

**Nurses' Attitudes towards Barriers and
Facilitators of Research Utilisation in Bahrain**



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Abstract

The utilisation of research has been a controversial issue in nursing for the last two decades. It has been discussed widely in the nursing literature, demonstrating growing enthusiasm to increase the usage of research findings in practice. However, the gap between research and practice remains a persistent problem.

The major aim of this study was to explore the perceived influences on the barriers to, and the facilitators of, research utilisation among nurses working in Salmaniya Medical Complex (SMC), a government hospital in Bahrain. A further aim was to determine the relationship between the nurses' demographic characteristics and research usage in their practice.

A survey using the Barriers Scale developed by Funk, Champagne, Wiese and Tornquist (1991) was carried out to identify the barriers to, and facilitators of, research utilisation in practice based on Roger's theory of diffusion of innovation. The questionnaire was distributed among 250 nurses working in different wards in Salmaniya Medical Complex-Bahrain, using convenience sampling. A response rate of 87.6% was achieved.

In general the respondents held negative attitudes towards research. It was evident that the nurses perceived the organisation to be the main barrier to research utilisation, followed by the communication barriers that need to be overcome in order to enhance research utilisation in practice. The greatest barriers perceived by the respondents were

insufficient time to read research articles and to implement new ideas at the workplace, and insufficient authority to change patient care procedures. The greatest facilitators of research utilisation reported by the respondents included advanced educational courses to enhance the research-knowledge base, employing nurses with research skills and experience to act as mentors, and increasing the time available for nurses to review, implement and evaluate research evidence in the work place.

The overall results were consistent with the findings of similar studies world-wide. Health care managers and nurse leaders should consider a number of strategies such as providing more time and support and better access to the internet and electronic databases in the work-place. In addition, more research education resources, and the employment of clinical research educators as mentors to help increase the use of research findings in clinical settings are necessary.

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List of Abbreviations

AD	Associate Degree in Nursing
AGU-CMMS	Arabian Gulf University-College of Medicine and Medical Sciences
AHRQ	Agency for Health and Research Quality
ANOVA	One Way Analysis of Variance
BDF	Bahrain Defence Force
BSN	Bachelor of Nursing
BS	Barrier Scale
DIP	Diploma in Nursing
CHS	College of Health Sciences
CIA	Central Intelligence Agency
CNS	Chief of Nursing Services
CPG	Clinical Practice Guidelines
CQHCA	Committee on Quality of Health Care in America
EBMWG	Evidence-Based Medicine Working Group
EBP	Evidence-Based Practice
EMHJ	East Mediterranean Health Journal
EROS	Edmonton Research Orientation Scale
GDP	Gross Domestic Product
HSDS-EQ	Health Services District South-East Queensland
ICN	International Council of nurses
MOH	Ministry of Health
MSN	Master of Nursing
NHS	National Health Services

NPL	Nursing Professional Levels
PARIHS	Promoting Action on Research Implementation in Health services
PhD	Philosophy of Doctor
RCN	Royal College of Nursing
RCSI	Royal College of Surgeons in Ireland- Medical University in Bahrain
RFQ	Research Factor Questionnaire
RNAO	Registered Nurses Association of Ontario
RN	Registered Nurse
RTST	Research Technical Support Team-Ethical Approval MOH-Bahrain
SCERH	Standing Committee on Ethics in Research Involving Humans
SMC	Salmaniya Medical Complex
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university and that, to the best of candidate's knowledge and belief, the thesis contains no material previously published or written by another person except when due reference is made in the text of the thesis.

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Chapter 1 Introduction

This study explores the attitudes of nurses in Bahrain towards the utilisation of research. The study focuses on the factors that act as barriers or facilitators in the application of research to practice as reported by practicing nurses at Salmaniya Medical Complex (SMC), Bahrain.

This chapter introduces the importance and development of research to nursing in general, and in day-to-day nursing practice. Particular emphasis is given to the challenges and problems identified in the application of research to practice in the Bahraini context, taking into consideration both practical issues and nurses' education levels. The chapter concludes with a presentation of the significance of the study and the justifications for the research.

1.1 Research Utilisation in Nursing Practice

There is a considerable body of literature that aims to identify and understand research utilisation in nursing practice and its significance (Witzke, Bucher, Collins, Essex, Prata, & Thomas, et al., 2008). Research utilisation may be described as “the process of applying research findings into clinical nursing practice” (Quinn, 2001, P. 171). As Evidence-Based Practice (EBP) has been identified as the ultimate enabler in providing quality and cost-effective health care to health consumers (Olade, 2003), nurses need to access and utilise the available evidence. Research, therefore, is an important activity for nurses in their drive towards evidence-based practice (Hommelstad & Ruland, 2004). Furthermore, there should be an increased awareness by nursing professionals of

the need for research-based knowledge to underpin nursing practice (Gennaro, Hodnett, & Kearney, 2001).

Nurses need to be able to gain knowledge and skills from various sources, and to be given time at work to do this. They also need to have the motivation to increase their knowledge and find ways to apply it, as well as support from their nursing administration. Positive attitudes towards research by nurses are also essential to ensure that nursing practices are evidence-based (Witzke, et al., 2008). With the ever-increasing trend towards research usage in the nursing profession, and with different levels of education among nurses, an important question is whether nurses are aware of research findings, and if so, whether they are able to critique them and translate the evidence-based knowledge into practice (McClarey, 2008).

It is imperative that research is encouraged in the nursing profession because it helps to improve health care (Quinn, 2001). Health care organisations have an obligation to take into consideration the factors that limit and hinder the usage of research by their nurses. Therefore, it is urgent that nursing leaders and managers are able to develop strategic plans and critical pathways that explore methods to overcome barriers, and improve clinical practices in hospitals by means of research (Leske, Whiteman, Freichels, & Percy, 1994).

1.1.1 The Importance of Evidence-Based Practice (EBP)

The application of nursing research to clinical nursing practice has been raised for some time as a major health care issue (Griffiths, Bryar, Cooke, Hostick, Kelly, &

Marshall, 2001; Oranta, Routaslo, & Hupli, 2002; Patiraki, Karlou, Papadopoulos, Spyridou, Kouloukoura, Bare, & Merkouris, 2004) and these concerns have continued (Parahoo & McCaughan, 2001). While research utilisation can be described as referring only to using findings from research studies, EBP is a more general term that comprises the use of wide-ranging sources of evidence, including practitioner expertise and patient needs (Estabrooks, 1999). The emphasis placed on EBP developed from the belief that nurses should be critical about the procedures and the processes they undertake in their practice (Parahoo & McCaughan, 2001).

Nursing leaders have emphasised the use of scientific evidence based on research to improve patients' quality of care (Olade, 2004). Transferring research into practice not only benefits patients, but also strengthens the profession as a whole. Considering nursing as a profession (i.e., an occupation that requires extensive education or specialised training), and not merely a job, nurses need to be able to continually evaluate the care they give, and be accountable for providing the best possible care. Evaluating their care means that nurses also need to evaluate nursing research and determine for themselves if there is a better way to provide care (Hutchinson & Johnston, 2003). Nurses now realise that research use and evidence-based practice are the best way for nursing professionals to improve practice and ultimately patient care (Beyea, 1997; Parahoo & McCaughan, 2001).

1.1.2 Development of Evidence-Based Practice (EBP)

In order to gain a greater understanding about the nature of evidence in the context of health care, consideration needs to be given to the history of the evidence-based health care movement. However, EBP has rapidly gained momentum as a popular development influencing knowledge and practice in nursing. Clinicians and administrators have embraced the evidence-based movement as a valuable tool in the delivery of quality health care (French, 1999). The role of scientific evidence suggests that the nature of evidence is broader than evidence derived from research. Therefore, it was suggested that 'evidence' in evidence-based practice should be considered to be 'knowledge derived from a variety of sources that has been subjected to testing and has found to be credible' (Higgs & Jones, 2000, p. 311).

The famous definition of evidence-based medicine articulated 'the conscientious, explicit and judicious use of current best evidence about the care of individual patients' (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996, p.71). However, Sackett has have modified the definition of EBP aiming to include patients needs and preferences. According to this definition, clinical expertise includes eligibility derived from experience, as well as the ability to determine each patient's unique health state and personal values. Patient values are unique preferences, concerns and expectations which are integrated into clinical decisions in order to serve patients (Sackett, Strauss, Richardson, Rosenberg & Haynes, 2000). To support this, health policy endorses and supports the adoption of EBP principles by all health-care professionals in an effort to deliver optimal outcomes for patients (Queensland Health, 2002).

The rise of EBP can be seen as both a response to the broader societal forces with which nurses and other professionals must contend and the logical progression in the long-term effort to close the gap between research and practice (Goode & Piedalue, 1999; Stetler, 2001). Nurses are seeking a guide that will help them structure how to make decisions that are accurate and timely and apply evidence in the practice setting. The use of an EBP process provides a systematic approach to rational decision making that facilitates achievement of best practices and thus demonstrates accountability (Newhouse, Dearholt, Poe, Pugh & White, 2005). For that reason, challenges exist to develop the skills of practising nurses and to improve the resources available to them to meet this recommendation. One of the crucial issues of EBP is the ability of the clinician to access and accurately interpret research-derived evidence. Access to appropriate high-quality information that is research based has often eluded nurses (Sherriff et al., 2007).

The desire for more specific nursing-based research has led to an increase in nursing research output. However, when research results have been applied to practice, some studies have clearly indicated improvements in practice (Holzemer & Tierney, 1996). The challenge for nursing is to equip practitioners to read, critically review and appropriately implement research-based and other evidence for practice (Sherriff et al., 2007). Thereafter, to improve clinical practice and health outcomes, both well-developed Clinical Practice Guidelines (CPG) and effective methods of CPG implementation are needed. As a result, CPG development handbooks were produced by the Council of Europe, the National Health and Medical Research Council of Australia, the National Institute for Health and Clinical Excellence in the UK, the New Zealand Guidelines

Group, the Scottish Intercollegiate Guideline Network, and the World Health Organization (WHO), (Turner, Misso, Harris & Green, 2008).

1.1.3 Issues for Research Utilisation

An important strategy is to increase nurses' awareness of the term "research utilisation" so that they can increase their engagement with research utilisation to improve nursing care and achieve optimum patient outcomes (McCleary & Brown, 2003). To that end, health care organisations have allocated budgets and facilities for the development of clinical pathways based on research (Quinn, 2001). Dobbins, Ciliska and DiCenso (1998) argue that the body of knowledge about research use in health care organisations is developing, but there are significant knowledge gaps in practice. In spite of numerous efforts by health care systems in different settings in various countries, a gap in research utilisation persists and the problem continues to be a major issue (Olade, 2004; Burns & Grove, 2004; Karkos & Peters, 2006).

Despite the increased quality and quantity of nursing research available related to clinical practice and various programmes and strategies to increase the use of research evidence, a gap between theory and practice persists, and the growth in research has not been accompanied by evidence of increased use of research findings in nursing practice (Waddell, 2002).

Findings from many studies discuss factors which affect the application of research to practice: for example, lack of knowledge and skills, lack of authority and support to implement findings, and inaccessibility of relevant literature (Funk, et al.,

1991; Dunn, Crittchon, Roe, Seers, & Williams, 1998; Kajermo, Nordstrom, Krusebrant, & Bjorvell, 1998; Retsas, 2000; Parahoo & McCaughan, 2001). While the importance of research to practice is broadly acknowledged in these studies, the research / practice gap remains a major cause of concern, and is an ongoing crucial issue for the nursing profession worldwide (Hutchinson & Johnston, 2003).

Meyer, Battles, Hart and Tang (2003) report that in the United States, the Agency for Health and Research Quality (AHRQ) considers that most policy makers are responsible for institutional health care quality improvement in the community. These researchers have also reported a major concern with the gap between research and its transition into practice. Authors such as Bero, Grilli, Grimshaw, Harvey, Oxman, & Thompson (1998); Bostrom & Wise (1994); Funk, Champagne, Tornquist, & Wiese (1995) and Retsas & Nolan (1999) also provide evidence for the importance of research in practice which is discussed in the next chapter.

It has been contended that the lack of programs and strategies in health care organisations to enhance the use of research findings contributes to a lack of nurses implementing research-based practice (Adip-Hajbaghery & Salsali, 2005). According to Fink, Thompson, and Bonnes (2005) health organisations should support their nurses by motivating them to embrace research findings in their practice. It is also reasonable to assume that in a more supportive environment of nurses who share similar beliefs about research utilisation, more nurses will be attracted to and engaged with it. Encouraging research activities for nurses, increasing accessibility to relevant research, and providing autonomy for nurses to change their practices also appear to be solutions worth

considering. The best result for all stakeholders would be that the research cultures of the respective organisations would be positively influenced, and patient care optimised. Therefore, organisations would benefit from paying more attention to improving research-based nursing practice. It is imperative that managers extend support and encouragement to nurses implementing EBP. This will increase nurses' self-confidence and enhance patient care (Fink, et al., 2005).

Most of the above studies have been conducted in the United States, Canada, Europe and Australia. Only a few studies have explored the perceived problems faced in implementing research by nurses in Asia, the Middle East, and Africa (Valizadeh & Zamanzadeh, 2003).

1.1.4 Conceptual Definitions of Terms

A conceptual definition provides a variable or concept with theoretical meaning. The definition is either driven from a theoretical concept or developed through concept analysis (Polit & Beck, 2006, p.497).

Estabrooks (1999) states that although the terms 'research utilisation' and 'evidence-based practice' are often used interchangeably, they are not synonymous. Evidence-based practice is the more common term used, and although it incorporates research utilisation, it constitutes more than the findings of research alone. Research utilisation denotes only the findings of research and is a specific kind of knowledge utilisation. This study will focus on research utilisation because this has not been done

before in the particular setting. The following contextual definitions have been developed so that the variables can be measured (Burns & Grove, 2007, p.505).

Research utilisation is the "process of communicating and using empirical or research-generated knowledge to affect or change the existing practices in the health care system" (Burns & Grove, 2007, p553). Research utilisation (in this context) is the condition in which nurses use research findings or knowledge in their daily nursing practice. This understanding is appropriate to this study because the researcher is exploring the nurses' perceptions of research use in their workplace in Bahrain.

A barrier is defined as "an obstacle that prevents movement or access" (i.e. any condition that makes it difficult to make progress or to achieve an objective) (Soanes & Stevenson, 2008, p.110). Barriers act as obstacles in the plan-of-action process. Barriers (again, in the context of this study) describe the difficulties nurses face, and the factors that impede them from achieving their nursing goals.

Facilitate is a word meaning "(to) make easy or easier" (Soanes & Stevenson, 2008, p. 509). A facilitator is someone who skillfully helps a group of people understand their common objectives, and assists them to plan to achieve them without taking a particular position in the discussion (Soanes & Stevenson, 2006.). Facilitators in this study are understood to be the factors that contribute to optimised organisational structures which enable nurses to function effectively and make well-informed decisions, and make exceptional performances possible.

1.2 Theoretical Framework

The theoretical framework used for this study was based on Rogers' (2003) diffusion of innovations theory. The reason for choosing Rogers' model is that this model can accurately describe nurses' attitudes towards adopting research utilisation in workplace innovations. Many researchers around the globe have focussed on Rogers' theory in their studies of nurses' perceptions of research utilisation (McCleary & Brown, 2003; Olade, 2003; Hutchinson & Johnston, 2003; Hommelstad & Ruland, 2004; Fink, et al., 2005; McCloskey, 2008). For example, Fink, et al., (2005) used the Barriers Scale and divided it into four sub-scales each described as follows: "characteristics of adopter" (the nurse's research values, skills, and awareness); "characteristics of organisation" (setting barriers and limitations e.g. time, resources, and support); "characteristics of the innovation" (qualities of research findings and methodologies); and "characteristics of the communication" (presentation and accessibility of the research) (Fink, et al., 2005, p.123). Similarly, Hommelstad and Ruland (2004) used the Barrier Scale to measure the extent to which respondents agreed with the presence of barriers to research utilisation. The barriers was conceptualised into four characteristics inconsistent to the diffusion of innovation. These include "characteristics of the nurse" (research awareness, value, and skills); "characteristics of the settings" (time and activities to pursue research activities and support from leaders and colleagues); "characteristics of the research findings" (methodologies and quality); and "characteristics of the communication channels" (presentation and accessibility of research findings).

Another model with similarities to Rogers' theory is the Promoting Action on Research Implementation in Health services (PARIHS) framework (Kitson, Harvey &

McCormak, 1998). Kitson, et al., (1998) criticised the current conceptual research utilisation models, arguing that the multidimensional approach would be more beneficial because of the complex nature of research implementation in clinical practice. They developed and proposed the (PARIHS) model which emphasise the strength of three major categories: (a) the nature of the evidence being used, (b) the quality of the context in terms of coping with the change, and then (c) type of facilitation needed to ensure successful change process (Wallin, Estabrooks, Midodzi, & Cummings, 2006). The model has been refined in 2002 (Rycroft-Malone, et al., 2002). Many researchers used this models in their studies such as (Sharp, Pineros, Hsu, Starks, & Sales, 2004; Wallin, Rudberg & Gunningberg, 2005).

Rogers identified four main elements in the diffusion of innovation. The four elements are: innovation, communication channels, time, and the social system (Rogers, 2003). Each will be discussed in the following sections.

1.2.1 Innovation

Rogers (2003, p.12) defined innovation as “*an idea, practice, or object perceived as new by an individual or other unit of adoption*”. The degree of adoption is associated with the characteristics of an innovation that are perceived by the individual within the social system. This might include, for example, the use of technology in healthcare systems. In this study innovation means the quality of research findings and methodologies (five items describing the characteristics of innovation have been adopted from the Barriers scale).

1.2.2 Communication channels

The second element in the process is communication channels, understood by Rogers (2003, p.18) as *“a process in which participants create and share information between one another in order to reach a mutual understanding”*). Channel of communications used to convey information about clinical practice include research publications, database (e.g. Cochrane database), mass media, attendance lecture or workshop, audiotapes and videos. There are two approaches in communication. Rogers (2003, p.18) defines “mass media channels” which are the most rapid and effective way of transmitting information that involves media such as radio, newspapers and so on to the public about innovations. Rogers (2003, p.18) also describes “interpersonal channels”, which are more effective in forming and changing attitudes toward a new idea. These channels influence the decisions made by individuals to adopt or reject new concepts. Most individuals evaluate an innovation not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation (Rogers, 2003).

1.2.3 Time

Time plays an important role in Rogers' process of diffusion. He believes that the inclusion of time as an element in diffusion research is a strength, but it depends on the way it is used and measured by the individual. Rogers (2003) states that time is involved in diffusion in three ways: (1) the innovation-diffusion process is the method by which an individual decision-maker passes from first knowledge of an innovation to developing an attitude towards it. This process determines whether they will adopt or reject the new concept / idea; (2) innovativeness is the degree to which an individual is likely to take on

new ideas compared with others in the same social system; and (3) an innovation's rate of adoption means the relative speed with which an innovation is adopted by the individuals in a social system. The rate measures the length of time required by a group of members of a system (community or organisation) to adopt an innovation, and it is not applicable to an individual as the unit of analysis (Rogers, 2003).

1.2.4 Social system

A social system is defined as a set of separate groups or units of specific roles that works together to provide services for people to regulate their activities, which are the main goal (Rogers, 2003). Social systems have structures which regulate and control the behaviour of individuals within the community. Social systems and their communications capabilities also facilitate or impede the diffusion of innovation. Rogers also believed that a system's norms might act as barriers for change within the system. This could involve factors like culture, religion, organisation or a local village. Therefore, commonly-accepted norms form part of the social structure, which establishes behaviour patterns in the community. Rogers (2003, p.27) also investigated the concept of "opinion leadership" which is defined as *"the degree to which an individual is able to influence (informally) other individuals' attitudes / manner through an inter-personal approach*. Finally, Rogers (2003, p.27) described the "change agent" *as an individual who attempts to influence clients' innovation-decisions, in a direction deemed desirable by a change agency*. The change agent tends to adopt new ideas or concepts, but at the same time might delay the process of diffusion and hinder unwanted innovations.

The following section introduces the concept of applying Rogers' model and the reason for selecting such a model for this study. The section also illustrates the conceptual frame-work implemented to describe nurses' attitudes towards research use.

1.3 Application of Rogers' Model

The researcher must have a clear understanding of the concepts underlying the study to be conducted, and therefore it is imperative to develop the conceptual definitions at the earliest phase of the research project. In addition, the identification of the instrument with the strongest theoretical properties will also be useful in measuring, implementing and testing strategies for the research project to be conducted (Frasure, 2007).

Polit and Beck (2006, p.55) suggest that "when quantitative research is performed within the context of a theoretical framework [for example: using Rogers' Theory], it is used as a basis for generating predictions that can be tested statistically; the findings may have broader significance and utility".

The reason for the selection of Rogers' model is that this model can accurately describe nurses' attitudes towards adopting research utilisation in workplace innovations. The researcher decided that the related issues that will emerge from this study would be important, and deserved further attention to help nurses in Bahrain make the best use of innovation. Many researchers around the globe have focussed on Rogers' theory in their studies of nurses' perceptions of research utilisation. For example, Fink, et al., (2005) used the Barriers scale and divided it into four sub-scales as described above. These

characteristics (adopters, organisations, innovations and communication) were correlated to Rogers' theory. Similarly, research undertaken in Australia Hutchinson and Johnston (2003) used the Barriers scales and described four factors which closely correspond to Rogers' (1995) 'diffusion of innovation', in much the same way as the previous example. Moreover, McCleary and Brown (2003) in Canada used the theoretical framework based on Rogers' theory (2003) to suggest five stages in the implementation of innovations as follows: "knowledge" (adopter becomes aware of innovation); "persuasion" (involves positive and negative attitudes towards the innovation by people in the organisation); "decision making" (whether to accept or reject innovation); (if it is accepted) then "implementation"; and finally, "confirmation" (where the innovation is to be continued or not based on the evaluation) (p.557).

Hommelstad and Ruland's (2004) study was undertaken with Norwegian nurses to measure their perceptions of barriers to and facilitators of research use. Thus, consistent with the diffusion of innovations model, the Barriers scale was conceptualised into four characteristics including the nurses (research values, skills and awareness), the setting (time and resources to pursue research activities and support from leaders and colleagues), the research findings (methodological soundness and quality), and the communication channels (presentation and accessibility of research findings). These variables were described accordingly to measure nurses' values, awareness, and skills.

The main components of the diffusion of innovation theory are innovation, communication channels, time and social systems, and the innovation-decision process includes these components. Rogers' (2003) diffusion of innovation is called a change-

management model and the present researcher used the model as a means of suggesting change management structures. The investigator also found this model to be one of the most frequently used in health care because it is associated with outcome management and theoretically linked to adoption of new practice behaviours and patient outcomes, which also serve the researchers as a guide for studies (Rogers, 2003). Further, Rogers' model has been widely used in different settings and fields over four decades (Rogers, 2003). In addition, Rogers' five stages that are potential innovations adopter uses are: knowledge, persuasion, decision, implementation, and confirmation. Rogers' stages have been used in the conceptual framework of many research utilisation instruments, especially when scale is designed to measure change practice (Frasure, 2007).

Sanon-Fisher (2004) describes the adoption of a new clinical behaviour by clinicians in health care systems using Rogers' theoretical approaches to the diffusion of innovation. This theoretical framework aims to determine how clinical behaviours change over time, and which components within this system require more attention when diffusion takes place. These include consideration of aspects of the innovation or new technologies, styles of communication, steps in decision-making, and the overall social context.

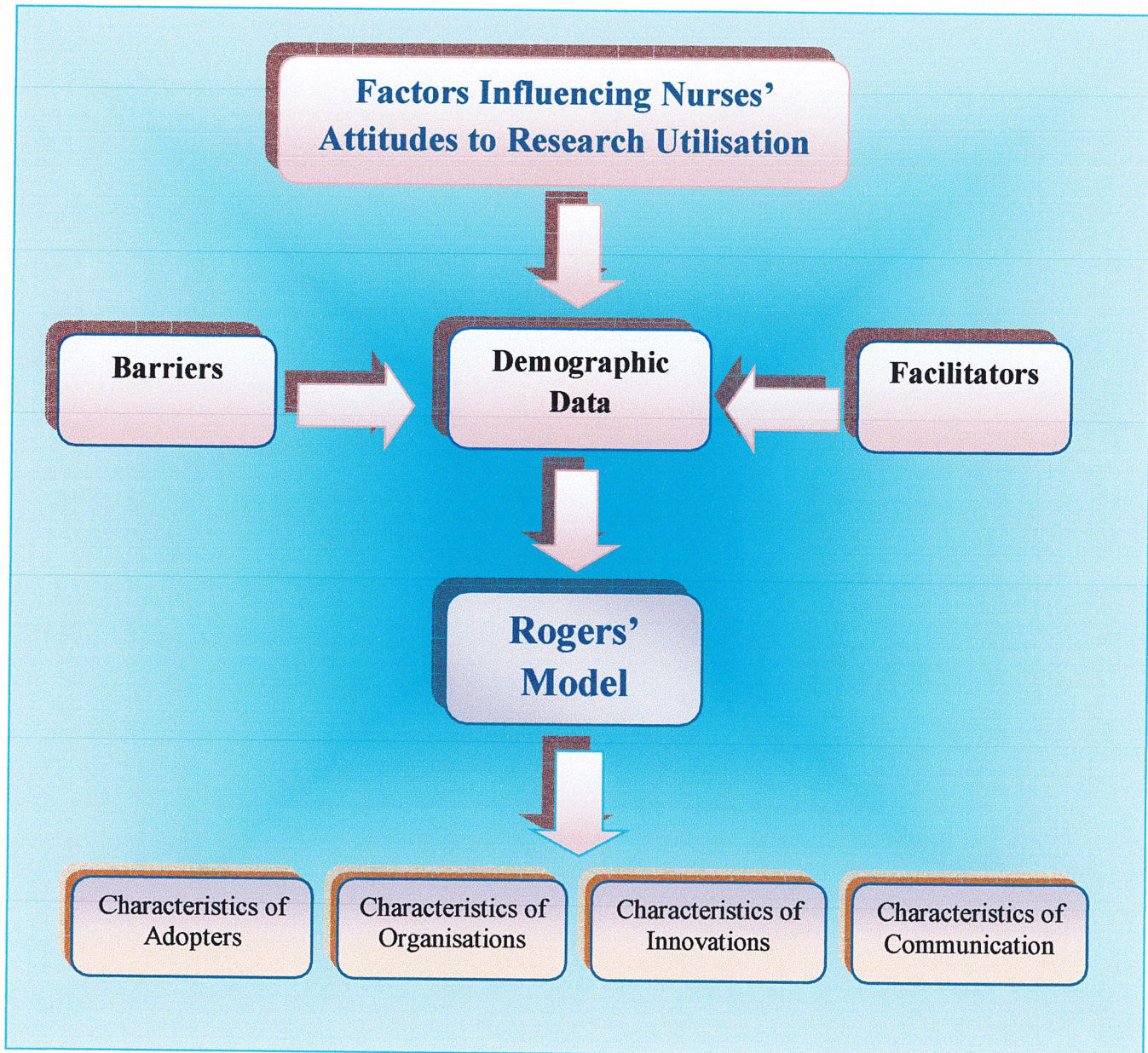
The model is descriptive and easily displays the Barriers sub-scales of the four characteristics. The present researcher has chosen characteristics from previous studies because they simply and accurately describe the variables. Therefore, for the purposes of the present study, Roger's diffusion process of innovation was found to be the most

appropriate approach to measure nurses' attitudes towards research usage in nursing practice.

1.4 The Conceptual Framework Development

Figure 1.1 describes theoretically how nurses' attitudes may be derived, using Rogers theory. The researcher explored the relationship between the nurses' demographic characteristics and the application of research into practice, filtering the relevant barriers and facilitators. Furthermore, the Barriers scales are divided into four factors based on Rogers' theory (2003) as described above.

Figure 1.1 Theoretical / Conceptual Framework based on Rogers' Model (2003)



The next section presents an overview of the geographical area where this study is based, the history of nursing in Bahrain, educational standards of the nurses surveyed, and future challenges faced by the nursing profession in Bahrain.

1.3 The Bahrain Context - An overview

1.3.1 Geography and Population

The Kingdom of Bahrain is located in the Middle East, an archipelago in the Persian Gulf. Bahrain is an island nation and consists of a group of 33 islands. Situated in the Arabian Gulf approximately 20km from the eastern shore of Saudi Arabia, it has a total area of 680 square km. The total estimated population is 1,039,297 (Ministry of Health (MOH), 2007(b)). The population of people born in Bahrain (called Bahraini) is 50.7%, and 49.3% are non-Bahraini. Muslims (Shi'a and Sunni) comprise 81.2% of the population, with Christians 9%, and others 9.8 %. The crude birth rate sits at around 15.4 per 1000 population, and the population growth rate at 2.7% (Central Intelligence Agency, 2007). The languages spoken are Arabic, English, Farsi, and Urdu. Life expectancy at birth for the years 2005-2010 is 73.1 for males and 77.3 for females, giving an average of 74.3. The adult literacy rate (defined by the percentage of the total population aged 15 and over who can read and write) is 87.7%, includes 92.5% of males and 83% of females (Census Data, 2001). Schooling years (primary to tertiary education) total 15 years, including 14 years for males and 16 years for females (Census Data, 2005). The Gross Domestic product (GDP) (2005) is 18.465 (US\$ per capita) spending on health and the total public expenditure on health (2005) is 631.3 (MOH, 2007(b)).

1.3.2 Nursing in Bahrain

In order to achieve effective and efficient nursing services in Bahrain, according to Youssef (1994), nursing leaders in Bahrain have endeavoured for some time to develop a strategic framework to facilitate nurses regularly updating their knowledge base. In 1991 only 15.5% of the nursing workforce was Bahraini nationals, and the total nursing personnel included 2244 nurses of foreign nationality. A plan was therefore developed to “Bahrainize” the nursing workforce to a rate of 50% by 2000 (Al-Darazi, 1991). Most recently, the total nursing workforce in the Kingdom - including the Ministry of Health (MOH), the Bahrain Defence Force (BDF) and private sectors - was estimated to be 3843 (national and non-national nurses) (MOH, 2007(b)).

SMC is a multi-specialty secondary and tertiary health care facility, which provides emergency and outpatient care to all residents (those born in Bahrain) and citizens (those from outside and living in Bahrain). During the last decade the hospital has witnessed a remarkable evolution in the size and quality of services. SMC has been able to introduce many new services, such as oncology, kidney transplant facilities, and new sophisticated medical equipment is also available to be used in the diagnosis, treatment and rehabilitation of patients. In order to provide the best quality of health care to patients, SMC clinics are also supported with radiology and laboratory services for diagnostic purposes. Physiotherapy, pharmacy, and radiotherapy are also available to provide therapeutic services to patients (MOH, 2009(b)).

Recently, the SMC workforce has experienced a remarkable increase in numbers with an associated expansion in hospital buildings. The new expanded numbers include 625 physicians, 2104 nurses and a maternity unit. The number of available beds in SMC has also risen over the years, and with the recent expansion this figure has reached 50 wards or 918 beds available for inpatient care (MOH, 2007(b)).

1.3.3 Nursing Education

In 1959, a small School of Nursing was established to train local people as nurses. The period of study was five years, with one year being conducted in Arabic and the remainder in English? Between 1965 and 1975, other allied health in-service training programs were initiated by the Ministry of Health in response to the needs of various clinical departments. However, while the health services continued to develop and expand within Bahrain, it became evident that a central training institution for the preparation of nurses and allied health professionals was crucially needed.

In April 1976, the College of Health Sciences (CHS) was established to meet the needs of the health services in Bahrain. In 1979, CHS became a nursing division and the general program was replaced by an Associate Degree (AD) Program in nursing, and the College began offering a study of three years in English. In 1983 a post-basic program in community health started, and the year after a Bachelor of Science in Nursing (BSN) started with 9 candidates. In 1990, the Nursing Division at the CHS was appointed as a World Health Organisation (WHO) Collaborating Centre College of Health Sciences (CHS, 2007). The College is situated in the SMC together with Salmaniya Hospital and the Arabian Gulf University College of Medicine and Medical Sciences (AGU-CMMS).

This location of these facilities in close proximity benefits students, as all the various strands of their education, including clinical visits, are centralised (CHS, 2007). By December 2004, more than 4,000 students had graduated from the different specialties, providing some of Bahrain's much-needed health professionals (CHS, 2007).

The objectives for nursing education were to prepare nurses for leadership roles at basic and intermediate levels, and to allow collaboration with the WHO. The partnership with WHO was to assist with establishing a nursing database and increasing access to electronic resources by collaborating with the WHO to conduct nursing and health research, and to promote the sharing of information. It also enabled Bahrain's participation in world-class nursing and health research, and promoted the sharing of knowledge internationally. The CHS is now a major international centre for nursing and midwifery, and continues to play a leading role in this area as one of the thirty seven WHO collaborating centres (CHS, 2007).

Currently the CHS offers a Bachelor of Science in Nursing (BSN), and an Associate Degree in five allied health specialties: pharmacy, public health, medical laboratory technology, dental hygiene and radiography. All of these programs will be offered at the Bachelor of Science degree level in the near future. Furthermore, in August 2006 the CHS signed a Memorandum of Understanding with a consortium of major Universities in Australia, to establish academic affiliations, obtain accreditation for its programs and promote an exchange of expertise and collaboration in teaching and research (Ameen, 2007).

In response to the urgent need for high quality nurses and midwives, the Royal College of Surgeons in Ireland (RCSI), together with the Medical University of Bahrain, established the first independent School of Nursing in Bahrain in September 2007. The college offers a four year programme leading to a Bachelor of Science degree, and forty-one Bahraini nursing students enrolled in the college last year. The vision of the RCSI School of Nursing is to enable nurses to apply the research process to the study of nursing problems. It also hopes to enhance nurses' capabilities in terms of meeting expanding health service needs (Royal College of Surgeons in Ireland-Medical University in Bahrain, 2005).

1.4 Challenges for the Nursing Profession

There are many challenges currently facing the nursing profession in Bahrain. Some important measures include reviewing the ministerial strategic plan periodically, improving nursing research, and promoting other scholarly activities, such as leadership and management courses and workshops (Al-Gasseer, Al-Kuwaiti, Al-Gaud, Al-Muhandis, & Murad, 2003). In addition, there are challenges faced by nursing services in Bahrain in regard to providing and maintaining high professional standards of care by enacting EBP (Nursing Profession Levels, 1991). However, the Bahrain health strategy aims to develop the role of education in the health services, and, in partnership with other agencies, to focus on research and development within the health services sector (MOH, 2007(a)).

The Ministry of Health is committed to using health information technology for the purposes of facilitating the work of health professionals and assisting them in providing high-quality health services to the public. In addition, there is a focus on promoting awareness among nurses about information, and encouraging the use of existing health and nursing information in research, education, practice and management. The current health strategy includes plans for the development of an information and communications technology system, and ensures that the application of new technology underpins strategic directions (MOH, 2007(a)).

1.4.1 Bahraini Issues In Relation to EBP

1.4.1.1 Health Strategies in Bahrain

With ever-increasing trends towards utilising the research-evidence base in Bahrain, it is necessary to identify challenges in nursing profession in the Kingdom. The most important issues undertaken by nurses for improving the health care system was developing a comprehensive and integrated strategic plan for nursing development at the national level to produce cost-effective and high-quality health service. The strategic plan covers four major areas: nursing regulation, nursing education, nursing services, and leadership development (Al-Gasseer, et al., 2003). Nursing development consultants formulated a strategic plan to develop nursing systems in the Kingdom, which was guided by the regional nursing strategies concerning the health system issues of Bahraini citizens (Al-Gasseer, et al., 2003). However, in collaboration with a WHO nurse consultant together with health professional teams and health policy makers, a workshop was designed to integrate the previous work done in practice. The purpose was to identify needs, fill gaps and develop a holistic approach for nurses to improve nursing services

and enhance quality care (Al-Gasseer, et al., 2003). These continuous national workshops have achieved this vision, with nursing leaders and taskforce groups showing remarkable progress towards improving key areas (WHO, 1998). These include the clinical environment for nurses' entry level into practice, nursing education redesign and nurses' roles in various specialties (WHO, 1998). Nurses are committed to carrying out patient care based on the best available scientific evidence (International Council of Nurses, 1999). Therefore, nursing leaders in the Kingdom recognised the urgent need to develop a strategic health framework to promote effective nursing standards in practice (Youssef, 1994). Nurses follow the Bahraini code of professional conduct, which clearly shows the importance of research utilisation in nursing as evidence-based practice (Al-Gasseer, et al., 2003).

Bahrain has also been nominated as a Centre for the United Kingdom Cochrane Library in the Middle East. This provides access to systematic reviews of the evidence of effects of health care interventions, and actively aims to minimise the effects of bias. This is undertaken by identifying problems of studies of patients' cases through a comprehensive search programme via the Eastern Mediterranean Health Journal (EMHJ). EMHJ reports on randomised controlled trials for journals published in the Arab world. As a result, many health care professionals have been involved in evidence-based practice studies to improve medical and nursing practice in the Kingdom (Al Hajeri, Al Sayed, & Eisinga, 2006).

The Ministry of Health of the Kingdom of Bahrain has recognised the need to focus on reducing the barriers facing the health services, by improving the six core

principles which are the mainstays of the Bahrain health care delivery system. These principles are:

- accessibility;
- affordability;
- appropriateness;
- accreditation;
- acceptability and
- accountability (MOH, 2006).

The process involves monitoring, evaluating and reporting health outcomes based on evidence-based practice. Therefore, the Ministry has recognised the urgent need to enhance strategic cooperation and to build a collaborative relationship between governmental services, private sectors, communities, families and individuals (Luke, 2007).

1.4.1.2 Future Prospective Challenges for EBP

The Bahrain Health Strategies of the Ministry of Health provides the framework of action within various entities across the health sectors. These strategies are intended to identify the major issues that influence the quality and performance of the health care system in the Kingdom. The main focus is continuous quality improvement and progressive development of health systems. The Ministry of Health has developed strategic plans involving expertise at different levels, including some health professional stakeholders, in defining the vision for the future to improve the health of the population of Bahrain in order to provide accessible, responsive, high quality service for all throughout their lifetime. The MOH mission is to ensure the provision of evidence-based

care at all levels based on the efficient use of resources and encouragement of personal responsibility for health (MOH, 2009(a)).

Bahrain health services have highlighted twelve strategic goals which were chosen and developed to reflect major issues with the aim of integrating their functions. These goals are all of equal importance to the overall improvement of the efficiency and effectiveness of health service performance, the quality of services provided to the public and ultimately the improvement of the health status of the population. These goals focused on the improvement of health and the prevention of leading causes of death such as cancer; issues related to quality improvement of health system performance; delineating the importance of developing models to improve secondary and tertiary health services; and human resources and financial management. In addition, the role of education and the importance of the health research system to enhance services were highlighted. Eventually, growth and the role of information and communication technology will also be a focus of these health strategies (MOH, 2007(a), p.4).

In terms of EBP, one of the important goals was to develop the role of the health system in education, research and development, in partnership with other agencies. A focus on health research for development aims was also considered important. This involved the development of a Centre for Health Systems Research and Evidence-Based Clinical Practice, to ensure a structured approach to the assessment, organisation and co-ordination of research-utilisation policies based on research outcomes and epidemiology. It also included as its aims the enhancement of continuing professional development

programmes for all staff through structured education and training programs, with an ultimate view to establish a research training program for Ministry of Health employees.

In addition, Bahrain is also seeking accreditation of the health care profession in accordance with approved international standards. This is considered one of the most important priorities in health care strategies (MOH, 2006).

The perceptions of nurses working in Bahrain towards research utilisation in their practice have been the subject of limited study. The challenges for nursing services in Bahrain remain the provision and maintenance of high professional standards of care, inclusion of nurses in a professional cadre, provision of EBP, and increase in the knowledge of nurses about leadership and management in health care organisations (NPL, 1991). Swan, Al-Gasseer and Lang (2003) argue that nurses need to implement the best available evidence to optimise patient care and meet the challenges facing health services. In addition to this, they claim that decision makers at all levels need to use evidence-based knowledge to enable effective intervention, and to set up appropriate policies.

In the following section the researcher has sought to include some background information about Iran. The reason is that in the process of reviewing studies about the application of research in the Middle East, Iran was found to be one of the most prominent and populous countries in the Middle East to have carried out such studies (Adip-Hajbaghery, 2007; Mehrdad, Salsali & Kazemnejad, (2008(a); (2008(b)). Therefore the forthcoming brief overview about the history of nursing in Iran has been included.

1.5 Some Background Information on Iran

Very little literature relating to research utilisation in nursing in the Middle East exists, apart from studies conducted in Iran. These may be compared to the Bahraini context, as both settings share geographical and to some extent cultural similarities. Therefore, this section gives some background information on Iran in general and its nursing history in particular.

Iran is an Islamic country located on the north-eastern shore of the Persian Gulf, the north-western shore of the Gulf of Oman and the southern shore of the Caspian Sea in the Middle East. Shia Islam is the official religion and Persian is the official language of Iran. Iranian culture has long been a predominant culture of the Middle East. Bahrain shares strong relations with Iran and the same religions, traditions, and social perspectives are shared among the citizens of both countries (Central Intelligence Agency, 2008).

However, the two countries do not share similar languages and might have some different cultural views. In addition, it would not be accurate to assume that the data relating to Iranian nurses' attitudes and nursing contexts would be similar to the studies conducted on nurses in the Bahraini setting.

Nursing in Iran started in 1915, before which time patients received health care from untrained nurses (Tafreshi & Davachi, 2000). Soon, the avenues of nursing education in Iran began to develop with a three-year educational programme. Nursing colleges gradually expanded over the whole country. Care was given to patients of both

sexes only by female nurses due to the prevailing cultural and religious values (Salasali, 1999).

In Iran, the Islamic revolution caused significant social and cultural changes. This led to major influences on both the health care delivery system overall, and the nursing profession as part of that. Ultimately, the Islamic revolution changed trends in nursing in this region. The government subsequently released a resolution allowing the entry of both male and female nurses to Iranian nursing colleges (Adib-Hajbaghery & Salsali, 2005). Iran's National Health Service (NHS) covers 68 million people. It employs 70, 000 nursing staff that provides nursing in general and specialty hospitals. The NHS is run by the Ministry of Health and Medical Education through a network of health establishments and medical schools.

The nursing profession has continued to develop with a four year Baccalaureate training accredited by the High Council of Medical Education of the Ministry of Health and Medical Education, which is the usual mode of entry into the nursing profession. Nursing students start clinical training from the second year and this is run concurrently with theoretical courses until the third year. The fourth year is allocated exclusively to clinical placement training. In addition, Master of Nursing (MSN) and Doctor of Philosophy (PhD) programmes are also available (Mehrdad, et al., 2008(a)). Nursing practice in Iran is task-oriented (Adib-Hajbaghery & Salsali, 2005). All curative health services are provided in hospitals as there is little provision for systemic medical and nursing care at home. Recently, the public and government have stressed the importance of Iranian nurses improving the quality of patient care, as patients and relatives have

increased their demands on nurses to incorporate research findings into their practice (Mehrdad, et al., 2008(b)). However, in the emerging role of nursing in Iran, even with the cultural and political differences from Western European models of nursing, the reported findings are similar in relation to research utilisation (McClarey, 2008).

1.6 Research Aim, Questions, and Significance

1.6.1 Aims of the Study

- To explore nurses' attitudes, skills, and nursing culture values in regard to research uptake in clinical settings in SMC-Bahrain.
- To determine the relationships between demographic characteristics and research utilisation in practice.
- To explore differences or commonalities that may exist between the findings of this research, and those studies that have been conducted in various settings around the globe.

1.6.2 Research Questions

- What are the barriers and the facilitators for research utilisation that influence nurses in the practice setting?
- Are there associations between the demographic characteristics of nurses and their research utilisation in practice?

1.7 Significance of the Study

The importance of demonstrating the concept of EBP in the nursing profession globally has been identified as a key issue (Olade, 2004). Adib-Hajbaghery and Salsali (2005) have argued that a lack of programmes and strategies to enhance the use of research findings contributes to difficulties for Iranian nurses in implementing research-based practice. Many nurse-researchers lack the required knowledge of the research process, (or guidance in interpreting results), and this may result in findings being inappropriately evaluated for EBP. It could be argued that these factors would cause a barrier for nurses using research in their nursing practice, and hinder their professional growth and development. The majority of studies have been carried out in Western contexts, it is important to examine the perceptions of nurses regarding research utilisation in practice in the Middle East.

Therefore, the present study seeks to investigate the barriers to and the facilitators of research utilisation that influence nurses in the practice setting in a large Bahraini hospital. It is important to know how the nurses in SMC-Bahrain perceive research, whether they value evidence-based practice and if they are able to understand and analyse findings of research that can be implemented in their daily work. Finally, it will be valuable to determine what strategies could be used to overcome barriers and change nurses' perceptions towards research usage to improve evidence-based practice.

1.8 Conclusion

In order to understand research utilisation in nursing, and develop a deeper understanding of nurses' perceptions of research utilisation, it is necessary first to consider the importance of EBP in the nursing profession, and to develop an understanding of the factors affecting nurses in their application of research in their nursing practice. Therefore, issues related to evidence-based practice at the national level are discussed, focusing on Bahrain's health strategies and future challenges.

The literature review presented in Chapter 2 begins by considering relevant research undertaken worldwide and in particular material related to the barriers and facilitators which may affect nurses in the application of EBP. It then looks more specifically at perceptions of research utilisation amongst nurses working in hospitals in the Middle East, as well as considering material specifically related to the issues that hinder nurses from using evidence-based knowledge in their practice. Chapter 3 provides an outline of the methodology, chapter 4 presentation of the data generated from the study, followed by discussions in chapter 5. Finally, in chapter 6 the implications of the findings are discussed and strategies to enhance research utilisation in practice are recommended.

Chapter 2: Literature Review

2.1 Introduction

This chapter reviews studies that have been conducted in different settings around the world, demonstrating a variety of barriers and facilitators for nurses in research utilisation in their practice. Then follows a discussion of how evaluators of nursing practices around the globe use the validated scale, “The Barriers Scale” (BS), to measure nurses’ attitudes towards these barriers and facilitators. The chapter continues by focusing on studies undertaken at a regional level in the Middle East on nurses’ perceptions of the utilisation of research in the nursing profession. Issues or factors that affect nurses’ research use, and what strategies would facilitate the application of evidence-based knowledge in their practice, are then examined in detail. Finally, this chapter will discuss issues related to evidence-based practice at the national level, focusing on Bahrain’s health strategies and future challenges.

2.2 Global Issues of Research Utilisation

Research utilisation by nurses is a complex phenomenon that has been broadly discussed in the research literature (Griffiths, et al., 2001). Evidence-based practice is a multifaceted issue that is not easy to understand, and it is also “a complex social process” (Kittson, 1999, p13). Studies have been conducted in different countries and settings including Australia, the United States, Canada, the United Kingdom, Northern Ireland and some countries in the Middle East. These have explored and identified the barriers to research uptake, in order to overcome obstacles and identify strategies to facilitate research use. Although evidence-based practice and the use of the validated standardised

BS have been promoted in nursing, a gap continues to exist between research evidence and its use in clinical practice (McCleary & Brown, 2003).

Hunt (1991) argues that there have been a number of attempts within the nursing profession during the last 30 years, for example in the United Kingdom and United States, to increase research uptake. This would enhance the dissemination of research findings and ensure their relevance to nurses and patients. However, despite these efforts, surveys of how nurses apply research-based practice have rarely been carried out (Hutchinson & Johnston, 2003). Hunt (1997) identified perceived negative attitudes and beliefs about research utilisation as the main reasons that nurses in the United States were not utilising research findings in practice. Similarly, Boore (1995) claimed that nurses support practices and improvements in theory, but fail to show research-based evidence for changes they make in their work-place. This means that some procedures which have been shown to be detrimental to patients, such as pre-operative shaving, are still routinely carried out (Agency for Health Care Policy & Research, 1992; Valente, 2003).

Estabrooks (1999) indicates that Canadian nurses seem to depend on information gained from conversations with colleagues and in-service training, more than published research articles. From this it can be inferred that, for these Canadian nurses at least, nursing practice and decision-making tended to be based more on nurses' experience and informal anecdotal evidence, rather than on research evidence (Funk, et al., 1991). More recent research has continued to support similar findings that nurses value personal experience, and depend on their interactions with colleagues to gain relevant knowledge, rather than relying on scientific data. Therefore, it is imperative to investigate the extent

to which nurses rely on personal experiences, as opposed to integrating various aspects of evidence-based science into their practice (Gerrish, Ashworth, Lacey, & Bailey, 2007).

2.2.1 Evidence-Based Practice (EBP) in the Nursing Profession

This section briefly reviews the main issues in the research literature relating to the use of evidence-based practice in the nursing profession worldwide.

The drive towards evidence-based practice gained momentum in the early 1990s, and focused on the importance of incorporating research findings into practice (Evidence-Based Medicine Working Group, 1992). Meanwhile, the emphasis on undertaking research is identified in the use of research evidence-based knowledge guidelines in the nursing profession (Estabrooks, 1999). Parahoo (1999) claims that EBP in nursing depends on a variety of wider issues, including practitioners' attitudes, knowledge, research use, the availability of and access to relevant research, available resources and organisational support.

Studies conducted to determine the factors that influence research utilisation by nurses, and the most convincing evidence of determinants of research uptake, are those which arise from the exploration of nurses' attitudes to research (Champion & Leach, 1981; Walsh, 1997). Numerous studies have shown that nurses are likely to exhibit positive attitudes towards research, but it seems that having a positive attitude to research is not necessarily sufficient in itself to put research into practice (Lacey, 1994; Hicks, 1996; Le May, Mulhall, & Alexander, 1998; Dunn, et al., 1998). Therefore, the body of

work exploring influences on research use has focused on identifying the barriers to research utilisation.

Recently, more attention has been paid by many health organisations, agencies and governments to the necessity of increasing EBP as one effective method to obtain higher-quality care and improved patient outcomes (Committee on Quality of Health Care in America, 2001; Pathman, Ricketts, & Konrad, 2006). On the other hand, it has also been claimed that the gap between the availability of research evidence and the use of such evidence in practice is a significant issue that needs immediate attention and action (World Health Organisation, 2004; Crane, 1995). To support the above view, Crane (1995) and Grant-Peterson, Dietrich, Sox, Winchell, and Stevens (1999) argue that nursing care carried out in accordance with EBP demonstrates better patient outcomes, as opposed to routine care. These studies concluded that although nurses seek to read research findings to gain evidence-based knowledge, unfortunately they fail to apply such knowledge in their nursing practice. Some barriers nurses reported to the use of research included lack of time, lack of availability of relevant literature, poor critique skills and a lack of available database search technology (Hutchinson & Johnston, 2006).

The rapidly-emerging trend to EBP in nursing worldwide has inspired extensive studies exploring the difficulties that underpin putting research findings into practice in health care delivery systems. As a result, health organisations in the United States considered it critical to initiate strategies that might reduce the theory-practice gap.

Three collaborative facilitators were suggested by health care systems that are using electronic health record systems in the United States, aiming to minimise the gap between what is known and what is practised. The health care teams are partnerships between nursing leaders from academia, business and research (Weaver, Warren, & Delaney, 2005).

These collaborative strategies include the 'bedside' strategy, which revolved around using data from electronic health records to educate nurses, dedicated EBP training, or 'classroom' teaching, and finally the 'bench' technique, incorporating a paper-based clinical information system. The proponents of this approach saw it as a great step forward towards translating nursing knowledge into practice (Weaver, et al., 2005).

Another survey was conducted in Danish hospitals to describe the extent of EBP use among Danish cardiac nurses (Egerod & Hansen, 2004). This study aimed to compare head nurses' and bedside nurses' attitudes to and knowledge of EBP, and to determine what knowledge base they used when making clinical decisions. The head nurses' responses revealed encouragement of nurses to use the best research evidence, as opposed to bedside nurses who often relied on personal experiences in their work. Some 82% of head nurses were familiar with the concept of EBP, but only 48% of bedside nurses. This study concluded that the most likely factors that hinder EBP were lack of education, difficulty understanding research written in a foreign language (English), and organisational positions such as nurse leaders who have limited authority to change practice (Egerod & Hansen, 2004).

Due to the complex nature of the issue, many researchers have developed complex theories and models to facilitate improvements in the field of evidence-based practice (Newman, Papadopoulos, & Melifonwu, 2000; Olade, 2004; Thompson, Cullum, McCaughan, Sheldon, & Raynor, 2004). However, evidence-based practice is not yet well understood or used in some countries, which gives rise to controversial issues for nursing professionals (Mehrdad, Salsali, & Kazemnejad, 2008(a)).

Nursing education in modern times has concerned the development and enhancement of nurses' clinical knowledge. However, there is limited evidence of improvement in patient care outcomes (Parkes, Hyde, Deeks, & Miline, 2001). Despite numerous studies conducted in clinical settings, and the various plans and strategies set up to encourage nurses' use of research in practice; there is still a pronounced theory–practice gap. The above discussion argues for the immediate need to develop more appropriate strategies to promote EBP in order to ensure continued improvements in patient care (Gerrish, et al., 2007).

2.2.2 The Impact of Barriers and Facilitators on Research Utilisation

This section introduces studies that have explored common barriers that hinder nurses from applying research. Suggested facilitators that could help overcome these obstacles are also examined, as are those likely to encourage the use of EBP.

Funk, et al., (1991), Dunn, et al., (1998), Kajermo, et al., (1998), Retsas (2000), and Parahoo (2001) have identified the following common barriers to nurses' research utilisation:

- difficulties in understanding research findings;
- lack of time;
- lack of authority to implement research findings;
- lack of awareness of research;
- physician-dominated clinical environments.

In addition, physicians are more able to demonstrate professional autonomy in their practice than nurses, who are often controlled by hospital rules and regulations (McCleary & Brown, 2003).

Olade (2004) conducted a study on rural nurses in the south-western states of the United States of America, to identify the extent to which they utilise evidence-based guidelines for research in their practice. The study focused on both previous and current research utilisation activities and existing barriers. The findings showed that current bachelors degree nurses were striving to use the available scientific evidence (such as pain management, ulcer prevention and management), but there were difficulties accessing the research due to geographical barriers and the lack of nursing research consultants.

Fink, et al., (2005) found that it is imperative for health organisations to create a supportive environment (such as journal club activities) to identify nurses who are interested in research utilisation, and to share positive attitudes towards research that are appropriate to the needs of that organisation. This supports a widely-accepted view that nursing administrations should evaluate their educational programmes to assess nurses' capabilities in translating scientific knowledge into practice (Stetler, 2003).

Hunt (1997) states that the factors that affect nurses' research utilisation include:

- accessibility of research findings;
- nurses beliefs towards research use in practice;
- applications and interventions of research findings in practice;
- health organisations that were likely to practice evidence-based knowledge.

In support of this view, Veeramah (2004) argues there is pressure exerted on nurses by health organisations to use research findings to inform their practice. A survey was conducted on 340 nurses and midwives in the south-east of England, to assess the impact of research education on the nurses' attitudes towards research use. The barriers found were:

- difficulties in understanding statistical analysis;
- lack of time to read research;
- limited access to relevant research findings.

There was a positive relationship between the level of research education attained, attitudes towards research, and research utilisation in practice. Results showed that a large number of respondents (96%) stated that their critical appraisal of research methodology improved following graduation, search skills also improved (87%). Slightly more than half (50.5%) of the respondents reported that they used research findings in practice as frequently, and the majority expressed positive attitudes towards research which is related to the research education received.

For this reason, it would seem prudent for nurse managers to adopt strategies such as providing

- access to the internet and electronic databases at work;
- more access to research education;
- presentation and discussion of relevant research articles that can be implemented in their clinical areas;
- a clinical research specialist (Veeramah, 2004).

In contrast, another study conducted on Finnish nurses used a structured questionnaire to describe their research and publication activities, and their opinions on the accessibility of undertaking research in their nursing practice (Kuuppelomaki & Toumi, 2003). Interestingly, the finding was that 60% of the nurses surveyed were highly motivated to conduct research on their own. The major barriers were:

- no time on the job to implement new ideas. This was rated 73%, (the highest among all items);
- difficulty in understanding statistical analysis;
- no time to read research articles;

They also found nurse managers supported the nurses, while less support was received from the physicians.

This study suggested that to encourage nurses to do more research and increase the use of research results, there must be major efforts dedicated to:

- teaching research methodology;
- offering nurses more flexible hours;

- encouraging other support systems (Kuuppelomaki & Toumi, 2003).

Nurses are rarely known to publish their research work (Kuuppelomaki & Tuomi, 2003). This may be because they lack the confidence to submit their research findings. This is consistent with the tradition that as nursing is a non-academic caring profession, they lack the competencies required to meet their new role demands for patient care (Hicks, 1993). Some reasons put forward for this are that they do not have appropriate methodological knowledge, and have insufficient self-confidence and / or time constraints (Hicks, 1993, 1995). On the other hand, it has been reported that nursing students seem uninterested in learning the methodology; rather, they prefer to learn nursing practice briefly and are not interested in detailed explanations (Ax & Kincade, 2001).

Similarly, a study conducted on seventy-nine clinical Danish nurses examined the difference between research-active clinical nurses and non-research-active nurses (Adamsen, Larsen, Bjerregaard, & Madsen, 2003). They found that research-active nurses who use and conduct research in practice showed a significant ability to overcome barriers in evaluating research methods compared with non-research-active nurses who do not use or conduct research in their work. However, the major barriers experienced by these nurses, as claimed by the researchers, were:

- the overwhelming amount of research studies;
- difficulties in evaluating research studies;
- lack of time.

In this study, these barriers were termed the 'theory-practice gap'. In order to overcome the barriers, the authors urged nurses to train in research methodology, and to allocate adequate time to read and discuss research in the workplace (Adamsen, et al., 2003).

According to Olade (2003), the lack of a positive attitude toward research is a significant barrier. Poster, Betz and Randell (1992), who surveyed 92 nurses from a psychiatric hospital in the United States on their attitudes to research, found that (amongst other factors) their level of education was a significant indicator of how likely they were to use research in their practice. Similarly, Veeramah (1995) conducted a study on mental health nurses in the south-east of England, and assessed their attitudes towards and other factors affecting their use of research findings in practice. The study found that the majority of nurses had a positive attitude towards research education courses, but that few identified the importance of using research findings to enhance their clinical practice. The major barriers they reported were:

- lack of time;
- difficulties understanding the research analysis.

Veeramah (1995) argues that the application of research process could be improved by offering mental health nurses a special course, such as a postgraduate research course. It could also include measures such as understanding the fundamentals of nursing research skills, to help students build up their research competencies. This could be achieved by making it easier for students to develop new skills in areas like writing proposals, developing research practice guidelines, critiquing and teaching

methodology to assist in implementing research evidence, and experience with evaluating research findings. This approach has the potential to increase nurses' engagement with research utilisation, and to improve patients' outcomes and health care cost-effectiveness by improving practices (Quinn, 2001). Other evidence suggests that it is the nurse educators' responsibility to evaluate nurses' perceptions towards research utilisation, so as to determine the deficiencies in research knowledge and skills and attitudes of their nurses (Witzke, et al., 2008).

2.2.3 Research Utilisation amongst Nurses in Australia

This section focuses on what barriers to and facilitators of applying research in their workplace are perceived by Australian nurses. To assist comparisons, differences and commonalities in Australian and Bahraini settings are also explored.

Retsas (2000) examined barriers to the use of research evidence in nursing practice, as experienced by 400 nurses working in an Australian hospital. The study identified four main factors:

- accessibility of research findings;
- anticipated outcomes of using research;
- organisational support;
- support from others (nurse managers) to use research.

The most significant factor was perceived to be organisational support, especially in relation to providing nurses with sufficient time. Other barriers reported were:

- insufficient time to use and conduct research;

- inadequate facilities to implement research.

These findings would suggest that these issues need to be addressed at an organisational level, and that any changes need to include allowing adequate time for nurses to achieve this goal (Retsas, 2000).

Hutchinson and Johnston (2003) conducted a similar study on 761 Australian nurses working in a major teaching hospital. The aim was to gain an understanding of perceived influences on research utilisation in practice, and to explore the differences or commonalities that exist between the findings of their study and those conducted in other countries. They found that the greatest barriers were:

- time constraints;
- lack of awareness;
- insufficient authority to change practice.

The perceptions of Australian nurses are noticeably consistent with the reported perceptions of nurses in the USA, UK and Northern Ireland. In spite of these barriers, evidence suggests that Australia has shown a remarkable increase in the output of nursing research and theoretical literature, conferences and journals where research has been disseminated, and in access to systemic reviews and research databases. Unfortunately, this does not seem to translate into practice as often as it could - nurses in hospitals have demonstrated little use of research findings to enhance patient care (Dunn, 1998).

A survey conducted by Nagy, Lumby, McKinley and Macfarlane (2001) aimed to explore nurses' attitudes towards obstacles to or assets in the development of research-

based nursing. The results made explicit six factors perceived by Australian nurses as most important to advance evidence-based practice:

- the value of EBP to patient care;
- organisational support for EBP (e.g. time, training, resources and incentives);
- gaining skills in locating and evaluating relevant research reports;
- clinical usefulness of research;
- knowledge of research language and skills; and
- time to devote to EBP.

This study clearly demonstrated that Australian nurses are enthusiastic about the concept of applying scientific evidence to their clinical practice (Nagy, et al., 2001).

The findings were consistent with nurses' beliefs in the USA and UK (Funk, et al., 1991; Pearcey, 1995).

Another study was conducted with registered nurses in south-east Queensland, Australia, to investigate the relationships between the effects of an EBP educational course and the attitudes, perceptions, knowledge and skills of registered nurses towards EBP. The findings provide empirical evidence that educational programmes were associated with improvements in nurses' attitudes towards organisational support for EBP. This includes their perceptions, knowledge and skills in evaluating research outcomes. These findings are consistent with recent studies of evidence-based practice undertaken worldwide (Sherriff, Wallis, & Chaboyer, 2007). The most effective goal of health care policy (Health Services District in South-East Queensland) (HSDS-EQ) is to

encourage EBP by improving nursing education in the hospital. This would enable the best outcomes for patient care (Queensland Health, 2002; Sherriff, et al., 2007).

The above discussion highlights the importance of cultivating evidence-based organisational cultures. Nurses in an environment ideal for these purposes would have access to mentors, and the time, technology and critical and analytical skills to analyse the available evidence. Leaders would support, recognise and reward them. Also, the system would enable their efforts, and positive attitudes would be shared between stakeholders (Stetler, 2003). For this reason, it seems that the more nurses are proactive in translating research into practice, and the more they support each other and create ways to find time to read journal articles, the more likely they are to utilise research to its best effect (McCloskey, 2008, p. 43).

The application of research to practice would not be possible or effective if carried out only by individual nurses, particularly when they lack authority in the organisation. Therefore, professional nursing organisations and individual nurses should commit to work openly and collaboratively to facilitate the implementation of research findings into clinical practice. In addition, it is imperative to consider nursing professionals critical viewpoints on barriers to research utilisation, because they have a significant influence on nursing behavior in daily clinical work (Paramonczyk, 2005). To manage and facilitate research-based nursing care, it is essential to develop nurses' access to appropriate learning environments. Head nurses and managers should encourage and support nurses applying research findings in the clinical area. On the other hand, nurses should cooperate with nurse managers and appreciate the use of research skills in their

practice (Parahoo & McCaughan, 2001; Fink, 2005). In addition, nursing education pertaining to research evaluation is needed for nurses to become active research users (Adamsen, 2003).

2. 2.4 Commonly Reported Issues Using the Barriers Scale

A study was undertaken by Funk, et al., (1991) in the United States of America, who developed and validated the research utilisation scale relating to barriers known as the Barriers Scale. The scale has been used in multiple published studies to explore nurses' perceptions of the barriers to research utilisation. See for example Funk, et al., (1991) and Funk, et al., (1995). Approximately 35 researchers from across the world have also used the tool.

The Barriers Scale has been used extensively in the United Kingdom and the United States, and less frequently in countries such as Sweden, Australia and Greece (Hutchinson & Johnston, 2006). This may be due to the fact that in the USA, research became a component of nursing education in the 1950s, but in Australia research did not become an important component of the nursing education curriculum until the late 1980s (Daly, Elliott, & Chang, 2000).

Another reason may be that researchers might have used other validated scales with the Barriers Scale such as the Edmonton Research Orientation Scale (EROS) Pain, Hagler, and Warren (1996), this self reported questionnaire designed to measure research involvement, research utilisation and attitudes towards both research and

research utilisation. However, both scales were used to investigate nurses' perceptions of research use and the relationships between those barriers and the participation in research.

At the same time, investigators suggest that the Barriers Scale is appropriate to assess the extent of overall attitudes / obstacles towards research uptake, and not nurses' specific experiences with barriers to the implementation of particular research. For instance, in a study on Canadian nurses, it was found that individual nurses' knowledge may not be as important as the process by which organisations implement research (McCleary & Brown, 2003). This is to say that in practice, research utilisation is more often a collective process (such as evidence-based quality improvement projects, nursing policy and procedure and nurses using research) than one in which individual nurse engage. Engaging in research utilisation as a collective process is one way to overcome common barriers to research use (Jones, 2000; Registered Nurses Association of Ontario, 2002).

Some other studies that have used the Barriers Scale have been conducted in the UK (Closs, Baum, Brayer, Griffiths, & Knight, 2000; Closs & Brayer, 2001, Marsh, Nolan & Hopkins, 2001; Metcalfe, Wisher, Perry, Bannigan & Klaber, 2001; Parahoo & McCaughan, 2001; Brayer, et al., 2003; Briggs, Paley, Cash & Closs, 2004), the USA (Funk, et al., 1991), Ireland (Glacken & Chaney, 2004), Norway (Hommelstad & Ruland, 2004) and Greece (Patiraki, et al., 2004).

The most commonly reported barriers in these studies are:

- insufficient time to read articles;

- implementing new concepts in daily working hours;
- lack of knowledge to interpret statistical analysis;
- lack of authority / support from health professional teams to change patient nursing interventions (Mehrdad, Salsali, & Kazemnejad, 2008(b)).

Other studies have also used the Barriers Scale, such as those conducted in Canada (Rader & Gagnon, 2000), Australia (Retsas, 2000), Sweden (Kajermo, et al., 1998) the People's Republic of China (Tsai, 2000) and Northern Ireland (Parahoo, 1998). These studies show consistency in the research findings, with other barriers being identified, such as authority to change practice (Kajermo, et al., 1998; Rader & Gagnon, 2000; Retsas, 2000; Parahoo, 1998). Studies that demonstrate barriers relating to the availability of research literature and its accessibility were reported by (Retsas 2000; Parahoo, 1998). Finally, lack of administration support was explored by (Kajermo, et al., 1998; Retsas, 2000).

Researchers have found that barriers often change in their importance in various settings. In other words, the barriers fluctuate to some extent in the ranking orders of different studies conducted worldwide (Mehrdad, et al., 2008(b)).

The following section briefly discusses some other examples of studies conducted in various parts of the world using the Barriers Scale, and presents their outcomes.

Kajermo, et al., (1998) conducted a survey of Swedish nurses, to illustrate their perceptions of barriers to and facilitators of research utilisation in their workplace. They found that the major barriers were:

- difficulties in accessing the research literature;
- inadequate opportunities for implementing findings in practice;
- lack of time;
- lack of authority to change practices.

It was recommended that provision be made for diverse educational models that benefit nurses by enhancing their ability to evaluate research findings. In addition, the study highlighted the need to assign special positions for nurse researchers in clinical practice settings.

Funk, et al., (1995) examined nursing administrators' perceptions of the barriers to using research findings in practice, and their perceptions of factors that enhance research use. This study was carried out on 5000 United States registered nurses. The findings showed a 40% response rate of administrators who perceived each barrier item as substantial. The Barriers item reported most often was 'a lack of awareness towards research' (77.5%). Additionally, Sullivan, Ready, and Fitzmaurice (1997) argue that the greatest barriers to research utilisation were:

- insufficient time on the job to implement new concepts, (71.4%);
- deficiency of knowledge of nursing research findings, (70.2%);
- inaccessibility of relevant literature (63.2%).

Oranta, et al., (2002) describes the barriers to and facilitators of research up-take for 316 Finnish registered nurses, also using the Barriers Scale. The aim was to identify factors associated with nurses (the characteristics of the adopters), the setting (characteristics of the organisation), research (characteristics of innovation), and

presentation (characteristics of communication). The main nurse-related barriers to research utilisation were language barriers (75%) of respondents, difficulties understanding statistical analyses (71%) and insufficient time on job to implement new ideas (71%). The facilitators were nurses' positive attitudes and the encouragement and support received by the nurses from the sisters-in-charge. The nurses' team-work spirit was also seen to be a contributing factor.

Another study conducted by Fink, et al., (2005) on registered nurses (RN) working in the United States, examined the effect of organisational strategies on RNs' use of research findings to change practice in an academic hospital. This study aimed to identify barriers to and facilitators of nurses' use of research in practice, and determine the relationship between these aspects and research utilisation. A descriptive pre-survey and post-survey design was data collected using the Barriers to Research Utilisation Scale (BS) and the Research Factor Questionnaire (RFQ). The BS was based on Rogers' diffusion of innovations model which is described above. Findings indicated that the greatest barrier for these individuals was the 'characteristics of organisational culture' (Fink, et al., 2005). Supporting the above are further findings by Paramonczyk (2005) in Canada, also using the Barriers Scale. The participants were nurses actively employed in hospitals and the private sector and public health agencies in Ontario, held competency certificates in nursing from the College of Nurses of Ontario and Bachelors degrees in nursing and had been exposed to research-related activities. The researcher found that participants rated the 'settings' characteristics (organisational barriers and limitations e.g. time, resources, support), as the most important barrier to research uptake, with the 'nurse' characteristics as relatively less important.

Likewise, a study conducted on nurses working in the Magnet Community Hospital in the USA, also using the 'Barriers scale', examined the nurses' perceptions of barriers to the utilisation of research in their practice (Karkos & Peters, 2006). Four domains, or factors, were examined including 'nurse' (nurses' values, skills and awareness), 'setting' (organisational barriers and limitations e.g. time, resources and support), and 'research' (research methods and their applications) and 'presentation' (communicating research findings and its accessibility). The 'setting' was found to be a significant obstacle for nurses. The researchers concluded that if nurses value the importance of research, and apply it in practice, then any health care system should be able to enhance the quality of patient care for the best clinical outcomes by promoting and supporting evidence-based practice. In addition, continuous organisational support would better enable nurses to promote advanced nursing practice in their working lives (Karkos & Peters, 2006).

In summary, this section has highlighted the commonly-reported barriers and facilitators worldwide. These barriers include insufficient time on the job to implement new concepts or ideas or to read research articles. In addition, lack of authority and support to change nursing interventions, and lack of knowledge to interpret research findings were common barriers reported by nurses globally. Potential strategies suggested to overcome these impediments are the inclusion of organisational support (by making more time available in the workplace), advanced nursing education, and more relevant research methodologies. Further, autonomy is needed to change practice by allowing nurses the opportunity to introduce new innovations in their clinical areas.

2.3 Regional Issues of Research Utilisation

In this section, the researcher discusses some of the studies which have been conducted in the Middle East relating to EBP and nurses undertaking research in their practice. Although large studies have been carried out in the United States and Europe (as previously discussed), it appears that few, if any, studies have explored nurses' attitudes towards research utilisation in the Middle East. Studies conducted in Western countries suggest that the nursing profession has put much effort into determining the barriers to EBP, while attempting to incorporate evidence-based knowledge into practice (Adib-Hajbaghery, 2007). However, while reviewing the research literature on research utilisation in the Middle East, the researcher found a few studies which have been carried out in Iran.

Comparisons between the Iranian and Bahraini settings can potentially be very useful, as they are the only places found by researcher, within the Middle East where such studies have been carried out. It is the current researcher's view that this is a good opportunity to compare the current study findings in Bahrain with nurses' views of research use in another Islamic culture.

In Iran, several studies have shown that Iranian cultural views of nursing and the theory-practice gap are a major concern amongst nurses (Salsali, 1999; Nasrabady, 2003). It cannot be assumed that the barriers reported by American and Western nurses are the same as those encountered by Eastern and Iranian nurses (Adib-Hajbaghery, 2007). Further, until now, no research has been carried out on nurses' attitudes in Bahrain exploring the barriers towards research in their practice. Although tempting, it is not

possible to accurately predict analogous findings regarding Iranian nurses' attitudes in this respect to nurses in Bahrain, though both countries share similar cultures and beliefs.

2.3.1 The Application of Research amongst Nurses in Iran

Dehghan-Nayeri, Nazzari, Salsali, Ahmadi, and Adib-Hajbaghery (2006) argue that research utilisation in Iran is a new concept, and that there have been many criticisms from the public and the government against nurses concerning poor quality of care. Following this, the health care system in Iran increased its emphasis on incorporating research findings into practice, based on international standards, to improve patient care (Tafreshi & Davachi, 2000). However, increasing cost limitations, the urge for quality of clinical care, the need for more transparency in delivering clinical care and patient-centered care are substantial issues that require health care systems to be based on scientific research, not only in Iran and the Middle East but also around the world (Mehrdad, et al., 2008(b)).

Trends in nursing seem not to accept nurses carrying out clinical nursing care only on a ritual or traditional basis (McSherry, Simmons & Abbott, 2002). The criticisms made by both the citizens of Iran and its health organisations, against Iranian nurses for their poor quality patient care appear to be the result of Iranian nurses' inability to incorporate theoretical knowledge into their practice. Clinical nurse educators in Iran themselves suggest that most Iranian nurses follow traditional systems in their practice, rather than theoretical evidence-based approaches, despite efforts to improve nursing education (Cheraghi, Salsali & Ahmadi, 2007).

Additionally, evidence suggests that the theory-practice gap in nursing education is a major concern, and it is accepted globally that what has been taught to nurses in academia and research is often not applied in clinical settings (Rolfe, 2002; Corlett, Parlfreyman, Slaincs & Marr, 2003; Maben, Latter & Macloed, 2006). To explain this, nurse leaders contend that the major barriers in improving the quality of patient care in Iran are nurses' lack of knowledge and poor quality of patient care in clinical practice (Dehghan-Nayeri, et al., 2006). It has been concluded that there is a deficiency in the standards of the Iranian nursing educational system (Adib-Hajbaghery, Salsali & Ahmadi, 2004). This in turn has resulted in nurse dissatisfaction and frustration because of feelings of incompetence, and lack of skills in patient care (Sharif & Masoumi, 2005).

Another study conducted on Iranian nurses used the grounded theory method to analyse the concept of evidence-based nursing by investigating the factors that affect its uptake among 21 Iranian nurses. Barriers identified were: 1) nurses' knowledge and experience; 2) available time and opportunities to change practice; 3) nurses' levels of self-confidence; 4) levels of nursing education; 5) nurses' expectation and settings (Adib-Hajbaghery, 2007).

The results of this study imply that nurse managers and educators should be committed to implementing EBP, and should create a supportive environment along with making resources available. In addition, it was found to be crucial that nurses are held accountable to carry out EBP, and that collaborative team work between practitioners is encouraged to this end (Adib-Hajbaghery, 2007).

Another study by Mehrdad, et al., 2008(b)) was conducted in Iran to explore the barriers to and facilitators of research utilisation in nursing practice, from the perspectives of Iranian nurses. The findings were almost congruent with those of similar Western studies. The researchers found that nurses do not have time to read research (88%); they lack the support to implement research (86.1%), and require more autonomy to change nursing interventions (80.5%). The facilitator's factors were also relevant to other studies involving issues related to nurses and organisations (Mehrdad, et al., 2008(b)). It seems that nurses involved in research and implementation have not been recognised. Lack of time and staff shortages are significant matters that nurse managers should take into account, in order to plan for strategies to remove these impediments (Mehrdad, et al., 2008(b)).

Adib-Hajbaghery and Salsali (2005) suggest that a lack of programs and strategies to enhance the use of research findings contributes to difficulties for nurses in implementing research-based practice. Literature shows many barriers that influence nurses' ability to change practice. However, little attention is paid to the demographic data of the nursing staff in hospitals that may have a major impact on the use of research in practice (McCloskey, 2008). McClarey (2008) argues in her review of the above study that if the Iranian nurses can demonstrate research activity in their daily work, they would be able to avoid the gap between research and practice.

A recent study conducted in Iran by Mehrdad, et al., (2008(a)) with clinical nurses and nurse educators indicated that some demographic factors played a part as barriers, including levels of education attained, respondents not being trained in research methods,

professional roles, respondents not having time allocated to research activities, with 71% of respondents claiming they had not undertaken research activities. Interestingly, though the findings revealed 92% had significantly positive attitudes to research uptake in theory, the majority (75.6%) were still not convinced of the importance of research to nursing practice.

The positive attitudes reported in Mehrdad, et al., (2008(a)) are consistent with several other studies (Parahoo 1998; Wallin, Bostrom, Wikblad, & Edward, 2003). A recent study also claims that nurses are concerned with the care provided to patients because they (the nurses) perceive no value in their work and lack appreciation from their nursing leaders (Hall, 2003). Further, the attitudes of top managers, especially poor decision-making, were most likely factors that lead to dissatisfaction and discouragement, resulting in poor quality patient care (McNeese-Smith, 2001).

To conclude, it appears that in Iran nurses' views and beliefs about research application are quite consistent with those of nurses in various settings internationally. Although the concept of research use is relatively new in Iran, the reported nursing barriers are consistent with other studies. They include lack of knowledge and skills, lack of time to implement new innovations, lack of autonomy and confidence to change practice, and lack of organisational support to implement evidence-based practice.

2.4 Conclusion

This chapter has examined a large range of perspectives on nursing EBP, issues relating to research uptake (internationally and in general), and research reported in the Middle East. This chapter began with an examination of specific aspects of countries where the barriers to and facilitators of research usage have been studied, and a discussion of the similarities and differences of research findings that underpin clinical practice among nurses in various settings worldwide. A further focus of this chapter has been those researchers who have used the validated Barrier Scale instrument. The chapter has also included some Middle Eastern nursing issues, particularly focusing on nurses' views of research application in Iran.

In the following chapter an outline of the study design is provided, along with an explanation of the process by which the research was generated and analysed.

Chapter 3 Methodology

3.1 Introduction

This chapter outlines the reasons for the selection of the research design to investigate nurses' perceptions of barriers to and facilitators of research utilisation in Bahrain. This chapter includes the research design, setting, sampling technique and procedures, then statistical methods and data management. Ethical considerations are also explained. Finally, the data analysis procedures were outlined.

3.2 Research Design

A quantitative descriptive design was chosen for this study to explore nurses' perceptions of barriers to and facilitators of research utilisation in their practice, and a survey approach was used to collect data from the respondents. Survey designs obtain information from respondents by means of self-report, that is, the respondents respond to a series of questions posed by the researcher (Polit & Beck, 2006). The greatest advantage of using survey design is its flexibility and broadness of scope (Polit & Beck, 2008). However, a disadvantage is that the information obtained tends to be relatively superficial. This is because the content of the survey is limited by the extent to which the respondents are able to and willing to answer the questionnaire (Polit & Beck, 2008). The most common method of survey is self-administered, which is economical and appropriate for this population (Polit & Beck, 2006).

3.3 Setting

The study was conducted in a public government hospital, Salmaniya Medical Complex (SMC), in Bahrain. The hospital is the largest government hospital that provides secondary and tertiary health care for all citizens and residents. This medical health facility functions as the centre of teaching and research for health professionals.

3.4 Sampling

3.4.1 Sample

Salmaniya Medical Complex, Bahrain has 2500 nurses. Due to time constraints, it was decided to recruit 10% of the population. Convenience sampling using a snowballing technique was carried out to recruit the sample. Convenience samples are inexpensive, accessible, and usually less time-consuming than other types of samples. It is a convenient method when it is used with reasonable knowledge and care in implementing a study (Burns & Grove, 2007, p.338). This sampling method was chosen for this study because of time limit for the researcher to collect data.

3.4.2 Inclusion Criteria

The inclusion criteria for the study were that respondents had to:

- Be registered in Bahrain.
- Be working in S.M.C.
- Have more than one year of experience.
- Hold an Associate Degree in General Nursing (AD), Diploma (DIP) or Post basic, Bachelor in Nursing (BSN), or Masters of Nursing (MSN).

- Be aged 20 years or over.

The above criteria were chosen for those registered nurses, Bahraini and non-Bahraini, who are working all shifts during the three week distribution time frame in Salmaniya Medical Complex (SMC). Nurses also should have adequate experience for patient care that is exposed to research undertaking, to measure their viewpoints and feelings towards research use in the clinical areas. It is also aimed to determine the relationship between those nurses' demographic characteristics that influence research implementation in their work.

3.4.3 Exclusion Criteria

Potential respondents were excluded from the study if they were:

- Aged less than 20 years.
- Student nurses.
- Not working in SMC.
- Practically-trained (i.e. not degree qualified).
- Nurses with less than one year's experience.

The study excludes those nurses who are not registered because they were unlikely to have adequate knowledge and skills in SMC, such as students and practical-trained nurses as they are not eligible to implement research in the clinical practice. Nurses with less than one years experience were also excluded, because they were unlikely to have been exposed to research undertaking in this previous year.

3.5 Instrument

3.5.1 Description of the Barriers Scale Instrument

The Barriers Scale (BS) (Funk, et al., 1991) was used to measure nurses' perceived barriers to and facilitators of research utilisation in Bahrain. The tool, developed using Rogers' model, has been broadly used in investigations of nurses' research utilisation. The Barriers tool consists of forty two questions, and Likert-type scales, which elicits perceptions of twenty nine barrier items and thirteen items relating to facilitators of research utilisation. The Barriers Scale has four sub-scales: (1): characteristics of the potential adopter (the nurse's research values, skills, and awareness, 10 items); (2) characteristics of the organisation (setting, barriers and limitations; e.g., time, resources, support, 8 items); (3) characteristics of the innovation or research (introducing new ideas / concepts by nurses into the workplace such as research in the workplace, 5 items); and (4) characteristics of the communication of the research (nurses create and share information between each other to be able to present research findings to their peers, 6 items). The Cronbach's alphas for the sub-scales are: (1) characteristics of the adopter = .80, (2) characteristics of the organisation = .80, (3) characteristics of the innovation = .72 and (4) characteristics of the communication = .65, (Funk, et al, 1991; Funk, 1995).

3.5.2 Permission to use the Barriers Scale

Permission to use the Barriers Scale tool was obtained from the author. A copy of the permission letter is attached (see Appendix 4).

3.5.3 Scoring

The BS consists of two sections. The first section contains twenty nine items relating to barriers to research utilisation. The respondents are asked to rate on a five-point Likert scale the extent to which they believe each item is a barrier to their use of research in practice. The options are 1= 'to no extent', 2= 'to little extent', 3= 'to a moderate extent', 4= 'to a great extent' and 5= 'no opinion'. The respondents are also asked to nominate and rate the barriers: (1= greatest barrier, 2=second greatest barrier and 3= third greatest barrier). Further, the participants are given opportunities to list and rate any additional items they perceive to be barriers.

The second section of the BS contains thirteen items which participants are asked to rate according to the extent to which they consider the items to be facilitators of research utilisation. The respondents are also asked to nominate and rate the 1-3 items, which they consider to be the three potentially greatest facilitators of research utilisation. They are also asked to list and rate perceived facilitators not given in the survey.

3.6 Data Collection Method

3.6.1 Recruitment Procedure

The participants were nurses working in SMC in Bahrain. An email was sent to the Chief of Nursing Services (CNS) of the hospitals six weeks before the commencement of the survey to provide details about the research, and to seek permission to conduct the study. This email included an attachment of the questionnaire (see Appendix 6), the explanatory statements (see Appendix 5), and the permission letter

(SMC) (see Appendix 3). Four weeks before the commencement of the study, the CNS left the organisation and was replaced by a new CNS. Therefore, permission to conduct the study was sought from the new CNS. After permission was granted, two weeks before the commencement of the study, a flyer (see Appendix 7) and the invitation to join the study was sent to the nursing administration to be distributed to the nurses in the wards.

‘Snowballing sampling’ was carried out because it is a sampling technique that takes advantage of social groups. In this form of sampling, subjects that have the same sample criteria, such as friends, were asked to assist in locating others with similar characteristics (Burns & Grove, 2007). This was an effective method that enabled the researcher to recruit a high number of subjects into the study.

3.6.2 Distribution and Collection of Questionnaires

The nursing administration sent an email circular to all wards announcing the study. All head nurses and ward supervisors in the nursing administration were alerted to the study in the daily nursing report by the CNS. The email included the purpose of the research, the questionnaire and cover letter attachments. The researcher arrived in Bahrain two weeks later to recruit the respondents.

The researcher planned a schedule to visit the wards to distribute the questionnaire and started visiting the clinical areas and locating nurses who would be available during the recruitment time-frame. A package containing 265 questionnaires with explanatory statements and envelopes was prepared with extra questionnaires available. The quantities of questionnaires distributed to the wards were recorded. The

completed questionnaires in envelopes were placed in three secure boxes located in the nursing administration area, and the researcher collected the completed responses from the secure boxes.

The data collection commenced on 17th October 2008 and took place over three days in two different shifts. The questionnaires were distributed by the ward supervisors or acting seniors to the nurses working on that day in their department. The respondents were asked to return completed questionnaires in sealed envelopes to their ward supervisors or to the return boxes placed in the nursing administration area. All responses were anonymous. Completion of the self-report questionnaires implied voluntary consent (Polit & Beck, 2006). One week after the distribution of the questionnaire an email was sent to the wards to remind those nurses who had not completed the questionnaire. One week later a second reminder was sent to the wards. In addition, the researcher visited the clinical areas on a regular basis to answer questions and was in constant contact by phone with supervisors, to track the numbers of returned questionnaires. The data collection was completed within a three week time frame.

The researcher sent a letter of appreciation to the Chief of Nursing Services (CNS) and to all the departments in SMC, to convey her thanks to all the staff for their voluntary participation, time and effort dedicated to this study (see Appendix 8 & 9).

3.7 Statistical Methods

The data was analysed using the Statistical Package for Social Sciences (SPSS) (version13) software.

3.7.1 Statistical Package and Analysis

All statistical analysis was generated using SPSS version 13. The analysis included the following:

- Descriptive statistics (frequency tables, central tendency and dispersion measurements)
- Significance mean comparison techniques, including t-test and Analysis of Variance (ANOVA)
- Correlation is useful method for determining the strength and direction of the association between two scale or ordinal variables. In this study the Pearson-Correlation test was used, which is applicable for bi-variate analysis.

3.7.2 Data Management

The following section presents the process of data management, which is the first step toward data entry. This enabled the researcher to carry out the required statistical analysis. In order to apply the relevant statistical techniques and generate the results through the analysis, the data were prepared through the following steps:

3.7.2.1 Data Coding

The questionnaire items were allocated to arbitrary codes and the data coding scheme was included. The coding activity includes the following: first, identifying the

measurement scale for variables (nominal, ordinal and scale), and secondly, identifying the single responses vs. multiple response variables where more than one answer or responses were allowed. The data coding scheme is shown in Table 3.1 below.

Table 3.1 Questionnaire and Type of Response Variables

Questionnaire item	Type of response variable entered in SPSS
1 to 33	Single response variable on a scale of five levels
34	Single response variable (to enter the number of the barriers statement for the greatest, second and third greatest) (see p.94)
35 to 51	Single response variable on a scale of five levels
52	Single response variable (to enter the number of the facilitators statement for the greatest, second and third greatest) (see p. 94)
1 to 6 on page 6 of the questionnaire	Single response variable as per the arbitrary codes
If yes, please indicate the type of research experience and training modules activities have had by placing a tick inside the appropriate circles, (see p. 70) for details.	Multiple response variable of four options
7 and 8	Single response variable as per the arbitrary codes
If yes, please indicate (research training modules), (see p. 70) for details.	Single response variable of six options
9	Single response variable as per the arbitrary codes
Additional Barriers and Facilitators for question 34 and 52.	These are qualitative statements entered word for word and thematic codes developed, (see p. 90).
Questions 34 and 52 on Most Common Barriers and Facilitators:	

The first part of the questions were responses managed in two methods: first responses entered in ranking order as a degree of the greatest and lowest for the barriers and facilities, then data was analysed as the most frequently reported responses (multiple responses).

In the second part of the questionnaire respondents were allowed to state additional barriers and facilitators. These qualitative statements were entered as worded by the respondents.

Questions 6 and 8 on Research Activities:

In the second part of question 6 (research experience), if the nurses indicated that they had research experience, they were then asked about the types of research experience they had encountered. The respondents were allowed to have more than one response.

In the second part of question 8 (research training), if the nurses indicated that they had research training modules, they were then asked about the types of courses attended. The respondents were allowed to have more than one response.

3.7.2.2 Data Entry

Data entry was completed in accordance with the coding scheme in SPSS. The process of entry included adding a unique serial number to each questionnaire for reference purposes.

3.7.2.3 Data Quality and Verification

The data collected was examined for typing and data entry errors to reveal any inconsistencies before analysis of the data began. Cleaning of the data was carried out to ensure accurate entries prior to analysis by the statistician. All entered values and codes were checked in comparison with the assigned codes. During exploration, which was conducted by SPSS automatically, no deviation or error was found. This verifies that all entries were free of typing errors. Another examination was conducted by comparing the actual entered data with the hardcopies of the completed questionnaires. The output of this examination showed no deviation or error, which confirms that the entries were free of entry errors. Since both typing and entry errors were examined, this allowed proceeding with the analysis and result generation step of the research.

3.8 Data Preparation

In the process of preparing the data, adjustments were made to the entered data as detailed in the next section.

3.8.1 Adjusting for “no opinion” responses

In order to extract the required statistics, the entered data of ‘no opinion’, ‘no extent’ and ‘little extent’ were grouped together.

3.9 Ethical Considerations

The ethical principles for conducting research involving human subjects are respect for persons, beneficence and justice (Schneider, Whitehead, Elliott, LoBiondo-

Wood & Harber, 2007). These principles indicate that people should be treated as autonomous agents, with the right to self-determination and freedom to participate, or withdraw, from studies. Also, the researcher should ensure no harm occurs to the participants and that human subjects are treated fairly in terms of both benefits and risks of research (Burns & Grove, 2007).

Prior to commencing the research study, ethical approval was sought and obtained from the Monash University Standing Committee on Ethics in Research Involving Humans (SCERH) (see Appendix 1). The research was also approved by the research technical support team (RTST) from Ministry of Health, Kingdom of Bahrain (see Appendix 2). In addition, permission to conduct the study was obtained from the Chief of Nursing Services of the Hospitals (CNS) of SMC (Appendix 3).

The information sheet (Appendix 5) given to all participants included a written explanation of the purpose of the study, respondents' rights, and time involvement. Implied consent was assumed when the questionnaire was completed by the participants. Participation was voluntary and participants were informed that they could withdraw from the research at any time.

This study also considered the human rights and feelings of the participants. Participants were not requested to identify themselves, and confidentiality and anonymity of all participants were assured. Participation in this study did not involve any financial reward, and the respondents were informed that their participation was voluntary. Finally, participants were assured that information obtained would be used only for research

purposes, and access to the data would be delegated only to the researcher and the research supervisor appointed by the university. All the data collected will be stored by the University and destroyed after a period of five years to conform with the university's ethical requirements.

3.10 Conclusion

This chapter has described the research methodology of the study. This is a survey design utilising the Barrier Scale questionnaire based on Rogers' model (2003). The chapter has also described the setting and the sample recruitment process. The data management process, including coding, verification, and preparation as well as the process of analysing the data were presented. Finally, ethical considerations, including the approval process from Monash University and the participating setting were addressed. In the next chapter, the data generated from the research study were presented.

Chapter 4 Results

4.1 Introduction

This chapter focuses on the results relating to the participants' perceptions regarding barriers and facilitating factors affecting research uptake. In addition, the relationships between the demographic characteristics of the participants and their perceptions are detailed.

The results are presented in seven major sections:

- (1) Response rate;
- (2) Characteristics of the total sample;
- (3) Attitudes relating to barriers to and facilitators of research utilisation;
- (4) The three most common barriers and facilitators;
- (5) The barriers and facilitators sub-scales;
- (6) Relationships among the barriers sub-scales; and
- (7) Differences between the demographic characteristics and the barriers / facilitators sub-scales.

4.2 Response Rate

Two hundred and fifty questionnaires were distributed, of which 219 were returned, a response rate of 87.6%. This response rate was considered to be excellent, in comparison to a study carried out by Veeramah (2004) on nurses in the South East of England, for which the response rate was 51% and considered to be reasonable for a

survey (Hicks & Hennessy, 1999). However, none of the respondents answered all the questions. The questions not answered by the respondents were considered missing data.

4.3 Characteristics of the Total Sample

The sample size varied among the demographic characteristics because not all the respondents answered all the questions, as shown in Table 4.1.

4.3.1 Demographic Profile of the Respondents

Two hundred and one (93.5%) female nurses and fourteen (6.5%) male nurses participated in the study. Two hundred and nineteen (87.6%) of the respondents working in SMC are in the age group 20-45 years, and the average age was thirty five years. Distribution of education level was viewed in two categories: three quarters of respondents held a Diploma degree in comparison to the majority who were Associate Degree, Bachelor and Master holders. This has influenced the research activities status by reducing it; Diploma holders are less qualified to have the skills to conduct research. The average nursing experience was twelve years. The majority of the respondents were staff nurses and 19 (9.1%) were ward supervisors.

Details of the demographic characteristics are shown in Table 4.1 below.

Table 4.1 Respondents' Demographic Profile

Variables	n	%
Gender	201	93.5
Female	14	6.5
Male	215	100.0
Total		
Age in years		
20-25	12	5.6
26-35	118	54.6
36-45	59	27.3
46-55	25	11.6
>55	2	0.9
Total	216	100.0
Highest level of education		
Diploma	83	38.4
Associate Degree	59	27.3
Bachelor Degree	66	30.6
Master Degree	8	3.7
Total	216	100.0
Professional role		
Ward supervisor	19	9.1
Staff nurse	187	88.5
Nurse educator	3	1.4
Total	209	100.0
Years of nursing experience		
1-5	43	19.9
6-10	55	25.5
11-15	66	30.6
16-20	24	11.1
21-25	20	9.3
26-30	7	3.2
>30	1	0.5
Total	216	100.0

4.3.2 Research Activities Status

Research was not specifically defined in the questionnaire; however, the tool is the original Barriers Scale 'BS' reported in *Applied Nursing Research*, 1991, which asks respondents to provide general perceptions of the barriers to research utilisation. Therefore the respondents considered the overall research meaning of the word "research". By this they perceived it as general as conducting any analysis on data and producing a report from it. So research activities status was not specified to 'Evidence-Based Practice', or other particular active involvement in research.

The questionnaire captured research activity status in four aspects including:

- **Research experience:** This was identified as those who have research undertaken in four categories. These are include 1) research undertaken as a part of postgraduate study, 2) research undertaken as a part of undergraduate study, 3) data collection of someone else's research project, and finally, 4) journal club participation.
- **English language skills:** This part asks the respondents to rate the level of skill in reading and understanding of English research articles. This was categorised as excellent, or good, or moderate, and / or weak.
- **Training modules:** This aspect was divided into two parts. The first part asks the respondents if they have attended any training modules. If they indicated yes, then respondents were asked the type of training attended. This includes 1) quantitative research, 2) qualitative research, 3) statistics research (descriptive and inferential), 4) SPSS classes, or 5) other, please specify.

- **Involvement in research activity:** The respondents were asked if they ever have had any research activities in the past few years, Table 4.2.

Of the 219 respondents, one hundred eighteen (54.6%) respondents did not report any research experience. This is because the majority have Diploma degrees, who lack the skills and knowledge in research. Respondents who indicated they had some knowledge of understanding research papers in English were ninety seven percent. The next question about research activities investigated the respondents' research training modules. One hundred and forty (67.3%) respondents indicated that they had not attended any research training courses. The main reasons were time constraints because of workload, which made it difficult for nurses to attend research information sessions, and lack of availability of research workshops in the workplace. Details of the of research activities status are presented in Table 4.2

Table 4.2 Respondents' Research Activities Status

Variables	n	%
Have you had any research experience?		
Yes	98	45.4
No	118	54.6
Total	216	100.0
Your level of skill in reading and understanding of English research articles		
Excellent	56	26.2
Good	131	61.2
Moderate	27	12.6
Weak	0	.0
Total	214	100.0
Have you ever attended research training modules?		
Yes	68	32.7
No	140	67.3
Total	208	100.0
In the past years, have you ever had research activity?		
Yes	81	38.2
No	131	61.8
Total	212	100.0

Those respondents who stated 'Yes' are 98, which is up to 55 (56.1 %) had research experience. Most of this experience was gained at an undergraduate level. Details for the research experience by education presented in Table 4.3

Table 4.3 Research Experience by Education

Highest level of Education	Yes		No		Total	
	n	%	n	%	n	%
Diploma	14	14.3	68	58.1	82	38.1
AD	21	21.4	38	32.5	59	27.4
BSc	55	56.1	11	9.4	66	30.7
MSc	8	8.2	0	.0	8	3.7
Total	98	100.0	117	100.0	215	100.0

The second part of the research activities question was for respondents who had reported yes, and were asked to indicate the type of research experience they had encountered. The respondents were allowed to have more than one response and there were a total of 133 multiple responses. These data is presented in Table 4.4, which elaborates on the respondents' different types of research experience reported.

Table 4.4 Respondents' Research Experience

Type of Research Experience	Responses		Participants
	n	%	%
(More than one response is allowed)			
Undertaken research as a part of postgraduate study	39	29.3	37.9
Undertaken research as a part of undergraduate study	51	38.3	49.5
Data collection of someone else's research project	25	18.8	24.3
Journal club participation	18	13.5	17.5
Total	133	100.0	129.1

Mean number of responses per participant was 1.3

Those respondents who reported Yes', 68, which is up to 38 (55.9.1 %), have attended research training modules. Most of this training was gained at an undergraduate level. Details for the research training by education are presented in Table 4.5.

Table 4.5 Research Training Modules by Education

Highest level of Education	Yes		No		Total	
	n	%	n	%	n	%
Diploma	10	14.7	71	50.7	81	38.9
AD	14	20.6	43	30.7	57	27.4
BSc	38	55.9	25	17.9	63	30.3
MSc	6	8.8	1	.7	7	3.4
Total	68	100.0	140	100.0	208	100.0

The second part of the research training modules question was for respondents who had reported yes, and were asked to indicate the type of research training they had encountered. The respondents were allowed to have more than one response and there were a total of 129 multiple responses. These data is presented in Table 4.6, which elaborates on the respondents' different types of research training modules.

Table 4.6 Respondents' Research Training Modules

Types Research Training Modules (More than one response is allowed)	Responses		Participants
	n	%	%
Quantitative research	35	27.1	53.0
Qualitative research	26	20.2	39.4
Statistics classes (Descriptive and Inferential)	29	22.5	43.9
SPSS classes	21	16.3	31.8
Scientific Writing workshop	16	12.4	24.2
Others	2	1.6	3.0
Total	129	100.0	195.5

Mean number of responses per participant was 2

4.4 Attitudes Relating to Barriers and Facilitators

This section of the results focused on the respondents' viewpoint of barriers to, and facilitators of research utilisation. Table 4.7 presents details of respondents' perceptions for twenty nine barriers towards research undertakings in their practice. The table broke into three tables as following:

Table 4.7 Attitudes towards Barriers

Barriers Questions	To a great or moderate extent		To a little or no extent or no opinion	
	n	%	n	%
Research reports / articles are not readily available	125	57.1	94	42.9
Implications for practice are not made clear	128	58.4	91	41.6
Statistical analyses are not understandable	118	53.9	101	46.1
The research is not relevant to the nurse's practice	88	40.2	131	59.8
The nurse is unaware of the research	99	45.2	120	54.8
The facilities are inadequate for implementation	153	69.9	66	30.1
The nurse does not have time to read research	131	59.8	88	40.2
The research has not been replicated	105	47.9	114	52.1
The nurse feels the benefits of changing practice will be minimal	110	50.2	109	49.8

To a great or moderate extent: includes 'to a moderate extent' and 'to a great extent'.

To no or little extent or no opinion: includes 'to no extent', 'to a little extent' and 'no opinion'.

Table 4.7 Attitudes towards Barriers (continued)

Barriers Questions	To a great or a moderate extent		To a little or no extent or no opinion	
	n	%	n	%
The nurse is uncertain whether to believe the results of the research	90	41.1	129	58.9
The research has methodological inadequacies	94	42.9	125	57.1
The relevant literature is not compiled in one place	115	52.5	104	57.4
The nurse does not feel she/he has enough authority to change patient care procedures	156	71.2	63	28.8
The nurse feels results are not generalizable (relevant) to own setting	125	57.1	94	42.9
The nurse is isolated from knowledgeable colleagues with whom to discuss the research	106	48.4	113	51.6
The nurse sees little benefit for self	112	51.1	107	48.9
Research reports / articles are not published fast enough	127	58.0	92	42.0
Physicians will not cooperate with implementation	123	56.2	96	43.8
Administration will not allow implementation	111	50.7	108	49.3
The nurse does not see the value of research for practice	97	44.3	122	55.7

Table 4.7 Attitudes towards Barriers (continued)

Barriers Questions	To a great or moderate extent		To little or no extent or no opinion	
	n	%	n	%
There is not a documented need to change practice	87	39.7	132	60.3
The conclusions drawn from the research are not justified	82	37.4	137	62.6
The literature reports conflicting results	107	48.9	112	51.1
The research is not reported clearly and readably	99	45.2	120	54.8
Other staff are not supportive of implementation	118	53.9	101	46.1
The nurse is unwilling to change / try new ideas	112	51.1	107	48.9
The amount of research information is overwhelming	99	45.2	120	54.8
The nurse does not feel capable of evaluating the quality of the research	97	44.3	122	55.7
There is insufficient time on the job to implement new ideas	135	61.6	84	38.4

Table 4.8 Average of Attitudes towards Barriers

Barriers Questions	Overall Average
To a great or moderate extent	51.2%
To a little or no extent and or no opinion	48.8%

To a great or moderate extent: includes 'to a moderate extent' and 'to a great extent'.

To no or little extent or no opinion: includes 'to no extent', 'to a little extent' and 'no opinion'.

4.4.1 Attitudes towards Barriers

The mean, slightly more than half of the respondents (51.2%) agreed to a great extent or moderate extent that their organisation have the above mentioned barriers items; whereas slightly less than half (48.8%) to no extent or little extent or no opinion with each barrier statement (see Table 4.8).

As shown in Table 4.7 above, the three items with which the respondents rated to great or moderate extent.

- (1) lack of authority to change the patient care practices; 71.2%
- (2) SMC does not have the facilities to implement research activity; 69.9%
- (3) insufficient time on the job to implement new ideas, 61.6%

The three items with which the respondents agreed to no extent or little extent or no opinion were:

- (1) conclusions from the studies were not justified; 62.6%.
- (2) there is not a documented need to change practice; 60.3%.
- (3) research is not relevant to the nurse's practice; 59.8%.

4.4.2 Attitudes towards Facilitators

The majority of respondents (75.4%) either moderately or greatly agreed with the facilitator items. This implies that the respondents agreed that the facilitators items would assist them in overcoming the barriers to research utilisation Table 4.9.

A moderate number of responses (24.6%) agreed to no extent, or little extent, or had no opinion in terms of the relevance of the mentioned facilitators.

- The three facilitating items agreed to great extent or moderated extent with by the respondents were:
 - (1) the need for advanced education to increase their knowledge base, especially education related to evidence-based practice; 81.7%
 - (2) the opportunity to conduct clinically-focused and relevant research; 76.3%.
 - (3) the need for enhancement of managerial support and encouragement for research implementation; 75.8%.

- The three facilitating items agreed to no extent or little extent or no opinion with by the nurses were:
 - (1) increasing the time available for reviewing and implementing evidence-based practice innovations; 35.6 %.
 - (2) improving the understandability of research reports; 31.1 %, and
 - (3) employing nurses with research skills to serve as mentors; 29.7 %.

Table 4.9 Attitudes towards Facilitators

Facilitators Questions	To a great or a moderate extent		To a little or no extent or no opinion	
	n	%	n	%
Improving the understand ability of research reports	151	68.9	68	31.1
Advanced education to increase your research knowledge base	179	81.7	40	18.3
Advanced education to increase your knowledge of searching the literature	163	74.4	56	25.6
Providing colleagues support network / mechanisms	165	75.3	54	24.7
Conducting more clinically focused and relevant research	167	76.3	52	23.7
Improving availability and accessibility of systematic review and meta-analysis finding	156	71.2	63	28.8
Enhancing managerial support and encouragement for research implementation	166	75.8	53	24.2
Increasing the time available for reviewing and implementing evidence-based practice innovations	141	64.4	78	35.6
Employing nurses with research skill to serve as mentors	154	70.3	65	29.7
Enhancing managerial support and encouragement to heighten awareness of ongoing research in your own organisation	160	73.1	59	26.9
Enhancing organisational recognition of research activity as core aspect of career development	163	74.4	56	25.6
Enhanced organisational recognition or research activity as a pathway to career advancement	155	70.8	64	29.2
Advanced education on evidence-based practice	179	81.7	40	18.3
Average	73.7		26.3	

To a great or moderate extent: includes 'to a moderate extent' and 'to a great extent'.

To no or little extent or no opinion: includes 'to no extent', 'to a little extent' and 'no opinion'

The result shows explicitly that the two most frequently reported highest proportions are referring to a desire for advanced education to increase research knowledge and strengthen evidence-based practice.

To conclude, the surveyed nurses' perceptions facilitators of research undertakings were strongly in favor of providing more facilitators, which they believed would significantly help them overcome their barriers, if offered by the organisation.

The following section uses additional comments (qualitative statements) on barriers and facilitators from respondents in the space provided on the questionnaire. These additional statements were grouped and presented in a thematic manner.

4.4.3 Additional Barriers and Facilitators

The respondents were also given the opportunity to describe in their own words, additional perceived barriers to and facilitators of research use to those included in the questionnaire. Some respondents simply reworded barrier items already included in the questionnaire, giving a picture of how nurses feel in their own words. The qualitative statements listed by the respondents were grouped together and were generally in keeping with the results of the questionnaire. These words provided a human face to the barriers and facilitators issues, and included comments on recognition and motivation, the organisation, research training, and time and workload issues.

4.4.3.1 Recognition

Some respondents described not being appreciated by their managers, in comments such as the following: "*no appreciation or poor appreciation by supervisors*" and "*...frustration due to job*". One stated that she sought "*...rewards for research*", needing her work to be recognised and considered. The fundamental facilitator which emerged from the comments was that nurse's opinions should not be devalued, as

evidenced by the nurse who saw value in *“enlightening the clients about the importance of conducting research study”*, and *“empower[ing] the nurse to implement the change”*,

4.4.3.2 Motivation

Motivation appeared to be central in how nurses become involved in research and how their work is received if they are involved. One expressed the point as follows: *“...the nurse feels unmotivated to implement the new idea, especially [without support] from the top position”*. Another said she had *“no encouragement or motivation in regard to research study”*, and this led to disappointment as one commented *“not many are interested in research”*. It was important for one nurse to receive approval from her manager and she expressed her disappointment when the manager in charge of the unit did *“not encourage the researcher to discuss the research and the findings”*.

4.4.3.3 Organisation

Some perceived their organisations (the Ministry of Health systems as well as SMC specifically) as major impediments to implementing research use in practice. One nurse said: *“the Ministry of Health said they don't need research nurse in Bahrain or so, the main barrier is the Ministry [sic]”*.

There were comments about: *“.....administration [‘s] resistance to change”*, the difficulties caused by the lack of *“....co-operation between nursing administration and hospital administration ...”* as well as *“...the role and regulation...act [ing] as an obstacle to research use”*, All these organisational barriers contributed to the overall sense that: *“.....it takes forever to implement change”*.

Respondents considered that their organisation could be more supportive by: *"encouragement and rewards to help in research and practice of evidence based [care]"*, providing *"financial support"* and by *"managers convey [ing] research to [their] staff"*. In addition the *"MOH should encourage more nurses to study research in abroad"*.

It was repeatedly noted that lack of research training and lack of knowledge about research were barriers; one respondent suggested that the *"...nurse does not understand what research study is"*.

4.4.3.4 Research Training

The poor research environment was noted by some, who wrote comments of the following kind: *"no facility to implement evidence based practice"*, *"not enough nursing conferences"* and when research conferences do occur, *"... less nursing research [is] discussed [sic]"*. Practical issues were raised, such as *"the research information and its references [are not available]"* and *".....searching skills is low [sic]"*. This nurse pointed out that they need training in research, but also assistance with *"... language and skills"*. Nurses' access to the internet and therefore to on-line journals was described as limited, and *"computers are very slow in MOH, and searching skills is slow [sic]"*,

In relation to supporting research training, suggestions were made about establishing a *"research committee so that [the] researcher will be surrounded by knowledgeable colleagues"*, and *"evidence based practice should be encourage [sic] by clinical expertise"*. And some pointed out that *"...there should be active participation by all the staff in a unit for research"* and *"more session[s] about research awareness"*, and

research would be enhanced by “...*regular discussion of recent studies*” and the “*availability of internet, network, and inthernet [sic]*” in the wards, all of which are important activities and resources to facilitate access to research tools.

Practical ways were suggested to support research including: “*sending the staffs for workshops and lectures, or higher study [sic]*” supporting skill development in “*statistics studies to manage data analysis*” and “*provid[ing] literature in the place of work [sic]*”. A network could be established by “*the nurses who will be specialising in nursing research should teach others about the importance of applying research*”. In relation to publishing their research, respondents also pointed out the need to “*encourage nurses to participate in publishing bulletins of each department separately research based*”.

4.4.3.5 Time and Workload

In support of the questionnaire results, comments relating to major barriers related to “*Time off [sic]*”, or “*no time at work to do research*” and “...*shortage of staff in the unit*”, and lack of opportunity to implement research or “*inability to implement research in clinical settings (in most cases)*”. The flow-on effect of “...*high workloads*” was that: “...*there is no encouragement to staffs[sic] due to over workload [and] lack of interest for research among staff*”.

In summary, the respondents highlighted practical areas where support of research would benefit from the nursing administration appreciating their difficulties and providing appropriate facilitators in clinical areas.

4.5 Three Most Common Barriers and Facilitators

In this section, from the data coding of the structured questionnaire, the three most common barriers and facilitators reported by respondents are presented.

4.5.1 The Three Most Common Barriers

The most common barrier to research utilisation identified by 21 (10%) of the respondents was 'not having the time to read research articles'. This barrier was followed by 'not having the authority to change practices', reported by 19 (8.7%) of the respondents. The third most common barrier reported by 12 (5.5%) of the respondents was 'not being able to implement new ideas in the workplace due to time constraints'.

4.5.2 The Three Most Common Facilitators

The most common facilitator of research utilisation identified by 23 (10.5%) of the nurses was the need to increase their knowledge in conducting research. This was followed by 18% (8.2%) of respondents who identified the need to employ nurses with research skills and experience to help them in research activity. The third most common facilitator reported by 14% (6.4%) of respondents was the need to have time to carry out research activities in their workplace.

4.6 The Barriers and Facilitators Sub-Scales

The 'Barriers' and 'Facilitators' to research utilisation questionnaire has four sub-scales as presented in Chapter 3.

The barriers / facilitators sub-scales were calculated using mean scores. The following section presents nurses' perceptions of the barriers and facilitators by using the above sub-scales on research utilisation.

4.6.1 Nurses Attitudes towards the Barriers Sub-Scales

Scale coded for barriers questions 'to no extent' as 1, 'to a little extent' as 2, 'to a moderate extent' as 3, and 'to a great extent' as 4, and by omitting 'no opinion', (refer to Table 4.7). The lower mean score was 1, the high mean score was 4, and the norm mean was 2. All the barriers sub-scales had a mean score above 2, which suggested that they were above the norm. The sub-scales were almost evenly distributed. The highest mean score was 'Organisation', followed very closely by 'Communication', 'Adopter' and 'Innovation'. This indicated that the nurses found SMC, as an organisation, was a barrier to research utilisation (see Table 4.10 below).

Table 4.10 Barriers Sub-Scales

Barriers sub-scales	Mean	Standard Deviation
Adopter	2.58	0.61
Organisation	2.78	0.64
Innovation	2.53	0.49
Communication	2.73	0.58

4.6.2 Nurses Attitudes towards the Facilitators Sub-Scales

Similarly, for the 'facilitators', the four sub-scales varied slightly in their mean scores. All sub-scales had a mean score above 3, which is higher than the norm value of 2. The highest was 'Communication', followed closely by 'Organisation' and 'Innovation'. The lowest was 'Adopter'. These results suggest that communication plays the most important part in the nurses' utilisation of research (see Table 4.11 below).

Table 4.11 Facilitators Sub-Scale

Facilitators sub-scales	Mean	Standard Deviation
Adopter	3.03	0.91
Organisation	3.19	0.64
Innovation	3.11	0.87
Communication	3.23	0.85

4.7 The Relationships among the Barriers Sub-Scales

Correlation measurement was computed to assess the strength and direction of the linear association among the barriers sub-scales. Table 4.12 shows that the Adopter barriers had a statistically significant relationship based on Pearson Correlation test. The Organisation barriers ($r=.689$, $p<0.001$); followed by the Communication barriers ($r=.470$, $p<0.001$); and the Innovation barriers ($r=.467$, $p<0.001$). This indicates that the participants strongly agreed that SMC as an organisation hinders the respondents in applying research in their practice.

Table 4.12 Pearson Correlations for Barriers Sub-Scales

Sub-scales	Adopter Barriers	Organisation Barriers	Innovation Barriers	Communication Barriers
Adopter Barriers	1.000			
Organisation Barriers	.689** N217	1.000		
Innovation Barriers	.467** N217	.466** N217	1.000	
Communication Barriers	.470** N217	.505** N218	.527** N218	1.000

****** Correlation is significant at *p* 0.001 level. *****Correlation is significant at *p* 0.05 level

4.8 Differences between the Demographic Characteristics and the Barriers / Facilitators Sub-Scales

In this section the analysis was carried out to determine whether there were any significant mean differences amongst different demographic groups, and the barriers / facilitators-sub-scales on research utilisation.

4.8.1 Demographic Factors have no effect on Barriers Sub-Scales

In this section, the t-test was used to determine whether there were statistically-significant differences between gender and the barriers sub-scales on research utilisation. The results showed that there were no statistically-significant differences between gender and the Adopter ($p=0.338$); Organisation ($p=0.441$); Innovations ($p= 0.680$); and Communication ($p=0.614$). The results also showed that there were no statistically-significant differences between having research experience and the barriers sub-scales of

research utilisation; that is, the Adopters ($p=0.199$); Organisation ($p=0.197$); Innovation ($p=0.053$) and Communication ($p=0.708$).

There were also no differences found between having attended research modules and the barriers sub-scales of research utilisation in relation to Adopter ($p=0.270$); Organisation ($p=0.515$); Innovation ($p=0.656$); and Communication ($p=0.308$).

Finally, no significant differences were found between having carried out research activities in the past few years and the barriers sub-scales of research utilisation: Adopter ($p=0.532$); Organisation ($p=0.333$); Innovation ($p=0.128$), and Communication ($p=0.179$).

However, there was a statistically significant difference between having had research experience and the facilitators sub-scales of research utilisation; Adopter ($p<.001$); Organisation ($p=0.007$); Innovation ($p=0.001$); Communication ($p=0.002$). The results also showed that carrying out research activities over the past few years was found to have a statistical significance on the facilitators sub-scales only for the Adopter ($p=0.009$). The results indicate that having research experience / activities makes a difference towards research-uptake in the workplace.

4.8.2 Demographic Factors affects on Facilitators Sub-Scales

In this study, ANOVA (Analysis of Variance) was used to determine differences between the demographic characteristics and the facilitators' sub-scales for research utilisation.

The results showed that there were statistically significant differences between the highest levels of education such as Masters degree and the facilitators sub-scales for research utilisation; Adopter ($p=0.001$); Organisation ($p=0.001$); Innovation ($p=0.001$) but no difference shown with Communication ($p=0.098$). In addition, professional roles were also found to have statistically significant differences on facilitators sub-scales including Adopter ($p=0.015$) and Innovation ($p=0.049$), while no significant differences were shown for the Organisation ($p=0.075$) and Communication ($p=0.151$). The results show that providing opportunities for nurses to obtain higher degrees, and be in positions of authority are significant facilitators in research utilisation.

4.9 Conclusion

This study highlighted significant factors influencing nurses' attitudes of the barriers to, and facilitators of, carrying out research in SMC hospitals. The results showed that slightly more than half of the respondents agreed with the barriers, but they were less likely to be concerned with these barriers to any great extent, while individual motivation was weak. The results significantly showed that having research experience / activities would make a difference towards research undertaking in work place.

However, the majority of respondents were in favour of having more facilitators in order to implement research in their practice.

In the next chapter the implications emerging from the findings are considered and discussed.

Chapter 5 Discussion

5.1 Introduction

This chapter presents a discussion of the findings and serves to both confirm what is already known about this topic, and challenges some pre-conceived notions about nurses' perceptions of research application in practice in Bahrain. This study is consistent with most research literature which has utilised the Barriers Scale over a period of 20 years.

In order to give the current study a global perspective, further international comparisons of the findings are undertaken, with the US (Olade, 2004; Fink, et al., 2005; McCloskey, 2008), the UK (Dunn, et al., 1998; Veeramah, 2004), Norway (Hommelstad & Ruland, 2004), Canada (McCleary & Brown, 2003), Australia (Hutchinson & Johnston, 2004, 2006) and the Middle East (Adib-Hajbaghery, 2007; Mehrdad, et al., 2008(a)).

5.2 Response Rate

The response rate achieved was excellent, 219 (87.6%), and this is thought to be due in part to the diligence of the researcher and her repeated emails and personal contact. Previous studies that used the BS either did not report response rates (Dunn, et al., 1998) or reported response rates between 40% (Hutchinson & Johnston, 2003) and 80% (Oranta, Routasalo, & Hupli, 2002). Overall, the response rate was positive, but not comprehensive as none of the participants completed all the questions in the

questionnaire. Possible participants' rate who did not return the questionnaire was 46 (12.4%). These findings only apply to SMC; the outcomes of this study may not be generalisable to other settings in Bahrain.

5.3 Demographic Characteristics

Not all the respondents answered the entire questionnaire. This could be due to the questions asked, which may have been too personal or sensitive for some respondents and were unable to speculate.

The grand total of nurses in Bahrain, include Bahrainis and non-Bahrainis, is 3843; the vast majority are female (3542) 92% and male nurses total 301(8%), with an average age of 21-45 years (MOH, 2007(c)). In this study, two hundred and one female nurses (93.5%) and fourteen male nurses (6.5%) participated. Two hundred and nineteen (87.6%) of the respondents work at SMC, with a mean of 35 years. The sample size included all categories of nursing roles and is thus proportionate to the total nursing workforce in Bahrain.

The highest level of education reported was a Masters degree, but the majority of respondents held a Diploma followed by a Bachelor degree. This distinction is important because those who obtained a Bachelor degree would have had some prior knowledge of research, because it is one of the core components of the degree. The majority of the respondents were staff nurses, including ward supervisors; this may indicate that ward supervisors were interested in this study, even though, due to time constraints and heavy workloads, they were often not able to engage in research activity. The mean length of

nursing experience of the sample was 12 years. This indicates that the respondents had ample knowledge and skills in their work.

More than half of the respondents had not been involved in research activities, attended research training modules, or carried out research activities of their own. These findings are inconsistent when compared with other settings, such as in Britain, where the majority of registered nurses had been involved in doing research as part of their training, or on the job (Hicks, 1995). The respondents were generally young, with high levels of education, and stated that they had a good ability to understand and read research articles in the English language. It is necessary to understand respondents' capabilities in this regard, as most of the relevant research articles are written in English.

A study carried out by Kuuppelomaki and Toumi (2003) in Finland, found that most nurses involved in research are young, have less experience in nursing on average, but are relatively more educated in research methods. They are also frequently engaged in reading nursing literature. Two-fifth of participants said that they had carried out research as part of their job; however, some of the nurses had not carried out any research. Possible explanations for why these nurses have not carried out research include lack of time (due to workload), lack of competencies and lack of interest (Kuuppelomaki & Toumi (2003).

The fact that time is said to be a major barrier to research utilisation has been debated as a long-standing problem in a number of studies (Funk, et al., 1995; Veeramah 2004; Kajermo, Nordstorm, Krusbrant, & Bjorvell, 2000). The literature has reported that

health professionals should use research findings in their work, without additional time being made available to them to read articles. On the other hand, many investigators found it imperative for practitioners to have time made available for them during normal working hours, to read, evaluate and implement research findings in practice (Goode, Lovett, Hayes, & Butcher, 1987).

This study found gender, age, research experience and having undertaken research training modules were barriers to research utilisation. Another inference we can draw is that whether a nurse has research experience or not does not make any difference to carrying out research in practice. It also indicates that whether a nurse has attended research training modules or not will make no difference to research application. Moreover, if a nurse has carried out research over the past few years, these activities do not change the attitudes towards research application in the organisational setting.

However, the professional roles held and levels of education achieved were perceived by respondents as having a significant impact on research utilisation. Nurses should be prepared academically in order to gain adequate knowledge of research. They also believed that those nurses who had obtained a high position in the organisation possessed more power to change practices at SMC hospital. In the UK, nurses and midwives who held a relatively higher position reported making better use of research findings, compared to junior nurses. It was also assumed that senior nurses would have higher degrees of autonomy and empowerment to change practices than junior staff (Veeramah, 2004).

In this study, the results did not show significant differences in demographic data in regard to the barriers towards research utilisation. However, nurses' demographic characteristics (e.g. level of education and professional role held) were significant in relation to the facilitator questions. Levels of education may be considered as an indicator of formal education in research methodologies, and are significantly correlated with positive attitudes towards research (McCloskey, 2008). Nurses who had a Masters degree and had trained in research courses valued research more than those with a lower degree (Mehrdad, et al., 2008(a)). Mulhall (1997) indicates that education can be a key element to motivate and positively alter the attitudes of nurses toward research.

Recent studies such as Veeramah (2004) and McCloskey (2008) in this area have shown that nurses differ in their attitudes and values towards research utilisation. The findings showed significant differences in the perceived use of research, attitudes towards research, availability of research materials and support for research activities. These nurses' differences in perceptions were contributed to by the levels of education obtained, and the positions held in the organisation. These factors, position and level of education, appeared to have a large impact on whether nurses had the authority to change practices. This is supported by Olade (2003) who states that nurse education levels was one of the key differentiating characteristics of nurses who had statistically significant relationships with research use.

As shown by the results, in the current study education by itself may not contribute to a nurses' ability to apply research or change practice. External factors such as status, power and individual motivation create change, significant factors in the

effective use of new knowledge. The provision of quality care in an ever-changing healthcare environment is a challenge that can be only achieved by motivated and empowered nurses. Nurse Managers should recognise and understand the important motivational needs of their nurses, and what actions should be taken to motivate nurses effectively in their working environment (Jooste, 2003). In addition, “contextual issues including the socio-political environment, organisational culture and inter-professional relating need to be taken into serious consideration when focusing and formulating strategies to overcome these barriers” (Hutchinson & Johnston, 2003, p. 313).

However, a good research knowledge base is crucial in creating positive research attitudes. This also supports the reports of previous studies such as Brown (1997), Kajermo, et al., (2000) and Rodgers (2000) all of which concluded that the higher the level of education of the nurse, the more likely the nurse would be to utilise research in their work (Olade, 2003). Nurses who held positive attitudes to and interests in research demonstrated a statistically significant relationship between research use and research education received (Champion & Leach, 1989; Poster, Betz & Randell, 1992; Veeramah, 2004).

Sherriff, et al., (2007) showed that in Australia, clinical nurses, particularly those in educational and leadership roles, had explicitly positive attitudes towards evidence-based practice (EBP), following the intervention and support provided by their organisation. This is also consistent with previous research worldwide (Funk, et al., 1991; Retsas, 2000; Nagy, et al., 2001; Kajermo, Nordstrom, Krusebrant, & Lutzen, 2001; Parahoo & McCaughan, 2001). Negative attitudes of nurses in Australia towards research

utilisation were associated with organisational barriers. However, nurses' perceptions of organisational support, and confidence in their ability to locate and evaluate research, improved significantly after participating in an EBP educational program. Providing educational courses in a clinical setting is beneficial for nurses' perceptions of knowledge and skills related to EBP. In this respect, we could say that nurses' attitudes are a direct product of their organisation (Sherriff, et al., 2007).

Having positive attitudes towards research does not necessarily mean that they will be translated into practice (Parahoo & McCaughan, 2001; Veeramah 2004; Sherriff, et al., 2007). Also, unfortunately, findings suggest that despite the availability of relevant research articles in clinical wards and health agencies, practice has not significantly changed over the years. This issue has been discussed by many investigators (Funk, et al., 1991, 1995; Hicks, 1996; Veeramah, 1995, 2004).

The next section focuses on the commonalities and differences that exist in nurses' perceptions in different settings worldwide. This may have implications for future perspectives and challenges.

5.4 Attitudes towards Research

The findings from this study showed that nurses in Bahrain felt there were a variety of barriers towards incorporating research evidence into their practice. However, a comparison of the 51% of respondents who agreed with the barriers items, with the 74% of the respondents who agreed with the facilitators items provides interesting insights. This is to support the earlier discussion that nurses in Bahrain were less likely

to be concerned with barriers to the use of research to a great extent because they lack the motivational drive due to other external factors such as nursing status, socio-economic position, and authority, which contribute to the barriers that affect and minimise their interest in evidence-based practice. Instead, they are more convinced that providing facilities such as empowerment, recognition, promotion, and incentives by their organisation would change the situation and create an innovative and competitive working environment. The nursing contexts, culture, social status and the challenges may be different, but the results are the same with the other settings worldwide (McClarey, 2008). However, these findings of the studies undertaken in other countries may not be directly applied to the Bahraini context because of significant cultural and socio-economic differences (Dehghan-Nayeri, et al., 2006).

The surveyed nurses' perceptions of research undertakings were strongly in favour of providing more facilitators, which they believe would significantly help them overcome their barriers. Furthermore, even though they did not see the barriers as important issues, they clearly had negative attitudes toward research utilisation. This seems to translate into lowered motivation towards research utilisation for many of those surveyed. It could be argued that there are insufficient incentives that appeal to nurses' own personal benefits and purposes (such as promotion, recognition, and rewards). It has been suggested by Funk, et al., (1991), Nagy, et al., (2001) and Sitzia, (2001) that allocation of training resources, time and incentives to take EBP must be provided by management to demonstrate organisational support and encourage participation in the process. The results also seem to indicate that nurses are not as autonomous as they could be, perhaps because in Bahrain nurses are not likely to have

the authority to change work practices. Nurses' lack of knowledge, and / or lack of support from their nursing managers also appear to be an exacerbating factor. Ultimately, the prevailing perception amongst the nurses surveyed appears to be that the organisation in which they work is totally responsible for facilitating their needs, thus making research utilisation possible for them. In other words, the overall attitude could be described as disempowering and encouraging dependence.

When comparing the study results in Bahrain to a study conducted with Iranian nurses by Mehrdad, et al., (2008(a)), it was found that seventy percent of respondents in Iran expressed positive attitudes towards research. This is consistent across several studies about nurses' attitudes to research use (Parahoo, 1998; Wallin, et al., 2003). In the case of Iranian nurses, those who completed the survey held strong beliefs that research use would improve clinical nursing practice and empower the profession. However, in practice, they did not agree that the research is relevant to their day-to-day work (Mehrdad, et al., 2008(a)). This conflict was explained in several ways, but the main reason seems to be lack of authority to change practice (Mehrdad, et al., 2008(a)). Lower average levels of education, as compared to nurses in other countries, could also be a contributing factor, as are the other factors discussed in the literature review above.

In contrast to Iranian nurses, the respondents in Bahrain were more likely to see the value in implementing research in theory, but were less focused on barriers to research in practice, and more concerned with any facilitators that could be provided to them. A commonality shared between Iranian nurses and nurses in Bahrain is that both

groups feel they lack professional autonomy to change practice (Mehrdad, et al., 2008(a)).

Another significant study, conducted in Norway, Hommelstad and Ruland (2004) reported that heavy workloads did not allow Norwegian pre-operative nurses the time and energy to undertake research activities. In Iran, time is also an imperative issue because of shortages of nurses, and understanding this helps to account for why nurses face the obstacles they do. For example, in Iran, nurses are required to work much more than their allocation of 192 hours per month. Many worked up to 150 hours of overtime per month in some parts of Iran (Adib-Hajbaghery & Salsali, 2005).

In the present study, time and opportunity were the major factors affecting implementation of evidence-based practice, particularly when lack of time was due to inappropriate nurse-patient ratios and unsupportive scheduling, which was seen as a substantial obstacle. These factors are consistent with other investigations (Kajermo, et al., 1998; Nagy, et al., 2001; Thomson, et al., 2004; Adib-Hajbaghery, 2007).

Lack of access to nursing research databases, the internet and research articles on EBP in the workplace limits nurses' ability to implement new ideas. Healthcare organisations need to ensure that these facilities are provided, to encourage a higher level of research utilisation (Retsas, 2000). Furthermore, the organisational culture of SMC, including policies and regulations, have a perceived impact on nurses' performance in practice because the respondents felt restricted in what they could change in practice. Not only were nurses restricted in what changes they could make, but they also felt

unsupported in making those changes. One response reported by nurses was that their opinions were not acknowledged as important, which could lead to a lack of confidence in their organisation, and a lack of motivation to introduce new ideas. Managerial support is clearly of paramount importance to nursing professionals; therefore, it is necessary that managers be aware of their nurses' beliefs. They also need to provide resources, and develop innovative strategies such as creating a supportive culture of research implementation (Lee & Yin, 2003).

Parahoo and McCaughan (2001) carried out a study on Irish nurses to compare medical and surgical nurses' perceptions of research use. Both groups expressed a favourable attitude towards putting research into practice, and both were willing to engage in research activities to enhance patient care. The reason seemed to be that Irish nurses are more self-confident and autonomous than nurses in Bahrain. Lack of autonomy has been found to be a major obstacle to research use by nurses worldwide across multiple studies (Funk, et al., 1991; Walsh, 1997; Parahoo, 2000).

The research provides a positive indication that nurses (particularly in Western countries) are striving to explore the barriers that may hinder the uptake of EBP, and are putting an emphasis on applying scientific evidence in their profession (Adib-Hajbaghery, 2007). When comparing the findings with other studies that used the Barriers Scale (Funk, et al., 1991; Fink, et al., 2005; McCloskey, 2008; Dunn, et al., 1998; Gerrish, et al., 2007; McCleary & Brown, 2003; Kajermo, et al., 1998; Retsas, 2000; Hutchinson & Johnston, 2003; Parahoo & McCaughan, 2001; Kuuppelomaki & Toumi, 2003; McClarey, 2008), it becomes apparent that nurses in different countries

may view the obstacles somewhat differently, but many share a similar experience overall. The present Bahraini study is consistent with this, as our respondents reported similar views to the findings in other settings world-wide.

5.5 Comparison of Bahraini and International Perceptions of Barriers to Research Utilisation

The theoretical framework used for this study was based on Rogers' (2003) diffusion of innovation theory with a four characteristics framework as described in Chapter 3, p.64. Examining these four factors has made it possible to summarise precisely nurses' perceptions of research utilisation in SMC Bahrain.

In this study, the results show strong relationships between nurses' values and beliefs, as well as awareness of the organisational barriers. Barriers perceived by the respondent nurses in Bahrain are mostly associated with lack of time and availability of resources such as research findings, including lack of empowerment to implement new concepts in their clinical areas. Adams, Bond, and Hale (1998) argue that hospital disciplines (organisational structures) can have a major influence on nurses' roles and practice (such as centralised management).

The MOH (2007(a)) states that Ministerial analysis of the health systems in Bahrain has identified major situational weaknesses including lack of integration between departments, organisational structures and workforce planning, performance management and centralised decision-making within clinical and non-clinical departments. These

situations need to be further examined and the reduction of their impact on future development needs to be considered.

Using the four main characteristics of the framework Rogers (2003), Fink, et al., (2005) have concluded that nurses in the United States perceived that their organisational culture was the main barrier in respect to difficulties they experienced in changing their practice. These barriers included difficulties changing practices, lack of time, lack of administrative support and lack of knowledge of the research utilisation process. However, respondents were satisfied with the facilities of supportive environments by providing specific activities and interventions (e.g. journal clubs, workshops, and symposia on research use). These activities had been provided by the organisation to promote research utilisation and evidence-based practice and demonstrably attracted nurses towards using research, increasing their commitment to using research in their clinical wards (Fink, et al., 2005).

These factors could be said to be very relevant to the Bahraini setting, as the Bahraini nurses surveyed view these obstacles and facilitators in a similar way. The findings associated with adopter (nurses' views and attitudes towards research use) and organisation barriers which support the above findings (e.g. difficulties changing practice, lack of time, and lack of organisational support) are similar to nurses in the United States.

The study indicated the respondents' perception that the organisation in which they work is responsible for the barriers and limitations they face. They see the organisation as responsible for not allowing them the authority to change nursing

practices, not providing the time to read articles or to implement new concepts on the job. In addition, they report limited access to learning materials, such as research articles, materials relating to the understanding of research methodologies, reports, findings, and publications.

This argument is supported by Olade (2003), in that rural nurses in the United States who have knowledge of, and interest in, research use believed discouragement from their nursing administration managers was the major barrier to using research in their current practice. Therefore, developing a more constructive attitude amongst nurses, one that encourages the integration of research evidence to improve patient care, requires communication between nurses and the organisations in which they work. This improved co-operation and collaboration between nursing leaders, and nurses themselves, would be a positive step forward to optimising patient care. Veeramah's study (2004) in the United Kingdom also concluded that the most likely critical barriers towards research utilisation were to do with both the individuals (nurses) and the organisation (hospital). Leaders of health organisations need to prioritise the encouragement of nurses' use of research evidence, in ways which address these reported obstacles. Similarly, in Canada, another study based on Rogers' model, McCleary and Brown (2003) showed that nurses were inclined to view characteristics within themselves as the least of the barriers they faced. Instead, they saw communication factors, and factors they perceived to be controlled by management, as being the greatest barriers to making research more accessible and applicable (McCleary & Brown, 2003).

In Hutchinson and Johnston's Australian study (2003) of nurses' perceptions of undertaking research in their day-to-day working lives, the perceived barriers to research use were congruent to a moderate extent with the nurses' perceptions in Bahrain. Limitations on accessing research articles, difficulties in translating research findings and introducing these findings to peers, were the issues to be considered.

Overall, Australian nurses do not report as many barriers, but they vary significantly, either moderately or to a great extent, compared to the findings of the nurses in Bahrain (51.2%). This figure compares with the majority of nurse clinicians in the US (Funk, et al., 1991), and in the UK (Dunn, et al., 1998), who rated about 65% of barriers items as 'moderate' to 'a great extent'; this is greater than the barriers perceived by nurses in the Bahraini settings.

McCloskey (2008) also explored nurses' perceptions about research in five hospitals in a corporate health care system in the United States. The one way "ANOVA" test was used to differentiate the sub-scale scores among selected demographic data to determine if levels of education, position and years in nursing affect nurses' perceptions for each of the sub-scales. The findings were that different categories of nurses had quite different perceptions, based on their levels of education, nursing experience and their position within the hospital. Like the present Bahraini study, educational level and position held in the organisation significantly affected research application in practice. Similarly, the current study, the nurses who displayed positive attitudes were those with advanced degrees and managerial positions. Therefore, based on Rogers's framework, factors such as educational levels or higher professional grades significantly affect

diffusion of innovation, and positively facilitates organisational / management changes and enhances research utilisation.

Interestingly, in the study of Mehrdad, et al, (2008(a)) undertaken in Iran, the researchers argue that 91% of Iranian nurses held strong beliefs that using research would improve patient care and empower the nursing profession. However, they were not convinced that research was relevant to the nursing work environment. They also indicated that evidence-based knowledge was not applicable to nursing practice. The researchers explained this paradox among nurses in Iran thus; that those nurses had different views in relation to their beliefs about research and the importance of research use in practice. They also assumed that those nurses might not know how to use research findings in their daily work. Similarly, these nurses perceived that the organisational barriers they faced prevented them from having time to read research articles or introduce new concepts / ideas in their work.

From the Bahraini point of view, the nurses surveyed believe strongly that if the organisational barriers were removed, they might then be motivated and willing to carry out research utilisation in their practice. Therefore, it could be inferred that if the organisation were able to overcome these barriers, and extend support to nurses to encourage research-based practice, such measures (such as educational programs) would persuade them of the value of research application in their services, and thus improve patient care (Wallin et al., 2003).

The following section describes the three most common barriers and the three most common facilitators in the Bahrain-SMC setting. It then compares these two different settings worldwide, including in Western and Eastern cultures. The section also highlights some of the other significant additional barriers and facilitators that were recognised by respondents.

5.6 Common Barriers to and Facilitators of Research

Utilisation

5.6.1 The Three Most Common Barriers

Studies have introduced several barriers to research use from different individual perceptions in health organisations (Gerrish, et al., 2006; McCloskey, 2008). Different solutions have been suggested to overcome barriers and facilitate the use of research in nursing practice internationally (Funk, et al., 1991; Fink, et al., 2005; Hutchinson & Johnston, 2003; McCleary & Brown, 2003). However, the current study discusses in detail only the three most common barriers and the three most common facilitators nominated by the nurses surveyed in the Bahraini setting. The respondents' qualitative statements regarding barriers and facilitators are set out, and then compared to the international situation. The three most common barriers were:

5.6.1.1 Lack of Time to Read Research

The current research findings were mostly consistent with other settings in the world in relation to research use; the most frequently cited barrier in the current study was 'lack of time to read research' (9.6% of respondents 'moderately' or 'to a great

extent'). This compares with Australian nurses' main barriers (as agreed by respondents 'moderately' or 'to a great extent') which were lack of time to read research, implementing new concepts at work and feeling under-empowered to change practice (78.3%, 73.8%, 64.%, respectively) (Hutchinson & Johnston, 2003).

As highlighted in the results chapter, respondents additionally described barriers such as "*no time at work to do research*", "*high workload[s]*" and the "*lack of interest for research among staff*". All these factors inhibited opportunities to read and discuss research articles in their ward.

It was concluded from a study conducted in the US that lack of time and lack of encouragement from their organisation creates major barriers to the utilisation of scientific evidence for evidence-based practice among nurses (Olade, 2003). The nurses emphasised in their additional barriers that lack of time is a major factor in their work, and that workload issues were significant impediment that hindered their application of research. This suggests that they believe they have responsibilities other than research utilisation that need more immediate attention.

Similarly, more than half of the Canadian sample reported that lack of time to read research was the issue most likely to be a major problem among paediatric nurses in relation to research utilisation (McCleary & Brown, 2003). In addition, Veeramah (2004) noted that United Kingdom nurses reported lack of time to read research was the major barrier (72.8% of respondents). The evidence also suggests that lack of time and

knowledge of research, along with lack of managerial support and lack of organisational encouragement, prevent nurses from taking research evidence into practice (Olade, 2003).

A comparison of settings in the USA and the UK shows American & British nurses are relatively less likely to report 'time to read research' as a major issue (tenth and eighth of the most frequent barriers, respectively) (Funk, et al., 1991; Dunn, et al. 1998). Lack of time to implement new ideas was the most frequently cited barrier in the United States study (Funk, et al., 1991), and second most frequently cited barrier in the United Kingdom (Dunn, et al., 1998).

Supporting the above, another Australian study reported that 'lack of time to implement new ideas at work' was the most significant barrier to using research evidence, followed by 'insufficient time to read research'. These impediments are significantly associated with hospital settings and nursing management. Therefore, organisational change should involve increasing the available time for nurses to pursue these aims, to facilitate opportunities to implement innovation (Retsas, 2000).

5.6.1.2 Lack of Authority to Change Practice

In the current study, insufficient authority to change patient care procedures is ranked as the second greatest barrier reported by twelve (8.7%) respondents, and was ranked as the third barrier by Closs, et al., (2000) in the United Kingdom, Parahoo, (2000) in Northern Ireland and Patiraki, et al., (2004) in Greece. This perceived lack of authority has also been consistently ranked as a fourth barrier by many Australian nurses

(Hutchinson & Johnston, 2003), and nurses in Canada (McCleary & Brown, 2003). In the original United States study, this factor was rated first (Funk, et al., 1991).

This difficulty in changing practice was again expressed by United States nurses in a more recent study (Fink, 2005), indicating that it was the most problematic obstacle to research use. The nurses shared a positive feeling towards research application, but felt they lacked administrative support. Feelings of frustration and discouragement, a sense of being powerless and having less autonomy were common responses. These findings suggests that it is imperative for an organisation to develop a supportive environment, and aim to attract, identify and encourage nurses who share beliefs that would positively influence the research culture in their hospital. Comments from nurses in the current study were in a similar vein: *"The nurse feels unmotivated to implement the new idea, especially from the top position"*, and *"not many nurses are interested in research"*.

The nurses also expressed *"[[feelings of]..... frustration due to job", and "....no appreciation"*. One nurse stated that the nurse *"in charge of the unit [did] not encourage the researcher ... to discuss the research and the findings [sic]"* suggesting both a lack of personal authority as well as managerial support. This is supported by a study conducted of Swedish nurses who were frustrated and disappointed with the resistance they encountered when implementing a research-based innovation: *"at the beginning you assume that all colleagues will be engaged, but when you realize that you can't get disappointed"* (Kajermo, et al., 2001, p. 676). Lack of personal motivation to use research and rejection of the idea that other nurses are blocked in research utilisation may lead to significant frustration (McCaughan, et al., 2002). Although the nurses involved may not

have been enthusiastic to use research materials themselves, this does not mean that they thought it was not worthwhile to implement EBP in their clinical areas.

Additionally, comments about the lack of systemic support from the Ministry of Health and “*administration resistance to change*” indicate that the role of regulation may contribute to nurses’ feeling that they are not permitted to act autonomously. This substantiates the findings that nurses expect the Ministry of Health (MOH) and the hospital to be the main instrument of change in supporting the profession to implement innovations in practice. Hutchinson and Johnston (2006) state that lack of authority to implement research-based change has been a repeatedly reported barrier in research literature. Nurse leaders and managers should critically consider its importance if the applications of research findings are to be achieved. It seems that not only the nurse managers do not allow nurses to apply new concepts / innovations in practice, but the health care system and the medical profession also act as other obstacles that do not encourage or support nurses to implement change in their work.

5.6.1.3 Lack of Time to Implement New Ideas

The third main barrier reported by respondents in the current study was ‘lack of time to implement new ideas’, which was a frequently-expressed barrier (5.5%) similar to previous US studies (Funk, et al., 1991). It was reported as the second most frequent barrier in the UK (Dunn, et al., 1998), and fifth most frequently cited barrier in Canada, (McCleary & Brown, 2003).

One reason that could explain this perception of a lack of time amongst SMC nurses is that the hospital has suffered continuous staff shortages and workload issues. This is due to increased patient numbers and patient admissions as a result of rapid hospital expansion in the last decade (MOH, 2007(b)). Therefore, despite workload management systems and a pool of additional nurses available to cover shortages, nurses face time management difficulties in their wards. This translates into lack of opportunity to implement research findings. This is supported by comments such as “*inability to implement research in clinical settings (in most cases) [sic]*”. In addition, the clinical areas at SMC suffer from staff nurse shortages, which was acknowledged in the comments of respondents in this study; this minimises their ability to put innovative and creative thinking into practice.

Lack of time, either to implement research-based change or to read research, limits access to resources to seek evidence, and poorly developed critical appraisal skills were the most frequently cited barriers to research use (Funk, et al., 1991, 1995; Hicks, 1996; Walsh, 1997; Dunn, et al., 1998; Lacey, 1998; Le May, 1998; Parahoo & McCaughan, 2001; Hutchinson & Johnston, 2003). It has been contended that this is a question that needs immediate action by the organisations concerned and policy makers in healthcare delivery systems (Hutchinson & Johnston, 2006).

Mehrdad, et al., (2008(b)) indicate that Iranian nurses recognise various barriers to incorporating evidence research in nursing. The major barriers to research utilisation are the familiar reported obstacles: that nurses do not have time to read research, their facilities are inadequate for implementation, and nurses do not feel they have enough

authority to change patient care procedures. Valizadeh and Zamanzadeh (2003) found that nurses in Iran demonstrate positive attitudes to research, but eighty percent reported that “in practice very few nurses use research findings” (p.930). This is because nurses were too busy, and had heavy workloads. Therefore, it could be postulated that positive attitudes could be translated into action by providing resources; in particular, time for nurses to apply research, and support from nurse leaders to enhance research practice.

These barriers are consistent with other clinical settings in developed countries (Retsas, 2000; Oranta, et al., 2002). SMC nursing leaders need to engage nurse managers and staff in purposeful change, to create a workplace that is innovative in its approach to nurses' time management, and does so in a way that embraces EBP to improve patient outcomes.

However, the ranking order of barriers varies from one setting to another, based on the importance of nurses' views in relation to their institutional limitations (Parahoo, 2000; Parahoo & McCaughan, 2001). Using the Barriers scale in different studies gives the barriers items ranking order a large degree of consistency. These items still have various ranking orders. This can be explained by the extent to which nurses recognise certain items to be barriers as being context-specific. In determining the relative importance of certain barriers in different settings, the barriers scale may continue to be useful (Dunn, et al., 1998; Marsh, et al., 2001).

5.6.2 The Three Most Common Facilitators

As described earlier in this study, nurses in Bahrain acknowledge that providing them with facilitating factors would improve their attitudes to research use. Undoubtedly, they are supportive of adequate facilitators being provided by nursing administration, so that they will be drawn to using research evidence-based practice in SMC, Bahrain.

The three most common facilitators identified by the nurses surveyed were:

5.6.2.1 Advanced Education to Increase Knowledge-Based Research

Twenty three (10.5%) respondents wanted to have advanced education courses made available to allow them to enhance their research knowledge-base, which they believed was the most important. In addition, respondents also suggested: “*establish [a] research committee* and “*a unit for research*”. It was also repeatedly mentioned by the respondents that “*...regular discussion of recent studies*” is a factor that needs attention from nursing authorities. This is also consistent with the study undertaken in Iran, which showed that Iranian nurses need educational programs designed to improve their research knowledge-base, and that providing these would strengthen acceptance of the importance of using research in their daily working life (Mehrdad, et al., 2008(a)).

In a study that evaluated the effect of an evidence-based practice educational program on attitudes and perceptions of knowledge and skills among clinical nurses in educational and leadership roles by Sherriff, et al., (2007), their ability to recognise and evaluate research improved substantially after being involved in an evidence-based

practice educational program (Sherriff, et al., 2007). This is a powerful argument for SMC to equip their nurses with appropriate knowledge and skills, if they wish to enhance nursing care. Healthcare organisations providing educational programs in clinical settings are probably the most effective method to enable nurses to become meaningful consumers of research in the work field (Veeramah, 2004).

5.6.2.2 Employing Nurses with Research Skills to Serve as Mentors

Eighteen (8.2%) respondents identified a need to employ nurses with research skills and experience to assist them in learning (such as a mentor). Those nurses in SMC who value research see the need to appoint a nurse educator / researcher to facilitate their understanding of research methodologies, to help them interpret data and assist in critiquing research findings. They believe that these are essential elements to increase their use of research. One statement by a nurse in the current study which supports this conjecture is: *“The nurses who will be specialising in nursing research should teach others about the importance of applying research”*. It was suggested in another study that the employment of clinical research specialists or mentors helps nurses and midwives implement research findings in their settings (Veeramah, 2004).

Supportive comments like *“evidence based practice should be encouraged by clinical expertise”*, suggest the benefits of SMC hiring a research specialist to teach nurses research. Another supported the idea by describing her need *“...for statistics studies to manage data analysis”*. Other suggestions were about providing *“more session[s] about research awareness...”* McCleary and Brown (2003) suggested a

number of strategies be put in place to overcome these barriers, including journals such as *Evidence Based Nursing* that publish critical reviews and summaries of findings, systemic reviews and meta-analysis in the Cochrane Library, and a growing number of practice guidelines such as the (Registered Nurses Association of Ontario (RNAO), 2002; Royal College of Nursing (RCN), 2002), including a tool kit to help to implement the guidelines (DiCenso, Bajnock, Borycki, Davis, Graham, Harrison, Logan, McCleary, Power & Variant, 2002). These are paramount aids that should be considered by the professional nursing organisations.

5.6.2.3 Sufficient Time to Implement Evidence-Based Practice Research

Fourteen (6.4%) respondents requested sufficient time be made available to them to evaluate and apply research findings in their current practice. Two respondents suggested there is “*no time at work to do research*” and “*there is no encouragement to staff due to work-load*”. Another respondent felt that “*inability to implement research in clinical settings (in most cases)*” These comments suggest that some nurses would like more time to apply research in the workplace and that they expect their nurse managers and leaders to facilitate this. The time-concept and its importance to nurses in applying evidence-based practice has been supported and acknowledged by many researchers (Bryar, Closs, Baum, Cooke, Griffiths, Hostick, Kelly, Knight, Marshall & Thompson, 2003; Hutchinson & Johnston 2004; Parahoo & McCaughan, 2001).

Additional comments on technical impediments and computer skills were also reported, such as “*....the availability of internet, network, and inthernet [sic]*” to

facilitate access and care in their wards. There is an urgent need for a database in the wards to provide access to on-line journals and recent research findings.

Similarly, Veeramah (2004) contends that health care professionals should consider the strategies suggested by respondents, such as more access to the internet and electronic databases in their work place as necessary to increase research undertaking in clinical settings.

The respondents highlight that research involvement is enhanced when nursing administration provides appropriate facilitators in clinical areas. They have made several practical suggestions to assist change. Nurse educators and research consultants are required to promote and reinforce an enthusiastic teaching environment amongst nurses in clinical settings (Olade, 2003).

5.7 Conclusion

This chapter has highlighted several significant aspects of the current study, focusing on the questionnaire response rate and its importance for generalisability. The chapter has also discussed the demographic characteristics of the sample and the contribution of the characteristics to research utilisation in SMC. The study demonstrated respondents' perceptions of research utilisation in the nursing profession, and compared them with international studies, focusing on the relationship between the impediments and facilitators using the barriers sub-scales. Finally, the chapter has discussed the most common barriers and facilitators to research use encountered by nurses in SMC hospitals, and compared these with the international research literature.

Chapter 6 Conclusion

This study explored the barriers and facilitators perceived by SMC nurses in Bahrain, in relation to research utilisation in clinical practice. In addition, the study also determined the relationship between the sample characteristics and research activities. The findings were quite consistent between Bahrain and countries such as the United States, the United Kingdom, Australia, Canada and Northern Ireland, where similar studies have been conducted. The following sections summarise the overall findings of the study, focussing on the three main barriers and facilitators perceived by nurses in SMC-Bahrain. The chapter also discusses the limitations of the study and its implications and provides some recommendations.

6.1 Major findings

The findings have revealed that more than half of the respondents believed that there were barriers to research utilisation, particularly related to organisational issues. These include time, resources and support to implement evidence-based practice in SMC hospitals. The respondents also perceived communication barriers as a major problem, related to difficulty in interpreting and presenting research findings. Overall, the respondents were in favour of having facilitators such as nurses with research skills and experience to act as mentors. They appeared less concerned about barriers to research uptake, but this may have been due to the sensitive nature of the research questions on barriers.

Another major finding was that the demographic factors such as gender, age, years of experience, highest level of education, and professional role were not found to have any statistical difference for the Barriers sub-scales. On the other hand, respondents indicated that if facilitators were provided in order to implement research, then in practice the organisation has to consider preparing nurses to higher educational levels to increase the research knowledge-base. In addition, respondents also indicated that a nurse's role in the SMC hospital would make a difference in changing practice, if nurses were promoted and gained managerial roles and autonomy. They would then be able to integrate innovative research knowledge into the workplace.

Time was the most important barrier perceived by nurses in this study. Items such as: 'nurses do not have time to read research' and 'there is insufficient time on the job to implement new ideas' were ranked as the foremost barriers to research utilisation. Further, the second top barrier claimed by respondents was the lack of authority. Items such as 'lack the authority to change patients' procedure', 'nurses are less empowered', and 'a lack of autonomy to change practice in the working environment' of SMC-Bahrain were strongly supported by a majority of the respondents.

Consistent with the above findings, respondents believed that the provision of advanced educational programmes to enhance research knowledge-base and skills was the foremost facilitator to assist them in understanding and encouraging research utilisation. The second most important issue was to provide a nurse educator / researcher to teach nurses research methodologies, and how to interpret and critique research reports. They also believed that research utilisation would be carried out if sufficient time

could be provided for them. The nurses should be able to use the time made available to read, analyse and evaluate research findings in their practice.

6.2 Limitations

The main limitation in this study was the time constraint due to the course timeline. The time constraint made it difficult to recruit more than 10% of the population. Therefore, the research findings cannot be generalised due to the relatively small sample size. Other limitations that might have influenced this study are the paucity of literature on nurses' attitudes to research use in Bahrain and the Middle East. Thus, it was difficult to compare the values and attitudes of nurses in Bahrain in the past, compared to current nurses and others.

The reporting bias associated with the self-report method raises questions about the extent to which the responses accurately and honestly represent nurses' perceptions of the barriers to research utilisation. Nurses with negative attitudes to research may have been less likely to complete the questionnaire. Additionally, nearly half of the responses answered 'no opinion', which made it difficult to draw conclusions about the barriers items, and might also affect the validity of the result.

In addition, some participants withdrew and did not complete the questionnaires; those who did not complete the questionnaire did not return them to the safe box. There were also likely to have been a small number of nurses who had difficulties in understanding some parts of the questionnaire related to research methods, particularly if they had not undertaken research experience or activities in the past. Further, none of the

respondents answered all the questions. This might be because some of the questions were too personal and sensitive.

Finally, the researcher's dependence on other people such as ward supervisors to inform and remind nurses to complete the surveys was a further limitation. While no contact with the participants was a requirement of the ethics committee (SCERH), the researcher was reliant on others to represent her study.

6.3 Recommendations

The findings from this research suggest a number of recommendations, including education, clinical practice and research. Managers and health care organisations should consider the strategies suggested by respondents to increase the utilisation of research. These strategies include the following:

6.3.1 Clinical practice

The nursing services should consider providing more nurses in wards to increase opportunities and time for nurses to implement new concepts. Administrations should also provide better access to the internet and electronic databases at the workplace. This could be achieved by issuing nurses with appropriate passwords, and giving them approval to access the internet so that they could search for research relevant to them. Other strategies include time, support, more research education resources, more discussion pertaining to relevant research reports in their wards, and the employment of

clinical research educators as mentors to help nurses translate research findings into practice.

6.3.2 Nursing Education

Nurse educators should be aware of their key roles in the utilisation of research; their positive attitudes will influence and motivate other nursing staff and nursing students. The development of positive attitudes needs the co-operation of nursing teachers and clinical nurses, to provide an innovative atmosphere with team-work spirit so as to integrate research evidence into practice.

The nurses from CHS, along with nurses from the health services (including nurse administrators and managers), need to develop collaborative strategies that stress the importance of research utilisation with evidence-based practice as a focal point for nursing. This would enhance the quality of care for patients. In addition, designing educational courses in research is important. This is to convince nurses of the value of research to practice and to introduce relevant skills to use research findings.

6.3.3 Research Knowledge-Base

Further, research studies could include qualitative methods to investigate and increase understanding in more detail. More of nurses' perceptions and experiences would be contributed to research utilisation in practice. The use of different methodologies, such as observation or interviews, would obtain more diverse views from nurses (not just those with a positive attitude to research) and would allow a deeper exploration of experiences, perceptions and issues faced by nurses.

It is important to investigate whether nurses' attitudes actually reflect the reality of the current context of the nursing culture in SMC-Bahrain. Therefore, the time needed to read and implement new innovations in practice needs to be further explored. Nurses' perceptions about changing patient care, support, co-operation, resources, knowledge and skills in research also need to be addressed.

6.4 Implications

Several implications arise from the results of this research. Differences in the perceptions of nurses are apparent and explicitly explored in this study in regard to their negative attitudes towards research use in practice. This includes availability of research resources such as time and support. Hence, there is a need to stress the significance of research findings in evidence-based practice, to enlighten nurses and enable them to see more clinical relevance in nursing research. There was a need noted among the nurses in the study, which was manifested in their additional statements, for continuing education in research-based knowledge. This would be enhanced by integrating scientific evidence into practice, minimising the organisational barriers and providing the facilitator factors. In addition, a nurse research educator is needed to encourage and attract more favorable research attitudes among nurses, by introducing a co-operative teaching environment.

Moreover, nurses need to become more proactive in translating research into practice, by supporting each other and creating a friendly and collaborative environment to provide time to read journal articles. Nurses also need to acknowledge and appreciate the differences in the educational capacities of their peers. For instance, nurses with diplomas and associate degrees are not as well prepared to carry out research activities.

Staff nurses with a Baccalaureate and Master's preparation and advanced practice nurses are in a position to assist evidence-based practice initiatives and translate the findings into workplaces. Those nurses need to engage and collaborate with their managers, and with advanced nurse practitioners, to extend their assistance and support in integrating research-based related activities. Even more, staff nurses with Masters Degrees and advanced practice are the key to the integration of evidence-based practice and the translation of reports into practice (McCloskey, 2008). Therefore, nurses' leaders and managers need to embrace these differences and reach a mutual understanding about sharing knowledge.

In summary, it is time to re-consider nurses' negative and positive attitudes towards research utilisation, in relation to the barriers faced by SMC nurses in Bahrain. The study outcomes reflect that nurses were in favor of providing more facilitators in order to minimise the hospital barriers and advance the potential facilitators. This study suggests that managers and healthcare organisations need to consider the strategies suggested by the respondents.

Nurses in academic and clinical settings and nurse leaders need to develop collaborative strategies such as advanced educational programs and time availability for research training and nurse educators. This is to promote a supportive atmosphere to motivate nurses to integrate evidence-based research in clinical areas. Perhaps it is also time to consider nurses' views and feelings about their experiences in the workplace, and not allow them to be devalued. It is a crucial challenge for nurse researchers to measure the extent of nurses' beliefs about research use in the nursing profession. Therefore, it is

hoped that research application among nurses working in the SMC hospital in Bahrain can be strengthened, valued and made part of the mainstream in patient care.

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Appendix One: Approval From Standing Committee on Ethics in Research Involving Humans (SCERH)



MONASH University

Standing Committee on Ethics in Research Involving Humans (SCERH)
Research Office

Human Ethics Certificate of Approval

Date: 22 October 2008

Project Number: CF08/2263 - 2008001131

Project Title: Nurses' attitudes towards barriers and facilitators of research utilization in Bahrain

Chief Investigator: Prof Margaret O'Connor

Approved: From: 22 October 2008 to 22 October 2013

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained and a copy forwarded to SCERH before any data collection can occur at the specified organisation. **Failure to provide permission letters to SCERH before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research.**
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by SCERH.
4. You should notify SCERH immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to SCERH and must not begin without written approval from SCERH. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. SCERH should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by SCERH at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Ben Barry

Professor Ben Canny
Chair, SCERH

Cc: Dr Rosalind Lau; Nawal Hasan Eid Saad Buhaid

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
Telephone +61 3 9905 5490 Facsimile +61 3 9905 1420
Email scerh@adm.monash.edu.au www.monash.edu/research/ethics/human/index/html
ABN 12 377 614 012 CRICOS Provider #00008C

Appendix Two: Approval from Research Technical Support Team (RTST) Bahrain

KINGDOM OF BAHRAIN
Ministry of Health
Office of Assistant
Undersecretary for Training
& Planning



مملكة البحرين
وزارة الصحة
مكتب الوكيل المساعد للتدريب
والخطط

No: FA/LA/٤٨٠٤/2008
Date: 22/9/2008

Professor Margaret O'Connor AM
Vivian Bullwinkel Chair in Palliative Care Nursing
School of Nursing and Midwifery
Frankston, Australia
Fax: 0061399044655

Subject: Research Proposal Submitted for Ethical Approval

Dear Prof. Margaret,

The Research Technical Support Team (RTST) discussed in its' last meeting on Wednesday 17th September 2008 the proposal of Ms. Nawal Hassan Eid Saad Buhaid for her Master Degree in Nursing titled "**Nurses Attitudes towards Barriers and Facilitators of Research Utilization in Bahrain**"

We would like to inform you that the team found no major ethical issues or methodological problem that hinders the conduction of this research.

Wishing her all success in her master.

Yours sincerely,

Dr. Fawzi Abdulla Amin
Assistant Undersecretary for Training & Planning

CC:

- Ms. Nawal Buhaid
- RTST members
- Team file.

Appendix Three: Permission letter-Salmaniya Medical Complex

KINGDOM OF BAHRAIN
MINISTRY OF HEALTH
NURSING SERVICES



مملكة البحرين
وزارة الصحة
خدمات التمريض

2nd September, 2008

**Permission Letter for "Nurses Attitudes towards Barriers and Facilitators
of Research Utilization in Bahrain"**

Nawal Buhaid
Master's Degree of Nursing
School of Nursing and Midwifery
Faculty of Medicine, Nursing and Health Sciences
Monash University VIC 3800

Dear Ms. Nawal Buhaid,

Thank you for your request to recruit participants from Salmaniya Medical Complex, Bahrain for the above-named research.

I have read and understood the Explanatory Statement regarding the research (CF08/2263-2008001131) and hereby give permission for this research to be conducted.

Yours sincerely,



Ms. Aysha Yousif Al-Qaisi
Chief of nursing Services - Hospital
Salmaniya Medical Complex

TEL: 289917-289918-289919
FAX: 263819

هاتف: 289919-289918-289917
فاكس: 263819

Appendix Four: Permission to use the Barriers Scale

I agree to the above conditions for using the BARRIERS Scale

Name: Nawal Hasan Eid Saad Buhaid

Title: Postgraduate student

Study Title: Nurses Attitudes towards Barriers and facilitators of research utilisation in Bahrain.

Brief Description of Study:

The aim of this study is to explore the attitudes of nurses towards research utilisation, and to determine the relationship between the demographic data in Bahrain. There has been no study done before in this regard in order to gain an understanding about whether the nurses are able to implement research findings, their understanding of issues involved, and whether any factors exist that may prevent this application of knowledge. In addition, this study hopes to add to Bahraini nursing literature 'a base of knowledge' to conduct further studies about nurses attitudes towards research up-take. It is also hoped that this research will be able to identify challenges and adopt strategies to enhance the nurses' professional advancement by applying evidence-based knowledge in their nursing practice.

This survey is a thesis will be submitted in partial fulfilment of the requirement for the degree of Master of Nursing.

Signature:

Nawal Buhaid

Date: 5/6/2008

Please keep a copy of this form in your files. For students, signing this form and mailing it to me should serve as permission to use this scale for your research report, thesis or dissertation.

Mail to:

Sandra G. Funk, PhD

School of Nursing

Carrington Hall, CB# 7460

University of North Carolina – Chapel Hill

Chapel Hill, NC 27599-7460

(Copy, Original available)

Appendix Five: Explanatory Statement

MONASH University



Nurses' Attitudes towards Barriers and Facilitators of Research Utilisation in Bahrain

I am conducting a research project with **Professor Margaret O'Connor** (a Professor in the school of Nursing and Midwifery) and **Dr. Rosalind Lau** (a Research Fellow) towards a Masters Degree at Monash University. This means that I will be writing a thesis which is the equivalent of a short book.

The aim of this study is to explore the attitudes of nurses towards research utilisation, and to determine the relationship between the demographic data (e.g. age, years of experience, qualifications) and research usage in Bahrain (Salmaniya Medical Complex). This is to gain an understanding about whether the nurses are able to implement research findings, their understanding of issues involved, and whether any factors exist that may prevent this application of knowledge. In addition, this study hopes to add to Bahraini nursing literature 'a base of knowledge' to conduct further studies about nurses attitudes towards research up-take. It is also hoped that this research will be able to identify challenges and adopt strategies to enhance the nurses undertaking research in their practice.

The study involves a questionnaire which takes about 30 minutes. Nurses will be given a period of one week to complete the questionnaire. Participation in this study is voluntary and the nurses are under no obligation to participate. Likewise, if nurses do consent to participate they may withdraw prior the questionnaire being submitted.

Nurses are not requested to identify themselves during the collection of data, as a measure of confidentiality. The individual data from these participants will not be distributed or declared in public but only used in this research in aggregated form. All the documented data collected will be stored by the researcher in a safe place, and will be destroyed after a period of five years to conform to the university the ethical

requirements. A report of the study may be submitted for publication, but the nurses will not be identified in the said report.

There may be some inconvenience towards doing a questionnaire. Participants may withdraw from completing the questionnaires due to ward workload. There will be no payment or reward offered.

If you would like to contact the researchers about any aspect of this study, please contact Professor Margaret O'Connor.

Vivian Bullwinkel Chair in Nursing, Palliative Care
Monash University, Peninsula Campus
PO Box 527
Frankston, Victoria, 3199
Australia
Ph: +61 3 9904 4053
Fax: +61 3 9904 4655
Email: Margaret.oconnor@med.monash.edu.au

If you have a complaint concerns the manner in which this research (CF08/2263 – 2008001131) is being conducted, please contact the Monash University Standing Committee on Ethics in Research Involving Humans at the following Address:

The Secretary
The Standing Committee on Ethics in Research Involving Humans (SCERH)
Building 3D
Research Grants & Ethics Branch
Monash University VIC 3800
Tel: +61 39005 2052 Fax: +61 39005 1420 Email: scerh@adm.monash.edu.au

Thank you

Nawal Buhaid
[Nhuhl@student.monash.edu.au](mailto:Nhbuhl@student.monash.edu.au)

Appendix Six: The Barriers to Research Utilisation Scale

This questionnaire is 7 pages long. Please check that you have all pages.

Please use an ink pen to complete this questionnaire

Please answer the questions in relation to your current work setting.

Articles in nursing journals indicate that nurses in practice do not use the results of research to help guide their practice. There are number of reasons why this might be. We would like to know the extent to which you think each of the following situations is a barrier to nurses' use of research to alter/enhance their practice.

Please rate, by placing a tick ✓ inside the appropriate column, the extent to which you believe each of the following items is a barrier to your use of research to alter or enhance your practice.
If you do not have an opinion about a particular statement there is an option to indicate this.

In relation to your current practice settings, to what extent are the following items barriers to nurses' use of research findings?

No opinion	To a great extent	To a moderate	To little extent	To no extent	The Barriers Items
					1. Research reports/articles are not readily available
					2. Implications for practice are not made clear
					3. Statistical analyses are not understandable
					4. The research is not relevant to the nurse's practice
					5. The nurse is unaware of the research
					6. The facilities are inadequate for implementation

No opinion	To a great extent	To a moderate	To little extent	To no extent	The Barriers Items
					7. The nurse does not have time to read research
					8. The research has not been replicated
					9. The nurse feels the benefits of changing practice will be minimal
					10. The nurse is uncertain whether to believe the results of the research
					11. The research has methodological inadequacies
					12. The relevant literature is not compiled in one place
					13. The nurse does not feel she/he has enough authority to change patient care procedures
					14. The nurse feels results are not generalisable (relevant) to own setting
					15. The nurse is isolated from knowledgeable colleagues with whom to discuss the research
					16. The nurse sees little benefit for self
					17. Research reports/articles are not published fast enough
					18. Physicians will not cooperate with implementation
					19. Administration will not allow implementation
					20. The nurse does not see the value of research for practice

No opinion	To a great extent	To a moderate	To little extent	To no extent	The Barriers Items
					21. There is not a documented need to change practice
					22. The conclusions drawn from the research are not justified
					23. The literature reports conflicting results
					24. The research is not reported clearly and readably
					25. Other staff are not supportive of implementation
					26. The nurse is unwilling to change/try new ideas
					27. The amount of research information is overwhelming
					28. The nurse does not feel capable of evaluating the quality of the research
					29. There is insufficient time on the job to implement new ideas
Are there any other factors you believe are barriers to research use? If so, please list and rate each on the scale.					
					30. _____
					31. _____
					32. _____
					33. _____

34. Which of the before – mentioned items (1 through 33) do you feel are the three greatest barriers to nurses' use of research?

Greatest Barrier _____ Item #: _____

Second Greatest Barrier _____ Item #: _____

Third Greatest Barrier _____ Item #: _____

Now we want you to think about facilitators of research use

Following is a list of 13 possible facilitators of research use.

Please rate, by placing a tick ☒ inside the appropriate column, the extent to which you believe each of the following items is a facilitator of your use of research to alter or enhance your practice.
If you do not have an opinion about a particular statement there is an option to indicate this.

In relation to your current practice settings, to what extent would the following items be facilitators of nurses' use of research findings?

No opinion	To a great extent	To a moderate	To little extent	To no extent	The Facilitators Items
					35. Improving the understandability of research reports
					36. Advanced education to increase your research knowledge base
					37. Advanced education to increase your knowledge of searching the literature
					38. Providing colleague support network/mechanisms
					39. Conducting more clinically focused and relevant research

					40. Improving availability and accessibility of systematic review and meta-analysis finding
					41. Enhancing managerial support and encouragement for research implementation
No opinion	To a great extent	To a moderate	To little extent	To no extent	The Facilitators Items
					42. Increasing the time available for reviewing and implementing evidence-based practice innovations
					43. Employing nurses with research skill to serve as mentors
					44. Enhancing managerial support and encouragement to heighten awareness of ongoing research in your own organization
					45. Enhancing organizational recognition of research activity as core aspect of career development
					46. Enhanced organizational recognition or research activity as a pathway to career advancement
					47. Advanced education on evidence-based practice
Are there other things you think are facilitators of research use? If so, please list and rate each on the scale.					
					48.
					49.
					50.
					51.

52. Which of the above items (35 through 51) do you feel are the three greatest facilitators of nurses' use of research?

Greatest Facilitator _____ Item# _____

Second Greatest Facilitator _____ Item# _____

Third greatest Facilitator _____ Item# _____

Funk, S. G., Champagne, M.T., Wiese, R.A., & Tornquist, E.M. (1991). BARRIERS: The barriers to research utilization scale. *Applied Nursing Research*, 4(1), 39-45.

The next series of questions ask about your role, practice setting, professional experience, and qualifications.

(Please place a tick inside the appropriate circle/box)

1) Gender:

Female ☐ Male ☐

2) Age Years

3) Highest level of education (Degree): ☐ Dip ☐ AD ☐ BSc ☐ MSc

4) Professional role: ☐ Ward Supervisor ☐ Staff Nurse ☐ Nurse Educator

Other (Please specify) _____

5) Years of nursing experience Years

6) Have you had any research experience? ☐ Yes ☐ No

If yes, please indicate the type of research experience you have had by placing a tick inside the appropriate circles.

- ☐ Undertaken research as a part of postgraduate study
- ☐ Undertaken research as a part of undergraduate study
- ☐ Data collection of someone else's research project
- ☐ Journal Club Participation

7) Your level skill in reading and understanding of English research article

Excellent ☐ Good ☐ Moderate ☐ Weak ☐

8) Have you ever attended research training modules? ☐ Yes ☐ No

If yes please indicate

- ☐ Quantitative research
- ☐ Qualitative research
- ☐ Statistics classes (Descriptive and Inferential)
- ☐ SPSS classes
- ☐ Scientific Writing workshop
- ☐ Others (please specify)

9) In the past years have you ever had research activity?

Yes ☐ No ☐

Thank you for taking time to complete this questionnaire.

Please forward completed questionnaires, in the envelope supplied and place them in the return box in your ward/unit.

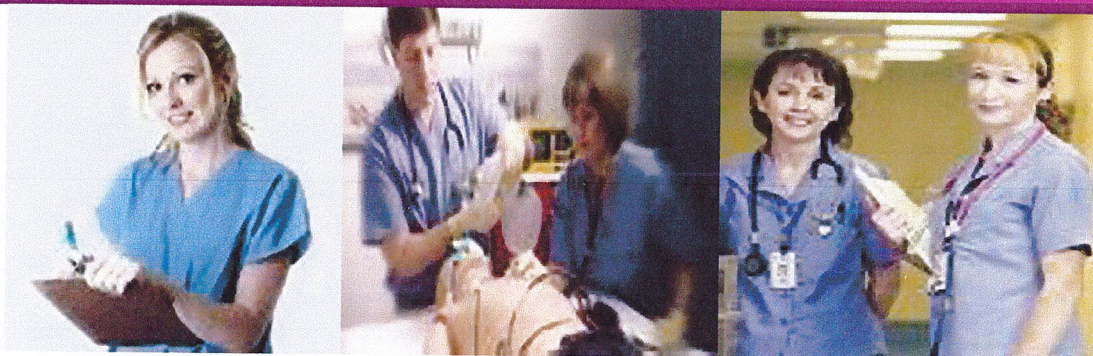
Appendix Seven: Invitation Flyer

AN INVITATION TO PARTICIPATE IN A RESEARCH STUDY

I am seeking Registered Nurses working in Salmaniya Medical Complex, interested in participating in a research project that is part of the Master of nursing degree at Monash University.

The aim of the research is to explore the attitudes of nurses towards research uptake in their nursing practice.

The study will involve completing a questionnaire which will take about 30 minutes



It is hoped that this research will be able to identify challenges and adopt strategies to enhance the nurses' professional advancement by applying evidence base knowledge in their nursing practice.

If you are interested and may have any enquiries,

Please contact: Nawal Buhaid

Mobile: +973 39939787, email: nhbuh1@student.monash.edu.au

Appendix Eight: Appreciation Letter A

To,
Chief of Nursing Services
Dear Sister Fatima,

Subject: Appreciation letter

Research study "Nurses Attitudes towards Barriers and Facilitators of Research Utilisation in Bahrain".

I would like to express my sincere gratitude and appreciation for the great support and care provided to me during the data collection phase for my post graduate research "Nurses Attitudes towards Barriers and Facilitators of Research Utilisation in Bahrain" in SMC.

I also want to express my special thanks to Sr. Aysha Yousif Al Qaisi and Sr. Ayesha Al Attawi for their care and support, particularly in facilitating the process of the ethical approval from the Health Research Committee in Bahrain.

I would like also to convey my special thanks to Sr. Noora Sabt for her kindness and support during the data collection phase, and also my sincere thanks to all the secretaries in the nursing administration.

Your input and support was important and highly appreciated.

Looking forward for future cooperation and wishing you all the best in your future endeavours.

Best regards,
Nawal Buhaid
Postgraduate students (Master of Nursing)
Monash University, VIC. 3199
Melbourne, Australia.
Email: nhbuh1@student.monash.edu.au

Appendix Nine: Appreciation Letter B

To,
The Chief of Nursing Services
Dear Sister Fatima,

Subjects: Appreciation letter.

Research study “Nurses Attitudes towards Barriers and Facilitators of Research Utilisation in Bahrain”.

I would like to convey my appreciation to all the Head Nurses for their friendly approach and support during the data collection phase of my study. In addition, a special thanks and appreciation to all the Ward supervisors for their input and valuable timing in distributing and gathering the questionnaires from the participants for my research study.

Above all, I am conveying a special appreciation and gratitude to all participants (nurses) in SMC, in taking a part in the completion of the questionnaire. Considering their timing and the ward workload, I am grateful they were able to volunteer in this study.

Ultimately, your input and suggestions in my study research were valuable and worthwhile, which will enable me to gain an understanding about nurses' attitudes toward research utilisation. Thus, I hope that these research findings will enable achievements to implement evidence-based practice, and will enhance professional advancement by meeting your needs and improving the quality of patient care.

Wish you all the best and success in your future career endeavour.

Best regards,
Nawal Buhaid
Postgraduate students (Master of Nursing)
Monash University, VIC. 3199
Melbourne, Australia.
Email: nhbuh1@student.monash.edu.au