeping up to date. This implies that being involved in research might address the need of nurses to be regarded as professionals, and to be assertive in practice and in research.

Participants suggested ways to enable nurses to experience research as integral part of practice as well as to experience the value of research. These suggestions include that nurses should be encouraged to identify research problems in practice and to initiate informal research in practice, which may develop into more formal research, and that they should be made aware of the academic setting as a resource and link to the academic sector for mentorship and support ("*... needs support in interpretation, analysis of findings*"; "*... then link interdisciplinary and work together*"). Research approaches that might be followed to illustrate the feasibility and value of research in practice include quality assurance, action research and case studies. The dissemination and utilisation of research results should be emphasised, to ensure that the importance of research in improving practice

is communicated, and interest and positive attitudes are nurtured: "*I think the sooner also that [research] presentations happen, the better, because that is going to make us see how important is research.*"). Rolfe (2001:56) supports this view, while he also emphasises that this type of approach is only possible if partnerships exist between the academic setting and practitioners.

Encouragement of nurses to disseminate and utilise research results

Participants in the focus groups emphasised, more than in the Delphi study, that the dissemination and utilisation of research conducted by nurses should be encouraged at practice level, to further create a mind shift that research could be part of everyday practice, as well as to make other members of the multi-disciplinary team aware of the nature and value of research conducted by nurses.

Practical suggestions by participants on how to achieve this are described in Table 3 (Column C). Guidance in dissemination and utilisation should include scientific writing workshops and raising awareness among nurses in practice of the importance of documenting research. Furthermore, nurses should not wait to be invited to disseminate and/or implement their research, but should initiate this and even market their research and their expertise in research. Research results should not only be disseminated in academic nursing journals, but also in medical journals, and in lay terms in more informal publications. Media such as radio and television should also be used. Presentations of research to nurses in practice and the general public should

be practice-oriented and not high-sounding. Similar suggestions are made in the Health Research Policy of South Africa (SA, 2001:16).

Nurses should also be encouraged to conduct research with the intention of implementing the results – and not only to focus on attaining qualifications – as well as to evaluate the impact of implementing research findings by means of follow-up research. Estabrooks, Floyd, Scott-Findlay, O’Leary and Gushta (2003:517) and Zeelie *et al.* (2003:9) support this view.

Facilitating research-mindedness by means of research capacity building

While participants in the Delphi study mentioned research capacity building in practice, at undergraduate level, post-registration level and post-graduate level (refer to Table 2), participants in the focus groups mainly focussed on research capacity building at undergraduate level. This may point to the current need expressed by the focus group participants, namely that attention should first be given to preparing undergraduate students as research-minded nurses.

It seems that participants in the focus groups emphasised that research capacity building should specifically aim to instil research aptitudes, as explained in the following discussion.

Two groups of participants in the focus groups mentioned that a research-mindedness might already be instilled at high school level by means of the outcomes-based teaching approach that is currently followed in the education sector and by creating and encouraging research as a career option (*"You can even at school level you can try to promote research."*). This seems to be a unique finding in the context of this research.

Participants expressed the need that nurse education at undergraduate level should specifically promote newly qualified nurses' commitment to the profession, as well as practice-oriented research (*"So, it's really necessary for all the education institutions to really put some more emphasis on the role of research also for the betterment of patient care."*). Rolfe (2001:176) confirms that nurses in practice need nurses in education to provide a research course with a strong clinical base.

Several practical suggestions were made regarding education in research at undergraduate level. These include the following:

Research should be integrated into nursing curricula. From the first year of training, research related concepts, such as questioning, observation, improvement of patient care and identifying research problems in practice, should be fostered. Students should also be equipped with language skills, skills in literature searches, scientific writing skills and computer skills. It should be a requirement that students should have completed a research project of limited scope on completion of the undergraduate programme in

nursing (*“En dat hulle voor hulle hier uitstap dit [navorsing] wel doen, maar dit moet lekker wees.”* (And that they, before they go [complete the undergraduate programme] do it [research], but it should be enjoyable.”). Zeelie *et al.* (2003:4-11) formulated standards for nursing education in research, and the above-mentioned opinions are similar to these standards.

Some participants in the focus groups suggested that it might be a more positive experience for students if the research project evolves from student nurses' involvement in practice, and if it forms part of both the theoretical and practical requirements of the curriculum, allowing them time for the completion of the project. MacVicar (1998:1307) describes a similar approach, and argues that such an approach leads to the perception of research as being merged within practice, giving meaning to being involved in research.

Further practical suggestions were that approaches that might stimulate research-mindedness, such as problem-based teaching, should be considered, as nursing education should stimulate the identification of relationships and trends. Furthermore, in teaching research as a subject, the theory of this module should be presented simultaneously with the execution of the research project expected of students, so that they can equip themselves with theoretical knowledge while executing the research process. The rationale for conducting research should be clarified with the students, and the “success stories” of research, demonstrating the professional and personal reward of research, should be shared with students. Nurse educators should be up to date with newest trends in their subject and

communicate these with students, and convey enthusiasm regarding research. Students should also have an opportunity to present their research results, as part of learning and motivational opportunities.

In formal research training programmes, whether at undergraduate or post-graduate level, the programme should be well structured and organised, expectations should be clarified and communication between facilitators as well as between facilitators and students should be clear (*"The way they're organised in a programme, some of the things are very, um, it's not structured ... sometimes there are expectations that you can't really meet."*). In addition, there is a need for a preparatory stage, such as a workshop or a bridging course to clarify expectations and perceptions and to reinforce basic research knowledge and skills. A similar opinion was raised in the Delphi study, namely that the honours level should be re-introduced in nursing programmes (Du Plessis & Human, 2006b).

Partners in the strategy should fulfil specific roles

Participants' opinions on key role players, collaborative efforts and approaches (refer to Table 2), as well as on ownership of the strategy (refer to list of open-ended questions) could be grouped together to form this category of results about partners in the strategy (refer to Table 3, Column C). Participants were of the opinion that a number of partners should be involved in the execution of the strategy. These partners have specific roles and include nurses in the academic setting, clinical facilitators, nursing

management in the practice setting, research committees, members of the multi-disciplinary team and relevant corporations.

The nurse in the academic setting (research supervisor/nursing educator)

The proposed strategy indicates that the nurse in the academic setting should be a key role player in the strategy (refer to Table 2). Participants in the focus groups agreed with this suggestion, and a recurrent theme was that the research supervisor/nurse educator should initiate the implementation of the strategy. Participants suggested that a starting point should be that nurses in academic settings should reach out to nurses in practice, including those working in academically isolated health facilities, to raise awareness regarding research, to demystify research and to identify and partner with groups/individuals who are already interested in research (*"They should not only reach out to nurses in academically isolated hospitals but also to research-active groups in practice."*). They should reach out in such a manner that the nurse in an academic setting should become involved in practice as equal members of the health care team. This will enable them to identify research problems and to nurture practice-oriented research. Murphy (2000:705-706) agrees that the nurse in the academic setting should liaise with nurses in clinical practice, also indicating that, mutual trust is a prerequisite for collaboration.

Additionally, participants in the focus groups confirmed the findings of the Delphi study (Du Plessis & Human, 2006b) that nurses in academic settings,

whether they act as research supervisors or nursing educators, play an important role as mentors in research (*"Adequate mentorship is the key for the development of any person."*). According to participants this role should facilitate the motivation of nurses in clinical settings to be involved in research and to support them (*"Then [her] motivation it's what pushed me, then I said really if other people see the potential in me to develop, why should I say I'm not doing his, so let me go for it ..."*). It also involves a responsibility to nurture positive attitude towards research and a research aptitude, including breaking the fear surrounding research. Nurses conducting research need to experience that the research supervisor/nurse educator, as someone who has knowledge, skills and insight in research, is available to them for respectful guidance and support. Uys (as quoted by Webb, 1998:485) adds that fulfilment of the role of mentor contributes to the creation of an environment in which research is encouraged.

Furthermore, nurses in the academic settings should act as role models by being actively involved in research themselves and by facilitating the implementation of research findings (*"He or she should do research in order to be able to teach research."*). They therefore need to be empowered to fulfil this role. Participants suggested that a research forum or committee might be formed to support these role players.

Clinical facilitator

The clinical facilitator – a nurse working in practice as well as guiding nursing students in practical settings – is also seen as an important role player in improving the involvement of nurses in research. This partner acts as a role model for nursing students with regard to nursing care, but also with regard to being research-oriented. The clinical facilitator might fulfil this role, as he/she has contact with both the academic and practice settings (*“Ja, as ons saam met die kliniese begeleiers die prakties doen, en nie net die teorie nie ... as ons ingaan en navorsing doen dat hulle ons daarmee help ...”* (Yes, when we do practicals together with the clinical facilitator, and not just the theory ... when we go in and do research that they help us ...)). This suggestion was made by undergraduate students, but not specifically mentioned by clinical facilitators themselves. A similar opinion found in literature is that there should be liaison between the teacher and practitioners to create a good learning environment (Murphy, 2000:712).

Nurses in management roles in the clinical setting

According to the participants, nurses in management roles in the clinical setting should play an important role in the strategy in creating an environment conducive to research, by fostering research interest and open relationships with staff members. This might encourage nurses to be interested and involved in research (*“... to have nursing managers promote research amongst their own staff members”*). Specific suggestions included

that regular, structured communication between nurses in the academic sector and nursing management is necessary and that a manager in a particular health care institution, who has interest in terms of research, should be identified as a leader to promote research in that institution. Such a leader could act as a mentor in practice, and not only focus on administrative tasks, but also act as role model in improving patient care. Health care institutions should take responsibility to keep staff members up to date with current information, for instance by means of in-service training. Similar opinions were found in literature (Olade, 2003:14; Camiah, 1997:1198). Hundley *et al.* (2000:87) specifically describe the value of creating an enabling environment, as it creates opportunities for the value of research to be communicated, as well as sensitivity for staff morale and commitment.

Research committee

Existing research committees or envisaged research committees are viewed by participants as important partners in encouraging nurses to be involved in research by demystifying research and raising awareness about research. (*"I think that it's very clear that we [research committee] want to really, the various, you know, tactics, you know, of raising the profile around research."*). Research committees might also be useful as vehicles for the dissemination and utilisation of research; and they might have a positive influence on the implementation of results (*"Ideally spoken we want to see the [committee] having lots of influence in the implementation of research and the better of things."*), for example by creating and maintaining databases of all health-

related research in a specific geographical area and by using these databases to inform health care institutions, preferably after translating research findings into practical guidelines. They could also provide an environment where policy decision making could actually be based on research findings. They should communicate funding opportunities to nurses in practice and play a role in research capacity building. The Health Research Policy of South Africa (2001) prescribes the formation of research committees on provincial level, with similar tasks as suggested by the participants in this research.

Multi-disciplinary team members

The multi-disciplinary team has a role to play, specifically in collaborative research related efforts. Participants in both the Delphi study and the focus group study viewed collaborative research as being feasible, valuable and as providing opportunities for mentorship, funding and development of nurses as researchers. Research in a multi-disciplinary milieu was also seen as an opportunity for promoting recognition of nurses as equal research partners, learning about each other's roles and developing appreciation for each other's knowledge and skills (*"And this collaborative approach will also bring people into recognising our profession as also making a big contribution because if we then have that collaborative approach, we go to him, we present what we are doing, what have been doing, so they can see we are improving our practice and we are here to stay."*). Several authors support the idea of collaborative research related activities (Uys, as quoted by Webb, 1998:485; Olade, 2003:14).

Participants in the focus group also emphasised the importance of nurses to take responsibility to initiate collaborative research, to delineate roles in such research and to be assertive regarding their own inputs in this research. This approach might limit the risk that nurses are only involved as field workers, and not as recognised researchers, as pointed out in the Delphi study (Du Plessis & Human, 2006b).

Corporations

Another suggestion, although not emphasised by participants in the Delphi study (Du Plessis & Human, 2006b), was that nurses should collaborate with corporations to conduct research which leads to the development of products that might be used to improve practice. These products might generate funds, promote the recognition of nurses as researchers and demonstrate the value of research (*“... letterlik ‘n behoefte wat daar bestaan korporatief saam met daardie maatskappye navorsing doen, en dit in ‘n produk terugploeg.”* (... literally a need that exists corporately do research together with those companies, and plough it back as a product.). This suggestion was only mentioned in two focus group interviews, but it will be useful to explore this concept further.

CONCLUSIONS

Conclusions could be drawn by synthesising the results of the Delphi study (proposed framework), the findings obtained through focus group, field notes made during and after the interviews and the literature control. Two broad themes emerged, namely the conclusions on (i) the value of the particular research methodology and (ii) conclusions on the proposed strategy and its implementation.

Additionally, a prominent research theme in the Southern District of the North West Province could be identified, namely that nurses currently experience difficult working conditions and are concerned about the future of the nursing profession, while there is a lack of communication between nursing management, nursing staff and the academic sector as a support system.

The value of the research methodology

This discussion of the research methodology specifically refers to the value of using particular groups who participated in the research, as well as the data gathering technique, namely focus group interviews.

Individuals in groups, as well as groups as a whole, participated enthusiastically and made meaningful, practical suggestions. However, it was observed that they tend to see the strategy to improve nurses' research contribution as idealistic, and did not offer to share ownership to initiate such a

strategy. This phenomena is described by MacVicar (1998:1310-1313) as a “pre-merged” state, which exists when nurses have not experienced the practice value of research and have not cognitively merged the integrated nature of research and practice and/or realised the importance of research to improve practice.

Furthermore, it was noted that group dynamics are a determining factor in groups’ attitude towards research and the willingness to conduct research as a group. It seemed that group dynamics such as group cohesion (both enmeshment and limited trust) and group atmosphere (underlying conflict) could possibly derail groups from being task focussed. It was observed that group dynamics such as trust and shared experiences in being involved in research as a group contributed to a more positive attitude towards research.

The use of focus group interviews as a method of verifying the feasibility and acceptability of the strategy to improve nurses’ contribution to research also proved to be significant. This method not only served as a data gathering method, but also created opportunities for groups to ventilate feelings, it stimulated interest in research and some participants remarked that their perceptions regarding research – especially regarding research as something extensive and difficult – changed. The focus group interview in itself proved to serve as a valuable tool in the implementation of the strategy, specifically in the initiating phase.

Conclusions on the proposed strategy

Cyclic nature of the strategy

It is clear that the barriers to the strategy are also the factors that illustrate and confirm the necessity of the strategy. It is also clear that the commitment of relevant stakeholders to the strategy needs to be obtained. These aspects imply that the strategy needs to be cyclic in nature, spiralling from a focussed, contextual starting point, to a wider platform through repetitive cycles of (i) building partnerships within which research related activities are executed and the results implemented and experienced positively, creating mind shifts and commitment regarding research, and (ii) communicating these research results and the value of research to a wider audience, (iii) creating further partnerships and obtaining further support for the strategy.

Initial focus

The initial focus of the strategy should be that nurses in academic positions should reach out to and build partnerships with other nurses in academic positions, nurses in management positions and research committees by creating forums for discussion. Specific tasks might include building trust; clarifying expectations; roles; needs; misunderstandings; and perceptions regarding research in order to formulate objectives and align perceptions of research as being an integral part of nursing practice and being cyclic in nature. This cyclic nature refers to the process of conducting research,

disseminating and translating research results, implementing research results and conducting research on this implementation, in order to promote the impact of research in health care. This cyclic approach should be expected as the standard practice in research.

Another task may be the empowerment of these partners in research methodology and/or research supervision. This might take place simultaneously with a further task, namely identifying research problems in practice, conducting collaborative research (initially informal and limited in scope), assisting in the translation and implementation of results and conducting follow-up research. The shared experience of this research might lead to a commitment to research within these initial partnerships. Furthermore, the communication of the impact of this research in improving practice as well as the communication of partners' positive experiences might create the opportunity for further partnerships on a similar or wider level.

Obtaining commitment to and support for a strategy to promote nurses' research contribution

The described cycle might lead to wider commitment to and support for a strategy to promote nurses' research contribution, allowing for the collaborative formulation of a vision and objectives for such a strategy. These objectives should focus on creating research awareness among nurses, as well as creating an environment within which nurses are encouraged and enabled to be involved in research.

Creating research awareness should include research preparation of nurses in practice, as described in the initial focus of the strategy. It should also include preparing research-minded nurses by means of a research-based nursing curriculum, specifically in undergraduate programmes.

The creation of an environment conducive to research by nurses should include providing infrastructure and support, research capacity building, mentorship and encouragement by partnerships of nurses in academic and management positions, and encouragement of practice-oriented, cyclic research.

Outcome of the strategy

The outcome of the strategy should be that nurses experience the personal reward and practice value of research, and are motivated and equipped to be involved in research, leading to meaningful research involvement by nurses. This meaningful involvement should be disseminated and results implemented in a way that demonstrates the significance of research by nurses, contributing to the recognition of nursing as a profession.

SIGNIFICANCE OF THIS RESEARCH

Although broad guidelines for strategies to promote research exist at national and international level, not one of these strategies describe the specific

coordinated processes that should be followed within a specific context, and this research is significant in this respect. The proposed strategy (refer to Table 2) could also be refined – as described in the conclusions – in preparation of the implementation of the strategy in the Southern District of the North-West Province.

RECOMMENDATIONS

Recommendations for practice, education and research are integrated in the discussions on the results and conclusions. It is foreseen that these recommendations will be implemented in the Southern District of the North West Province as a strategy to promote nurses' research contribution, and that further research will be conducted on the implementation and the outcomes of the implementation.

The authors would like to encourage wider implementation of the recommendations of this research, and welcome critical comments and feedback.

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Table 1: Participating groups

Health research committee (Provincial Department of Health)	6 members: doctors, professional nurses in management and education positions, members of the Knowledge Management Department and a representative of the university's Faculty of Health Sciences. These members have varying levels of expertise in research.
Nurse academics at the university's nursing department	8 members (professional nurses): both novice and experienced researchers. These members are expected to conduct own research, supervise post-graduate students and teach research methodology.
Nurse educators at the nursing college	4 members: experienced nurse educators with little experience in research, although they are expected to teach research methodology.
Clinical facilitators at the university's nursing department	4 members: professional nurses in practice who are also working as clinical facilitators for undergraduate students. These nurses have little experience in research.
Undergraduate nursing students at the university's nursing department	6 members: fourth year nursing students who have to complete a research project as part of their curriculum.
Undergraduate nursing students at the nursing college	6 members: fourth year nursing students, who received an introduction to research as part of their curriculum.
Post-registration students at the nursing college	20 members present, as the whole class (health assessment, treatment and care) volunteered to participate, mainly 8 members participated verbally, while all members participated non-verbally (minimal verbal responses, nodding or shaking heads). These students are expected to complete a research project of limited scope. They are professional nurses practising in primary health care, with little experience in research.
Post-graduate students at the university's nursing department	5 members: professional nurses at the beginning phase of post-graduate studies. They have limited experience in research.
Multi-disciplinary research team at the university's Faculty of Health Sciences	4 members: academics from schools of social work (3) and physiology (1). All are experienced researchers.
Multi-disciplinary team practising in the Southern District of the North West Province	7 members, 4 medical doctors, 2 pharmacists, 1 dietician. Except for one member (medical doctor who also practice as mentor, research supervisor and lecturer) these members have little experience in research. This team also comprises professional nurses in management positions, but they were absent on the day scheduled for the interview.
Nurses practising in the Southern District of the North West Province	15 members: professional nurses in management positions (unit managers, nursing service managers) practising at a private hospital. Nine members participated verbally, all participated non-verbally. They have limited experience in research.

Table 2 A proposed strategy to promote nurses' research contribution

<p>Vision</p> <p>The vision of the strategy is that nurses make a significant contribution in health research, by engaging in relevant, high quality research that leads to:</p> <ul style="list-style-type: none">▪ improvement of the discipline of nursing;▪ improvement of health and health care;▪ personal and professional development of nurses;▪ refinement of research methodologies;▪ recognition of nurses as researchers;▪ recognition of nurses as leaders in research; and▪ recognition of health research conducted by nurses.
<p>Objectives</p> <p>The objectives of the strategy are to promote the significance of the contribution of nurses in health research by means of the following:</p> <ul style="list-style-type: none">▪ promoting nurses' level of competence, confidence and motivation regarding research;▪ increasing the degree to which a focused, coordinated and collaborative effort is followed; and▪ promoting the dissemination and utilisation of research.
<p>Key role player</p> <p>The research supervisor / educator might play a key role, acting as a research leader and mentor for developing researchers.</p>
<p>Approaches</p> <p>Research capacity building at undergraduate, post-basic, post-graduate and practice level.</p> <p>Building partnerships to create cross-functional, multi-disciplinary, multi-sectoral teams who:</p> <ul style="list-style-type: none">▪ conduct collaborative research;▪ promote and advocate for health research; and/or▪ design and implement evidence-based practice strategies.

Table 3: Results of the focus group interviews

A. Opinions on the strategy	B. Obstacles in the implementation of the strategy	C. Suggestions for the implementation of the strategy
<p>The strategy is seen as necessary, relevant and valuable, as it might promote nurses' competence and confidence in research and contribute to the recognition of nurses as professionals</p> <p>The strategy should be realistic and practice-oriented and its implementation might be a challenge and will take time.</p> <p>Nurses have the potential to play a significant role in research. In order to fulfil this role, nurses should be research-minded.</p>	<p>Nurses are generally not recognised as researchers or even as professionals, and they tend not to be research-minded or to be involved in research.</p> <p>The lack of research-mindedness is the result of a number of factors, which at the same time further strengthen the limited research-mindedness. These factors include the following:</p> <ul style="list-style-type: none"> • Nurses do not see research as part of their role; • Nurses do not see the value of research in practice; • Nurses do not always have the knowledge, skills or resources to do research. • Nurses fear research as being difficult and lack confidence to get involved in research. • Nurses focus on surviving in difficult 	<p><i>Demystifying research as an integral part of practice and as being of value</i></p> <p>An intrinsic need to be involved in research should be stimulated by creating awareness of the value of research; and by demystifying research as being an integral part of the role of the nurse and as feasible.</p> <p><i>Encouraging nurses to disseminate and utilise research results</i></p> <p>The following should be encouraged at practice level, to further facilitate mind shifts about research as integral part of the role of nurses, as well as to improve the recognition of research conducted by nurses:</p> <ul style="list-style-type: none"> • Guidance should be given to nurses regarding dissemination and utilisation of research. • Nurses should take responsibility to initiate the dissemination and utilisation of their own research. • Nurses should disseminate their research in an accessible way to nurses in practice, the academic sector and the public as beneficiaries of research. • Nurses should be encouraged to utilise research results as well as to conduct research with the intention of implementing the results and conducting follow-up research on the implementation.

	<p>work circumstances, rather than on research;</p> <ul style="list-style-type: none"> • Nurses are not encouraged by nurses in management positions to become involved in research; • Nurses tend not to disseminate and/or implement research results; • Formal training in research at <i>undergraduate and post-registration</i> level is being offered but does not emphasise the importance of being involved in research and does not foster interest in research. 	<p><i>Facilitating research-mindedness by means of research capacity building</i></p> <ul style="list-style-type: none"> • This process might already start at high school level. • Nurse education at undergraduate level should specifically promote newly qualified nurses' commitment to the profession, as well as practice-oriented research. This might be achieved by means of the following: <ul style="list-style-type: none"> ▪ Research should be integrated into nursing curricula, from the first year level, where research related concepts should be introduced, to the final year, where students should be expected to complete a research project of limited scope. ▪ Approaches in nursing education and in teaching research as a subject should stimulate research-mindedness and interest. • In formal research training programmes, whether at undergraduate or post-graduate level, the programme should be well structured and organised, expectations should be clarified and communication between facilitators as well as between facilitators and students should be clear. • There should be a preparatory programme before nurses enter the post-graduate programme. <p><i>Partners in the strategy should fulfil specific roles</i></p> <ul style="list-style-type: none"> • Nurses in the academic setting should initiate the implementation of the strategy. They play an important role as mentors for developing
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		<p>researchers. They should be involved in practice in order to identify relevant research problems and conduct research on these problems in collaboration with nurses in practice. They should be empowered to conduct, teach and supervise research. A research forum/committee to support these role players should be created.</p> <ul style="list-style-type: none">• The clinical facilitator might play an important role as a link between practice and the academic institution.• Nurses in management positions in the clinical practice setting should promote research interest among own staff members and empower nurses to do research by being involved in research and by creating open relationships with staff members and working environments in which nurses are enabled to conduct research.• Research related committees are needed as important partners in enabling nurses to be involved in research by providing infrastructure and resources, and as partners in the dissemination and utilisation of research.• Collaboration with multi-disciplinary team members is necessary and feasible. It provides opportunities for mentorship, funding and the recognition of nurses as equal research partners. Nurses should initiate research related collaboration with multi-disciplinary team members.• It seems that research in collaboration with relevant corporations should be considered, as this might lead to patents and products that make a visible difference in practice.
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Conclusions, limitations of the research and recommendations for a strategy to promote nurses' research contribution

Conclusions, limitations of the research and recommendations for a strategy to promote nurses' research contribution

1. Introduction

In the preceding manuscripts the realisation of each phase of the research, research results, conclusions and recommendations were described. These results, conclusions and recommendations were synthesised, and are presented as the conclusions and recommendations derived from this research project. Limitations of this research are also discussed.

2. Limitations of this research

This research was limited by the following factors:

In phase 1 of the study, using the Delphi technique, the questions posed to the participants in the questionnaire were formulated as comprehensively as possible with the aim of stimulating new ideas and generate innovative inputs. This resulted in long questions that required careful reading and in-depth thinking from participants which created some reluctance to participate, even though the rationale for this decision was explained. The response rate might have been higher if shorter statements were used. In spite of this limitation, prominent leaders in research did indeed agree to participate, implying that they, as experts in research, viewed the research as of value and of an adequate standard.

Additionally, the use of the Nexus database during phase two of the research, in absence of other reasonably reliable resources, limited the data that could be used to compile a profile of research conducted by nurses, because the Nexus database mainly list research projects conducted in institutions of higher education. It is therefore acknowledged that valuable research may have been excluded from the study.

A third limitation is that the role of ethical aspects in the proposed strategy has not been fully explored. Further research on this aspect will be valuable.

3. Conclusions

The results, conclusions and recommendations of each of the three phases of the research, namely (1) Delphi study, (2) Focus group interviews and (3) Nexus database research profile, were considered, and synthesised into overall conclusions and related to the overall goal and objectives of the research. Table 1 illustrates the outline used in synthesising the findings and provides a summary of the findings in terms of leadership, partnerships, relevance, capacity building, methodology, the research environment and the dissemination and utilisation of research findings. Table 1 also contains specific conclusions on each of these aspects. Overall conclusions are discussed below.

3.1 A definition of “nurses’ research contribution”

As mentioned in the overview of the research (refer to “Overview of the research”), the following operational definition for “nurses’ research contribution” could be formulated based on the inputs of and discussions by key role players in nursing research: *The research contribution of nurses entails the degree to which nurses, in a coordinated effort and within a research-supportive environment, conduct relevant, high quality research, disseminate and implement research results and evaluate the impact of research, in order to improve health and health care.*

3.2 The development of a strategy to improve nursing research and its contribution to science

A strategy to promote nurses’ research contribution evolved throughout the study. From the outset of the research, core aspects that should form part of a strategy to promote nurses’ research contribution were clear. These core, but separate elements were initially identified during the literature study (refer to

manuscript 1). During the Delphi study, links between these core elements evolved and the first draft of a strategy to promote nurses' research contribution (refer to manuscripts 4 and 5) could be formulated.

During the successive focus group interviews (phase 2 of the research) the integration of these core aspects into a cyclic process developed. This cyclic process of the strategy is similar to the strategic management process as described by Pearce and Robinson (2000:3), namely that decisions and actions are reviewed, resulting in the formulation and implementation of ensuing plans designed to achieve objectives.

The conclusions based on the findings of the profile of research by nurses in South Africa (refer to manuscript 2), enriched the elements and processes of the developing strategy with regards to

- promoting relevance in research conducted by nurses;
- the specific research methodology that needs to be followed; and
- dissemination and utilisation of research.

3.3 The marketing and implementation of the proposed strategy to improve nursing research

It was evident from the focus groups and the Delphi study that a strategy to promote nursing research should be effectively marketed to obtain support and ensure implementation.

4. Recommendations for practice, education and research

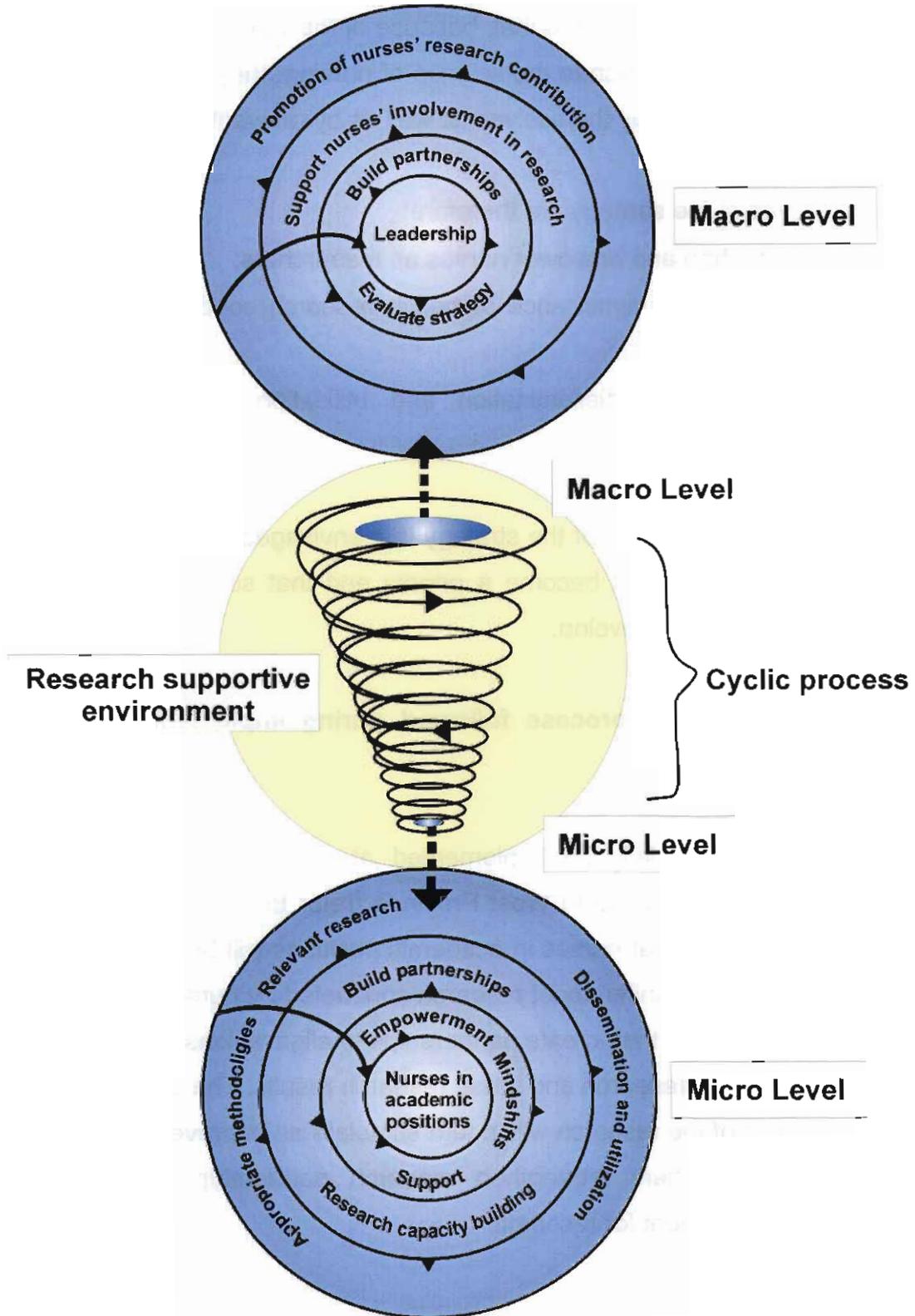
Recommendations for practice, education and research are presented in an integrated way with the aim to promote nurses' research and its contribution to nursing science. The proposed strategy is discussed in detail and topics for further research are suggested.

4.1 A strategy to promote nurses' research contribution

A strategy to promote nursing research and increase the contribution of this research to nursing science was formulated based on the findings of the literature study and the three phases of this research. A framework for the formulation of a strategy by Pearce and Robinson (2000) was incorporated in the development of the proposed strategy.

The overall outcome for the strategy is presented. The cyclic process of the strategy, spiralling from the micro to the macro level, is also discussed, followed by a discussion on the approaches at micro and macro levels. A graphic presentation of the proposed strategy is provided in Diagram 1.

Diagram 1: A strategy to promote nurses' research contribution



4.1.1 Overall outcome of the strategy

The envisaged outcome of the strategy is that an increased number of nurses will be involved in research and that, because of the valuable contribution and the impact of their research to the science of nursing, they are recognised as esteemed researchers by themselves as well as by relevant stakeholders.

The objectives of the strategy are therefore:

- to strengthen and empower nurses as researchers;
- to improve the significance of health research conducted by nurses; and
- to improve the dissemination and utilisation of health research conducted by nurses.

During the implementation of the strategy it is envisaged that health research conducted by nurses will become a priority and that support structures for nurse researchers will develop.

4.1.2 The suggested process followed during implementation of the strategy

The strategy will initially be implemented at micro level, namely in the Southern District of the North West Province (refer to manuscript 5). At this level it is envisaged that nurses in academic positions will be empowered as leaders and mind shifts about research conducted by nurses be facilitated. Research leaders will then create partnerships to align visions about research, to conduct relevant research and utilise research results. The significance and positive impact of the research will in turn stimulate an improved perception of nurses as researchers, strengthen research partnerships and foster a supportive environment for research.

Parallel to this process, research capacity building at informal, undergraduate, post-registration and postgraduate levels takes place, to foster research-mindedness and involvement in significant research.

The creation of a research-supportive environment in order to conduct relevant and significant research through availing of resources, infrastructure, support and encouragement is important. Resources necessary include access to information and funding, as well as support from managerial bodies in institutions where research might be conducted. The implementation of the proposed strategy may contribute to the creation of a research-supportive environment by forming partnerships and creating common goals and visions for research.

This emphasises the need to initially implement the strategy at micro level and to use the “success stories” of the value of research in practice and theory to motivate for the need for research and to obtain cooperation and support.

Specific approaches in this process are subsequently discussed in more detail.

4.1.3 Approaches to follow during implementation of the strategy at micro level

The significance of the following specific approaches to implement the strategy may be that aptitudes, attitudes and skills that promote nurses' research contribution are developed and that a research-supportive environment evolves.

The various approaches are discussed in more detail:

4.1.3.1 Developing a strong research profile of nurses in academic positions and developing research leaders in nursing

Nurses in academic positions play an important role as supervisors of nursing research. As nurse educators they can contribute greatly to implement the proposed strategy and to foster research-mindedness and develop research skills. This implies that nurses in academic positions should themselves have (or obtain) the necessary research skills, buy in to the proposed strategy and illustrate a commitment to implement and facilitate the strategy to improve nursing research.

These role players should be strengthened in their specific roles as research supervisors/nurse educators, by strengthening their research profile, so that they act as role models in research. This could be achieved by means of the following: Their capacity to conduct research should be strengthened, and they should develop as leaders in research in order to gain confidence and recognition as researchers. Their research profile could also be strengthened by means of post-doctoral research, being involved in collaborative research, re-training in research methodology and advanced methodology courses, research supervision courses as well as developing leadership skills. Research forums might be created for support and research capacity building.

Strengthening these key role players' research profile will not only enable them to act as mentors and role models for novice nurse researchers but also to build partnerships, to create research teams in practice, or to become part of existing research teams and play a leading role in these teams to advocate for the promotion of research conducted by nurses.

4.1.3.2 Following a team approach and building partnerships

Research will be strengthened when the nurse in an academic position who has an aptitude for promoting the significance of research conducted by nurses would partner with other nurses in academic positions. This academic may reach out to nurses in management positions and nurses in clinical

practice, and build partnerships that will foster positive attitudes towards research among senior nursing staff, foster research-mindedness amongst nurses in practice, create a safe environment conducive to research and lead to a greater involvement in research by nurses outside the academic setting.

The process of building partnerships should aim to facilitate readiness to be involved in research and to conduct research.

- ***Facilitating readiness to be involved in research***

After reaching out to nurses in management positions in practice and nurses in clinical practice, focus group discussions should be held. These discussions should aim to determine the target group's perception of research; research problems in practice; as well as to determine and facilitate group cohesion as an indication of readiness to conduct research. Specific tasks in conducting these groups might include building trust; clarifying expectations, roles, needs, misunderstandings, and perceptions; in order to align perceptions and expectations and to formulate collaborative objectives. This target group might need support in other, more profession-related aspects, such as advocacy and linking this target group to relevant resources, before they will be ready and willing to be involved in research. Partnerships with other members of the multi-disciplinary team, in both academic and practice setting, and with existing research committees should therefore also be formed or strengthened if already in existence, as resources in addressing these needs.

- ***Conducting research***

During the process of facilitating readiness to be involved in research, research problems should be identified. Thereafter a research project should be initiated (preferably by means of a research method which might directly influence practice, and with which nurses are familiar, for instance quality assurance), results disseminated and utilised and research continued on the impact of this results. Partnerships with other stakeholders which can be

utilised as resource persons will also be beneficial in the execution of these projects. This research project should then be marketed as a success story and shared with other members of the health team, research committees, other nurses in academic positions, on a wider level, in order that further leadership, interest, confidence and a positive attitude towards research is fostered, and further such cycles of research and research dissemination and utilisation can be initiated, so that the strategy eventually reaches the macro level.

4.1.3.3 Building research capacity among nurses

In a process parallel to and integrated with building partnerships, key role players in the strategy should build research capacity amongst nurses. Research capacity building should strengthen nurses as researchers and improve the significance of research conducted by nurses. Research capacity building programmes, including creating research awareness, informal training and formal training should be developed and/or revised according to the specific objectives in promoting nurses' research contribution.

The objectives of these programmes should include the following:

- Encourage involvement in research in order to build research skills and foster a positive attitude and confidence to be involved in research:
 - Fostering critical thinking, creative thinking, questioning attitudes, problem-solving skills, research based learning;
 - Developing research skills by exposure to a variety of research methodologies and involving nurses in research;
 - Clear communication of what research entail;
 - Communication of research as rewarding; and
 - Emphasising nurses' potential and unique skills to act as researchers.

- Encouragement of research that impacts on health and health care:

- Encouragement to conduct research that directly influences clinical practice;
- Encouragement to conduct research in areas of health, not defined by discipline but by topic, with the aim to develop a discernable body of research on specific focus areas;
- Encouragement to conduct both qualitative and quantitative research; and
- Encouragement of follow-up research and translational studies, leading to depth and continuity.

Research capacity building should take place by means of informal and formal training.

Specifically, *informal training*, such as in-service training and short courses, should include training in writing skills, reading scientific material, critical thinking skills, questioning practice and identifying trends, basic research methodology skills and skills in quality assurance as a research methodology. A manual for such a short course is being planned, with nurses in practice, undergraduate nursing students and post-registration students as target groups. This short course might also be used as a preparatory module for the master's degree, answering to the need for an orientation phase between the basic and post-graduate nursing programmes.

In *formal training*, research should be an emphasised part of *undergraduate education*, as this will serve as a basic building block to instil a research culture and critical thinking skills, to develop nurses' potential to conduct research, to foster interest and a positive attitude towards research, producing research-oriented nurses who are confident to be involved in research and to apply research. The undergraduate nursing curriculum should thus be revised so as to emphasise research as an integral part of nursing. Research should be emphasised from the first year of training, and a research project should be completed by the final year of training in such a manner that students experience that research follows from practice, strengthening the perception of research as being merged with practice. A similar process is described by

Wright (2005:4-10). Specific suggestions for undergraduate training are discussed in manuscripts four and five.

Research at *postgraduate level* should aim to improve practice. During *postgraduate education* a research orientation to improve practice should thus be encouraged and postgraduate candidates' rationale, motivation and commitment to conduct research should be investigated. Opportunities for postgraduate education should be expanded. Research focus areas should be developed by research supervisors, so that thematic research is conducted by postgraduate students, contributing to a discernable focus in research conducted by nurses. Postgraduate students should be encouraged to use creative, in-depth research methodologies.

In *undergraduate, post-registration and postgraduate education*, the nurse in an academic position should be oriented towards research through teaching nursing subjects, and competent and enthusiastic in teaching research methodology and supervising research. He/she should also act as a *mentor*, by being available for respectful guidance and support.

In this case, *availability* refers to having enough time within a structured programme to let developing researchers feel free to contact the nurses in an academic position for help, knowing that they are entitled to help from him/her. *Respectful guidance* refers to this nurse giving enough information and guidance so that time is not wasted and the developing researcher is not demotivated by the supervisor's attitude, and so that the supervisor will refrain from forcing the developing researcher to change the research topic or alter findings to suit the supervisor's needs. *Support* refers to more structured, rigid guidance in the beginning, following a "weaning" process of giving more responsibility to the developing researcher to function independently.

4.1.3.4 Creating research awareness

Research awareness among nurses in practice should be purposefully created, while it might also be a spontaneous outcome of the implementation

of the strategy. Specific actions to create research awareness should include reaching out to nurses in practice, being available as a resource and supportive person during research projects, increasing involvement in practice-oriented research, communicating research results to them in a practice-oriented manner, and encouraging them to disseminate and utilise research results. Awareness should be created through research-related tasks that are already being implemented in practice and that can, with more effective structuring, be converted into valuable and meaningful research. Workshops to enhance research skills should be facilitated with groups of nurses to foster awareness, build research skills and to develop potential leadership in research. Research workshops may also serve as recruitment of postgraduate students.

Creating awareness about research and the value of research will result in

- demystifying research and diminish the “fear” of research;
- facilitating the experience of personal reward and professional value of research; and
- motivating nurses to be involved in research with confidence and on a continued basis.

4.1.3.5 Promoting the relevance of research conducted by nurses

Research should be of relevance to the specific context, whether at micro or macro level, to be of significance. It seems to be the task of nurses in academic positions (micro level) and the body of leaders (macro level) to promote the relevance of research. To ensure relevance, research should be conducted in accordance with priorities as identified from and guided by practice. At micro level, researchers should form partnerships with practitioners to identify relevant research problems, and, at the same time, nurses should be research-minded and identify research problems in practice and link to academic institutions as resources in research.

At macro level it seems to be problematic to set priorities for the discipline of nursing as a whole, but broad themes might be identified through debate and communication so that a discernable focus is encouraged and/or become evident. The revision of priorities and setting of future priorities also seem to be important. Furthermore, the communication of current research priorities should be encouraged.

It thus seems that increased relevance might be an outcome of research capacity building, in that thematic research and research awareness might be encouraged through research capacity building. Relevance might also be improved through appropriate leadership at macro level, as national debate on the focus and meaning of research might also have an influence on relevance. Forming collaborative partnerships as well as following appropriate research methodology could also contribute to relevance.

4.1.3.6 Promoting the use of appropriate research methodology

Research methodology, as an indicator of the quality of the research, should be appropriate in order for research to be significant. In this specific case, appropriateness links to research that is relevant and pragmatic. Specific methodological approaches could include quality assurance as a research methodology, case studies and operational research, in order to demonstrate the impact of research conducted by nurses on health and health care, thereby obtaining support for research from research in practice and other stakeholders. A starting point might be to conduct more informal research which may lead to more formal research. The assistance of the academic sector may also be obtained in research-related skills. At a more complex level, approaches such as outcomes research and intervention research (Burns & Grove, 2005:273) may be considered.

At macro level, stagnation in research methodology should be debated, and clinical research, with nurses as principal investigators, should be encouraged.

4.1.3.7 Promoting the dissemination and utilisation of research results

In all the phases of the research it was evident that the dissemination and utilisation of research results are limited. Dissemination and utilisation should be encouraged, as it leads to more visibility of the value of research conducted by nurses and it is the key to improving health and health care by means of research. It also might lead to mind shifts that research is an integral part of the role of the nurse.

The dissemination and utilisation of research results should be purposefully improved in the following ways:

- The value of research might be more evident if the potential outcome of the research is indicated in research titles; and the formulation of recommendations based on research should communicate ownership of researchers to implement the results and conduct follow-up research on this implementation.
- Opportunities should be encouraged to *disseminate research results*, such as opportunities to publish and/or present research results, as well as opportunities to implement the results of research, for example in the form of best practices. These opportunities might be created through collaboration with partners in the academic and practice setting (as described above) with the assistance of partnerships. Specific suggestions are also described in manuscripts four and five.
- When *presented* to nurses in practice, research results should not be high-sounding and it should be practice-oriented
- Research should be *published* in medical journals, nursing journals and lay journals, and should be disseminated in media such as television and radio. Publication of research results in reports to policymakers, nurses in practice, relevant stakeholders and nursing governance should be encouraged so that health research conducted by nurses may influence policies.

- Opportunities to *implement* research results should be created. It might for example be valuable that nurses who in practice positions at the time of study, remain in practice positions in order to facilitate the process of implementing research results. There should also be preparation of the target group who is expected to utilise the new knowledge, for instance by implementing measures to validate research results with participants. Furthermore, a process of assimilating new information into the existing body of knowledge must be put in place so that this information can be used in practice. In addition, postgraduate students should be required to indicate in research proposals how they intend to implement research results. They should be expected to write articles for publication of their research, and they should be supported in this endeavour.

Additionally, the promotion of the dissemination and utilisation of research results may be an outcome of the strategy, specifically if the following aspects in the strategy are emphasised:

- Research capacity building should foster a culture of sharing knowledge as well as foster the intention amongst nurses to conduct research with the aim of implementing results, and not only to obtain an advanced qualification. Research capacity building that focuses on the creation of research-mindedness, strengthening reading and writing skills, and encouragement of in-depth and follow-up research may also improve the dissemination and utilisation of research results. Preparing nurses or assisting them to implement research results and evidence-based practice will also contribute to increased dissemination and utilisation of research results. Research capacity building in this regard should also include creating awareness of the importance of documenting research and guidance in evidence-based practice. Moreover, “journal clubs” can be initiated in practice as part of research capacity building. This entails that groups of nurses discuss research articles relevant to their practice, and explore the value of the article in their practice.

- Dissemination and utilisation are encouraged when nurses unite in their effort to conduct research that brings about change in health and health care, thus through forming collaborative partnerships and networks.
- Dissemination and utilisation of research results are also promoted by creating a research-supportive environment, enabling the availability of funding and access to information.
- Systematic reviews on prominent themes, for example on teenage pregnancy and humane nursing in critical care units, should be encouraged to reveal a discernable focus in research conducted by nurses in South Africa, and to translate research findings into guidelines that nurses can use in practice.
- In addition, the development of leadership, so that nurses can be represented at policy level, may promote the dissemination and utilisation of research results.
- Debate should be initiated at national level, in organisations such as the Forum for Nursing Departments at Universities in South Africa (FUNDISA), the Democratic Nurses Association of South Africa (DENOSA) and the South African Nursing Council (SANC) and in research journals. The focus of this debate should be on the impact of research conducted by nurses, research methodological issues and the perception of the contribution of research, the responsibility of researchers in the implementation of research results, follow-up research, the rationale of doing research, and preparation of nurses in academic posts to act as supervisors in research who encourage master's and doctoral degree students to implement results and conduct follow-up research.
- Strengths in research conducted by nurses should be published, such as their unique skills in health research, in order to improve the recognition of nurses as researchers. The dissemination of information of these strengths, for example by means of pamphlets, can also be used as a marketing tool for the strategy.

4.1.4 Implementing the strategy at macro level

Once several cycles of the strategy have been implemented and support have been obtained for research conducted by nurses and for the strategy, the possibility of a body of leaders to lead, further drive and coordinate the strategy at macro level – including national and international levels – might be possible, and should be explored and developed. These leaders should include leading nurses and members of the multi-professional team; the science and technology sector; the community; and policy makers, nursing governance and health service administrators. They may be part of collaborative research teams, committees/organisations who aim to develop or improve health research; and cross-functional teams (including academics and practitioners) who develop and implement evidence-based practice strategies.

This team should build or strengthen partnerships at national level to obtain further support for the strategy. An outcome of these partnerships may be the creation of centres of excellence to further promote and support research conducted by nurses. They should build partnerships with the following institutions:

- The Department of Health, specifically provincial and national research committees, to gain recognition, to recruit postgraduate students, to influence health policy, to gain access to health services to conduct research, to conduct collaborative research, and to clarify perceptions of nurses as service work force.
- The South African Nursing Council (SANC), to clarify the SANC's position on research conducted by nurse, to obtain cooperation from the SANC as a research partner, and to clarify the SANC's perception of nurses as a service work force.
- Funding organisations (MRC, NRF), to promote the recognition of nurses as researchers and to obtain funding.

- The community, to promote relevant research, and to obtain cooperation for knowledge utilisation.
- Professional organisations/unions (DENOSA, NEHAWU, HOSPERSA), as a communication channel for nurses in practice regarding research, and rights and responsibilities of nurses as researchers.
- The “traditional” research sector (DST, HRSC, HPCSA), to obtain recognition for nurses as researchers; funding and research opportunities; expertise; as well as publication opportunities.

Additionally, they should also analyse the continuance of the strategy by reviewing the strategy, reflecting on the impact of the strategy and evaluating the availability of resources in light of the attitudes and/or support of stakeholders in the external environment (Pearce & Robinson 2000), in this case nurses in academic, management and clinical practice roles, research committees and governance in nursing and in health. Long-term objectives and a revised strategy should be formulated based on this analysis. Thereafter, annual objectives and short-term strategies in line with the long-term objectives should be formulated. Also, formalised budgets and resource allocations should come into consideration in this phase (Pearce & Robinson, 2000).

Objectives that might be considered by this team of leaders include that they should support nurses’ involvement in research by advocating for and creating career paths for nurses in research and rewards for practice-oriented research, provide strong leadership in research, focus and direct research, monitor research quality and strengthen a culture of sharing and cooperation. They may also encourage debate in which the current paradigm of research conducted by nurses is questioned, specifically with regard to the fact that research is not practiced as an integrated role of the nurse, and that recommendations following from research is seen as the “end product” of research, instead of implementing these recommendations.

Collaborative research should also be considered and encouraged by this team. The encouragement of collaborative research at macro level may be valuable in the following ways:

- the dissemination and utilisation of research results are improved;
- health research conducted by nurses has wider value than for the nursing profession only;
- nurses gain from the experience of other team members;
- nurses gain recognition as researchers;
- team members' trust is obtained;
- health research conducted by nurse influence practice, health care and policies;
- visions are aligned; and
- opportunities for research capacity building are created.

The long-term impact of such leadership may be that nurses can be empowered and acknowledged as researchers, that they conduct relevant research by means of appropriate research methodology and that they disseminate and utilise research results. As a result, nurses may be perceived as professional scientists rather than a work force. The number of researchers may be increased and the significance of research conducted by nurses may be improved.

5. Specific recommendations for further research

Based on the research project, the following recommendations for further research are made:

- Research regarding the implementation of the strategy to promote nurses' research contribution and the impact thereof.
- Exploring the use of quality assurance as a research method
- Utilising practice-oriented research to improve the value and relevance of research.

- Investigating strategies to improve research in difficult work circumstances in the clinical field with limited support from the academic sector
- Analysing the influence of ethical aspects when the proposed strategy to improve research is implemented and functioning.
- Investigating new innovative research methodologies and paradigms in the approach to research.
- Exploring the use of the definition of “nurses’ research contribution” and the framework of the strategy as instruments to measure significance of research conducted by nurses.

Summary

The results of all three phases of this research confirmed the assumptions presented in the central theoretical argument (refer to "Overview").

In the first phase, namely the Delphi study, opinions of stakeholders in health research were explored and described. During the second phase the opinions of stakeholders in health research in a specific context, namely the Southern District of the North West Province, were explored in focus group interviews. The first objective of the research, to explore and describe the opinion of stakeholders in health research on the health research contribution of nurses in South Africa, was thus met.

During the third phase a profile of research conducted by nurses in South Africa was composed and in so doing the second objective, namely to compile such a profile, was thus also met.

The realisation of the last objective, namely to develop a proposed strategy, based on the results of the three phases, and to verify and refine this strategy in a specific context, the Southern District of the North West Province, in preparation for the implementation of the strategy, took place during phases one, two and three.

The results of the Delphi study contributed to the formulation of a provisional strategy to promote nurses' research contribution, while this strategy could be verified and its feasibility explored by means of the focus group interviews with relevant stakeholders in the mentioned District. The profile which was composed during phase three enriched the formulation of the strategy.

Based on the results, conclusions and recommendations of the research project, the strategy could be described in a comprehensive way. The researcher intends to initiate this strategy in the Southern District of the North West Province. It is envisaged that the implementation and further development of the strategy will contribute significantly to promote nurses'

research contribution. The implementation of the findings of the results of this research project may enhance appropriate and relevant postgraduate training, inter-institutional collaboration and the development of nurses as researchers. At an international level, this research may serve as a basis for further research.

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Table 1: Outline used in the thought process in drawing conclusions

Aspects in strategy	Literature study	Delphi study	Focus group study	Profile	Specific conclusions
Leadership	A coordinating task team that takes responsibility for coordinating research, reviewing and monitoring research activities and the impact thereof, advocating for research conducted by nurses and setting ethical standards is necessary.	A key role player in the strategy is the research supervisor / educator, acting as a research leader and mentor for developing researchers.	Participants in the focus group interviews, as potential leaders, did not take ownership of the strategy.	A concern is that there is a lack in coordination or focus in research conducted by nurses.	Leadership in research at local, national and international levels should be promoted.
Partnerships	Collaboration with other researchers, stakeholders in health research and the community is necessary.	An approach should be to build partnerships to create cross-functional, multi-disciplinary, multi-sectoral teams who: <ul style="list-style-type: none"> ▪ conduct collaborative research; ▪ promote and advocate for health research; and/or ▪ design and implement evidence-based practice strategies. 	<p>The initial focus of the strategy should be that nurses in academic positions should reach out to and build partnerships with other nurses in academic positions, nurses in management positions and research committees by creating forums for discussion.</p> <p>Focus group discussions may be a valuable tool in building partnerships.</p> <p>Collaborative research projects should also be initiated with these partners, namely to identify research problems in practice, conduct collaborative research – initially informal and limited in</p>	-	Collaboration takes place at two levels: to build partnerships with stakeholders in research in order to obtain support for the strategy, and to conduct research in teams.

			scope – assisting in the translation and implementation of results and conducting follow-up research. The shared experience of this research might lead to a commitment to research within these initial partnerships.		
Relevance	Nurses should conduct research that is in accordance with appropriate health research priorities and by means of appropriate methods/approaches.	Refer to vision and objectives of the strategy.	Research conducted by nurses should be practice-oriented, and nurses should be able to identify research problems in practice.	Research conducted by nurses is of good quality and has the intent to contribute to the body of knowledge and improve health and health care. It has potential value not only for the discipline of nursing but for other health-related disciplines as well. Also, research conducted by nurses is relevant to current research priorities.	The current strength in research conducted by nurses lies in its relevance, although its not a coordinated effort, and not disseminated and utilised.
Research capacity building	Capacity building of nurses as researchers should take place, and nurses should develop as leaders and be in positions where they can influence the implementation of research results.	An approach in the strategy should be research capacity building of nurses at undergraduate, post-basic, postgraduate and practice level.	Nurse educators/research supervisors should be empowered in research methodology and/or research supervision. Creating research awareness should include research preparation of nurses in practice. It should also include preparing research-minded nurses by means of a research-based nursing curriculum, specifically in undergraduate programmes.	It seems that nursing departments at higher education institutions contribute to research capacity building at postgraduate level.	The development of nurse educators/research supervisors, and leaders in research, as well as promoting research at undergraduate level needs attention.

Appropriate methodology	The most appropriate approach / methodology should be followed in research.	The refinement of appropriate research methodologies needs attention to further promotion of the contribution of nurses towards health research.	Research should be practice-oriented, conducted with the intention of implementing research and should be cyclic in nature: conducting research, disseminating and translating research results, implementing research results and conducting research on this implementation, in order to promote the impact of research in health care. This should be expected as the standard practice in research.	There seem to be stagnation in the methodology used by nurses, as concerning factors – such as small sample sizes, a perceived lack of implementation of research results and recommendations, lack of follow-up research, use of mainly descriptive, explorative designs – were also identified in earlier studies by Kotze (1984) and Brink (1992).	Follow-up research should be promoted.
Research-supportive environment	Research-supportive infrastructure and resources should be provided. Nurses' contributions will be improved if they could conduct health research in an environment that supports research.	-	The creation of an environment conducive to research by nurses should include providing infrastructure and support, research capacity building, mentorship and encouragement by partnerships of nurses in academic and management positions, and encouragement of practice-oriented, cyclic research.	-	The strategy should aim to create a supportive and encouraging environment. This environment should include the availability of resources and infrastructure, empowerment, encouragement and support to be involved in research, and research aptitudes.
Dissemination and utilisation of research results	The dissemination and implementation of research results should be ensured. New knowledge should be generated through this research,	Research conducted by nurses should be disseminated and utilised.	The communication of the impact of cyclic research in improving practice, as well as the communication of partners' positive experiences, might create	There is a vast amount of usable recommendations available, generated by nurses through research.	The appropriate dissemination and utilisation of research results are a matter of concern and need

	<p>and in order for this new knowledge to be implemented in practice, there should be a process of assimilating it into the existing body of knowledge as well as a process of preparing the target group who is expected to utilise the new knowledge.</p> <p>The nurse as researcher should therefore not only conduct research for the sake of research, but also be willing and be in a position to disseminate and implement research results.</p>		<p>the opportunity for further partnerships at a similar or wider level.</p>	<p>The current culture in research, namely that research results is published in journals with apparently limited ownership by researchers to implemented findings, places nurses in practice in the difficult position of having to access and utilise this information without direct support from researchers.</p> <p>There seems to be little opportunities for debate on research matters,</p> <p>Strengths in research conducted by nurses and nurses' unique skills with regards to research should be reported on.</p>	<p>attention in the strategy.</p>
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