

# Barriers and Attitudes to Research Among Nurses in One Hospital in Korea

Hee Sun Kang, RN, PhD<sup>1</sup>, Mi Jong Kim, RN, PhD<sup>2</sup>

**Purpose.** Nursing research is recognized as an essential basis for the continuous development of the scientific nursing knowledge and practice. An understanding of the barriers and attitudes to research among nurses is important to improve clinical nursing research activities.

**Method.** Data were collected from nurses at a general hospital, located in D city, using a self-reported questionnaire, from March 15th to April 4th, 2003, and 133 questionnaires were used for the analyses. A 5 point-scale instrument was used to measure barriers and attitudes towards nursing research, with a Cronbach's alpha of .85 and .89, respectively.

**Results.** Nurses had limited experience in research and were not well prepared to conduct it. Lack of experience, training and time were the major barriers for conducting research. However, the nurses had positive attitudes toward research. There was a difference in barriers ( $t = 2.68, p = .02$ ) and research attitudes ( $t = -2.74, p = .00$ ) according to the nurses' position. Also, the nurses' research experience influenced research attitudes ( $t = -3.27, p = .00$ ). The degree of research preparation ( $F = 6.98, p = .00$ ) had an effect on the attitudes toward nursing research but not on the barriers.

**Conclusion.** There is an urgent need to promote both the ability and environment for clinical nurses to actively participate in research. As the majority of nurses had little experience and low confidence in research and perceived many barriers, this promotion can be accomplished by enhancing their confidence in research through continuing education and by gradually eliminating the barriers to research.

**Key Words :** Research, Barriers, Attitudes

## INTRODUCTION

Just as research is necessary for the continuous development of scientific knowledge in most professions, it is also an important element in nursing. The primary goal of nursing research is to expand the knowledge base for nursing practice and to improve the quality of patient care (Lewis, Prowant, Cooper, & Bonner, 1998). Therefore, nursing research is essential if nursing is to continue to grow and develop as a profession (Miracle, 1999). Furthermore, nurses must incorporate the knowl-

edge generated from research into their clinical practices for evidence-based nursing practice. However, it has been pointed out that many nurses have neither participated in nursing research nor actively utilized research in practice (Funk, Champagne, Wiese, & Tornquist, 1991; Lee & Kim, 2000). Nurses' participation in and utilization of research is complex with many related factors. These factors include environmental/organizational factors such as lack of staff and lack of support from administrators (Tsai, 2000), and individual factors such as education (McCleary & Brown, 2003), knowledge (Eller, Kleber, Wang, 2003), attitudes (Bostrom, Malnight,

1. Assistant Professor, Department of Nursing, School of Medicine, Chung-Ang University

2. Assistant Professor, Department of Nursing, School of Medicine, Konyang University

Corresponding author: Hee Sun Kang, RN, PhD, Department of Nursing, School of Medicine, Chung-Ang University  
221 Heukseok-Dong, Dongjak-Gu, Seoul 156-756, Korea.

Tel: 82-2-820-5699 Fax: 82-2-824-7961 E-mail: goodcare@cau.ac.kr

Received September 8, 2004 ; Accepted April 18, 2005

MacDougall, & Hargis, 1989; Hicks, 1996; Olade, 2003; Rizzuto, Bostrom, Suter, & Chenitz, 1994; Tsai, 2000), and barriers (Hommelstad & Ruland, 2004; Lewis et al., 1998). Among them, barriers and attitudes to research were reported as major factors that hinder nurses' research activities (Bostrom et al., 1989; Champion & Leach, 1989; Hicks, 1996). Barriers to research participation and utilization have been described in many studies; the most frequent being lack of time, lack of staff, lack of confidence in research, and communication challenges (Lee & Kim, 2000; Lewis et al., 1998; Lopez-Bushnell, 2002; Olade, 2003; Tsai, 2000). Nurses' attitudes were related to research implementation (Eller et al., 2003; Olade, 2003) and negative attitudes concerning research have been shown to be real barriers to nursing utilization and nursing research (Champion & Leach, 1989).

While the amount and quality of nursing research have steadily increased in Korea, research on clinical practice was identified as the highest priority research area in Korea (Kim, Oh, Kim, Yoo, & Ko, 2002). Nurses are in an excellent position to identify research problems and conduct and utilize the research findings. However, individuals will not invest time and effort in activities that have little value to them. This is also true when desired goals are impossible to achieve as is demonstrated by the expectancy-value model (Atkinson, 1964; Feather, 1982) which provides a strong foundation for the framework of this study. Since nurses' attitudes toward and barriers to research are important factors in conducting and utilizing nursing research, it is imperative to identify attitudes toward research and determine what barriers exist for nurses conducting research. There has been a scarcity of research in this area in Korea. In fact, there are no published data on the participation, barriers, and attitudes as perceived by Korean nurses in relation to nursing research. This study will provide basic data for the facilitation of clinical nursing research and the utilization of nursing research for practice within the cultural context. In this manner, it is expected that this study will contribute to the science of nursing.

The purpose of this study was to assess the barriers and attitudes to research among nurses at one hospital in Korea. The specific aims were (a) to describe the barriers to research, (b) to describe nurses' attitudes towards research, and (c) to examine group differences in barriers to and attitudes toward research based on the demographic variables of education, work place, work experi-

ence, position, and experience of reading journals, research participation and research preparation.

## METHODS

### *Research design and procedures*

Barriers and attitudes to research in nurses were assessed in this descriptive survey. The research participants were selected through a non-random sampling procedure among nurses working in a 700-bed acute-care teaching hospital, located in D city of Korea. The hospital is affiliated with the G University and provides general and specialized health care services. Inclusion criteria were full time staff nurse or head nurses. Part time nurses and nurses in manager positions above the head nurse were excluded. The total staff nurses working in this institution were 364, along with 19 head nurses. Considering the rate of representation of the sample, a convenience sample of 200 registered full time staff nurses or head nurses was included.

The nurses were informed verbally by one of the authors about the aims of the study and that participation was voluntary and anonymity was guaranteed. Self-administered questionnaires were distributed to the nurses who attended a continuing education class. One of the researchers collected the data on site right after the respondents completed the questionnaires. For nurses who could not attend the continuing education due to a busy nursing schedule, questionnaires with a cover letter were sent to each floor where the nurses were working and the completed data were collected with the help of a nursing educator working in the nursing department. Return of the questionnaire implied consent for inclusion in the study. Of the 200 surveys, 156 were returned for a 78% response rate. After 23 incomplete questionnaires were excluded, 133 were used for final analysis. The data were collected from March 15th to April 4th, 2003.

In the absence of a hospital ethics committee, ethical approval for the study was obtained directly from the nursing department prior to administering the survey.

### *Definitions*

#### *Attitude*

Attitude is a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object (person, place, or issue) (Fishbein & Ajzen, 1975). For the purpose of this study, attitude

was defined as the beliefs and feelings of a nurse toward nursing research, as measured by an attitude scale developed for this study.

### Barriers

Perceived barriers were defined as a kind of cost-benefit analysis, wherein the individual weighs the action's effectiveness against perceptions that it may be expensive, inconvenient, time-consuming, and so forth (Janz & Becker, 1984). For this study, this construct was defined as anything, whether actual or perceived, that prevents nurses from conducting research, as measured by a barrier scale developed for this study.

### Measurements

The survey instrument consisted of scales measuring barriers to research and attitudes toward research. Demographic variables were gender, level of education, work place, years of clinical experience, and position. The barrier and attitude scales were developed for this study by the researchers.

Items were generated on the basis of a review of literature review of the constructs of attitudes and barriers to research. The initial items were edited for phrasing as well as redundancy, and then reviewed by two nursing professors and two nurses for content validity. Items that were not well understood or not acceptable to participants were rewritten or deleted, resulting in a final set of 16 items for attitudes and 18 for barriers to research. A pilot study with 10 nurses was carried out and one item on attitude, "Research is beneficial for nurses to feel secure in their job" was deleted. Cronbach's alpha for barriers and attitude scales were .89 and .86.

The barrier scale consisted of 18 items rated from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha for this study was .85. A higher score on the scale was correlated to higher nurses' perceptions of barriers to research.

The attitude scale consisted of 15 items rated from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha for this study was .89. A higher score indicated a more positive attitude perceived by nurses toward research.

### Data Analysis

Data were analyzed using SPSS for Windows 10.1 program, with a level of significance set at 0.05. When computing the score, the score for the negative statements was reversed, with a score of 1 being counted as 5 and a score of 5 as 1.

The nurses' demographics were analyzed using descriptive statistics. Mean score and standard deviation were used to identify degree of attitudes toward and barriers to research. Group differences in attitudes and barriers to research according to demographics and research related variables, such as research preparation and research participation, were analyzed using t-test and ANOVA. When differences among group means were significant, post hoc multiple comparison tests using Scheffe statistics approach were conducted to determine which groups showed significant differences.

## RESULTS

### Profile of respondents

As shown in Table 1, all participants were female.

**Table 1.** Demographic Characteristics of Participants

(N = 133)

Characteristics	Categories	Frequency	Percentage (%)
Sex	Female	133	100.0
Education	Associate degree	77	57.9
	Bachelor of Science degree	56	42.1
Work place	General Ward	87	65.4
	Special Unit	46	34.6
Work experience	≤ 3 years	80	60.1
	> 3years	53	39.9
Position	Head Nurse	10	7.5
	Staff Nurse	123	92.5
Preparation for research	Very well prepared	0	0
	Somewhat prepared	10	7.5
	Somewhat unprepared	81	60.9
	Very unprepared	42	31.6
Journals they had read in the past year	None	81	60.9
	≤ 1 times	52	39.1

Respondents had bachelor's (42.1%) or associate's (57.9%) degrees in nursing. The majority of respondents (92.5%) were staff nurses. 65.4% worked in medical-surgical units, 34.6% in special units, and 60.1% had less than three years of work experience.

For research preparation, most respondents (60.9%) thought they were somewhat unprepared for research, and 60.9% reported that in the past year they had not read any research articles at all. Table 2 show the numbers and percentages of nurses who had participated in research activities. Almost half of the respondents (49.6%) had never been involved in research. The research areas that nurses were most involved in included 'literature review' (37.6%), 'data collection' (34.5%), 'research design' (23.3%), and 'data analysis' (20.3%). The areas that the nurses had participated in least were 'publishing the research results' (7.5%) and 'utilizing research findings for practice' (8.3%) (Table 2).

**Table 2.** Types of Experience in Research Participation by the Participants (N=133)

Items	N (%)
Research Participation	67 (50.4)
Study Design	31 (23.3)
Literature review	50 (37.6)
Data Collection	46 (34.5)
Data analysis	27 (20.3)
Publishing	10 (7.5)
Research utilization	11 (8.3)

**Barriers to Nursing Research**

The mean and standard deviations of each item and the overall barrier scores are reported in Table 3, which also presents the 18 barriers to research by rank. Barriers to research had a mean ± SD of 3.62 ± .42. The greatest barriers were lack of experience in research, lack of training to conduct research, and lack of time for research (Table 3).

**Attitudes toward Nursing Research**

Attitudes toward research had a mean ± SD of 3.55 ± 0.48. The highest scored item (4.13 ± .60) was 'research can add new knowledge to nursing', while the lowest (2.50 ± .71) was 'research is too difficult to conduct' (Table 4).

**Group differences in barriers and attitudes to research according to general characteristics and research experience and research preparation**

There were no differences in barriers and research attitudes according to education, work place, and work experience. However, there were differences in barriers (t = 2.68, p = .02) and attitudes (t = -2.74, p = .00) according to position, with head nurses having more positive attitudes toward nursing research but perceiving higher barriers than staff nurses. There were no difference in barriers to research according to experience of reading journals and research participation, but nurses who had

**Table 3.** Barriers to Nursing Research

(N = 133)

Rank	Items*	M ± SD
1	Less experience in research	4.28 ± .64
2	Lack of training in nursing research	4.22 ± .62
3	Lack of time	3.96 ± .77
4	Lack of knowledge about statistical analysis	3.75 ± .74
5	Lack of support for writing	3.72 ± .72
6	Lack of financial resources	3.69 ± .77
7	Lack of motivation for research	3.68 ± .78
8	Lack of research ideas	3.66 ± .79
9	Atmosphere which does not encourage research	3.65 ± .75
10	No access to knowledgeable nurses/research consultants	3.61 ± .83
11	Unavailability of equipment for research (computers, statistical programs, etc)	3.53 ± .86
12	Lack of support from nursing department	3.47 ± .82
13	Lack of physicians' cooperation	3.44 ± .86
14	Lack of support from nursing administrators or seniors	3.37 ± .81
15	Difficulty in understanding the research articles	3.35 ± .83
16	Lack of cooperation from nursing clients	3.34 ± .77
17	Difficult access to published research	3.22 ± .88
18	Lack of support from colleagues	3.21 ± .75
Total		3.62 ± .42

\* The possible score for each item ranges from 1 to 5.

read journals ( $t = 3.20$ ,  $p = .002$ ) and nurses with research experience ( $t = -3.27$ ,  $p = .00$ ) had more positive attitudes than those without. There were no significant group differences for barriers by research preparation, but statistically significant group differences were demonstrated for attitudes ( $F = 6.98$ ,  $p = .00$ ) (Table 5). The mean attitude scores for the groups self-described as “very unprepared”, “somewhat unprepared”, and “somewhat prepared” were 50.3 (SD = 8.4), 54.1 (SD=5.7), and 58.0 (SD = 8.1), respectively. The results of the post hoc Scheffe comparison tests revealed that there were significant differences in the mean attitude scores between the “very unprepared” and “somewhat

unprepared” groups ( $p = .015$ ), and between the “very unprepared” and “somewhat prepared” groups ( $p = .007$ ), but that nurses attitudes in the “somewhat unprepared” and “somewhat prepared” groups were not significantly different from each other.

In summary, nurses had limited experience in research and were not well prepared to conduct research. Lack of experience, training and time were the major barriers to conducting research. However, nurses had positive attitudes ( $3.55 \pm .48$ ) toward research. Barriers to research were significantly different according to position. Attitude to research was significantly different by position, research participation, and research preparation.

**Table 4.** Attitudes Toward Research

(N = 133)

Rank	Items*	M ± SD
1	Research can add new knowledge to nursing.	4.13 ± .60
2	Research is beneficial to nursing care.	4.04 ± .62
3	Research is beneficial to nurses in performing quality nursing.	3.94 ± .75
4	Nurses would be respected with nursing research.	3.76 ± .80
5	I intend to participate in a workshop on research.	3.63 ± .72
6	Research is advantageous to job or performance evaluation.	3.61 ± .82
7	I intend to participate in continuing education on research.	3.59 ± .79
8	I intend to participate in research if someone helps.	3.59 ± .73
9	So far as circumstances permit, I would like to conduct research.	3.59 ± .76
10	If research funding is available, I intend to conduct research.	3.49 ± .79
11	If more time is given, I intend to conduct research.	3.44 ± .76
12	Research should be part of a nurse's duty.	3.42 ± .79
13	I am interested in conducting research.	3.33 ± .84
14	Staff nurses are not necessarily required to conduct research. (R) <sup>a</sup>	3.15 ± .83
15	Research is too difficult to conduct. (R)	2.50 ± .71
Total		3.55 ± 0.48

<sup>a</sup>(R) = indicates reverse scored item; \* The possible score for each item ranges from 1 to 5.

**Table 5.** Comparisons of Barriers and Attitudes by General Characteristics, Research Experience, and Preparation

(N = 133)

Characteristics	Categories	Barriers	T or F	p	Attitudes	T or F	p
		Mean ± SD			Mean ± SD		
Education	Associate degree	66.4 ± 7.4	-1.34	.18	52.3 ± 5.9	-1.76	.08
	BS degree	66.1 ± 7.8			54.5 ± 8.4		
Work place	Ward	65.6 ± 8.1	-1.10	.27	53.2 ± 7.1	- .00	.99
	Special unit	64.1 ± 6.5			53.2 ± 7.3		
Work experience	≤ 3 years	64.6 ± 6.7	-1.08	.27	52.5 ± 6.9	-1.26	.21
	> 3 years	64.6 ± 9.4			54.0 ± 7.3		
Position	Staff Nurse	64.7 ± 7.5	2.68	.02**	52.7 ± 6.9	-2.74	.00*
	Head Nurse	70.9 ± 7.3			59.0 ± 7.1		
Reading journals	Yes	65.3 ± 8.1	.16	.88	55.6 ± 7.1	3.20	.00*
	No	65.1 ± 7.3			51.7 ± 6.6		
Research participation	Yes	64.7 ± 7.4	.76	.44	55.1 ± 6.2	-3.27	.00*
	No	65.7 ± 7.9			51.2 ± 7.5		
Research preparation	Very unprepared	64.9 ± 7.6	.21	.81	50.3 ± 8.4	6.98	.00*
	Somewhat unprepared	65.5 ± 7.7			54.1 ± 5.7		
	Somewhat prepared	64.0 ± 7.7			58.0 ± 8.1		

## DISCUSSION

This study assessed the barriers and attitudes to research in nurses to provide basic data for the facilitation of nursing research. Before discussing the barriers and attitudes toward research in nurses, it is valuable to examine various aspects of the nurses' experience in research participation and research preparation. The rate of research participation by the nurses in this study was lower than that of other studies (Lewis *et al.*, 1998; Rizzuto *et al.*, 1994; Tsai, 2000). This may be due, in part, to low staffing levels and low confidence in nursing research. Also, nurses were not well prepared for research. Therefore, there is a need to enforce nursing research education through continual education to increase clinical nurses' confidence in nursing research. Utilization of web-based nursing research education programs that are known as effective and satisfactory is recommended (Wills, Stommel, & Simmons, 2001). Despite evidence indicating that reading research articles would be beneficial for nurses to improve their critical thinking and to conduct their work (Cronenwett, 1995; Funk *et al.*, 1991; Goode, Lovett, Hayes, & Butcher, 1987), 60.9% of subjects had not read any research articles in the previous year, which is higher than reported in previous study results (Bjorkstrom & Hamrin, 2001; Lewis *et al.*, 1998; Parahoo, 1999). Therefore, journals in libraries or online journal systems should be easily accessible (Lee & Kim, 2000) and strategies to help nurses read journals as professionals should be developed. Only 7.5% of the subjects of this study had published their research results, which is very low compared to the 53% reported by the Tsai (2000) study. Considering that Tsai's study (2000) was done in Taiwan in a much larger hospital than the hospital in which this study was conducted, it is not proper to simply compare the rates. Nevertheless, there is a need to strongly encourage clinical nurses' to publish research papers. One study showed that only 8.3% of nurses in this study ever applied research findings in practice, even though the utilization of research for practice has been highly recommended (Bjorkstrom & Hamrin, 2001). Therefore, it is essential to identify the barriers and facilitators to research utilization within the cultural context first.

The mean score for barriers to research was above average, indicating that efforts should be made to eliminate or minimize the barriers perceived by nurses. Barriers to

research activities can vary among different nursing settings. The major barriers to research encountered by nurses in this study were lack of experience, training about nursing research, and time. This result supports previous study findings that the barriers to performing research or to utilizing research for practice include insufficient time to implement new ideas, lack of time to read research papers, lack of nursing staff, heavy workload, and lack of confidence in research (Champion & Leach, 1989; Funk *et al.*, 1991; Gething, Leelarthapin, Burr, & Sommerville, 2001; Hicks, 1996; Hommelstad & Ruland, 2004; Lewis *et al.*, 1998; Olade, 2003; Tsai, 2000). It is therefore very important that managers and institutes recognize the importance of research and the creation of an atmosphere conducive to research as well as the importance of nurses' research abilities.

Nurses in this study had generally favorable attitudes with regard to nursing research. This result supported the findings of other researchers (Edwards-Beckett, 1990) that nurses have a positive attitude toward research. Specially, most nurses perceived that research can add new knowledge to nursing and be beneficial to nursing care. In the study of Olade (2003), research attitudes were demonstrated to be favorable with high education level, whereas in this study barriers and attitudes toward nursing research did not show statistically significant differences according to education level. However, attitudes toward nursing research showed a difference according to the experience of journal reading and the degree of preparation for nursing research. Research attitudes were more positive for nurses who had read journals and felt that they were prepared for nursing research. This result supports a previous study finding that where the ability to perform research activities was higher, attitudes towards research activities were more positive (Ehrenfeld & Eckerling, 1991). Head nurses' research attitudes were more positive than those of staff nurses. This may be due, in part, to the fact that head nurses were involved in research more often, and that clinical research is mainly led by managers. Therefore it is critical to increase the training and opportunity of participation in nursing research so that staff nurses can have more confidence in research. Because negative attitudes toward research were real barriers in research utilization (Champion & Leach, 1989), and as nurses had a higher possibility to participate in nursing research as their research attitudes were more positive (Ehrenfeld & Eckerling, 1991; Eller *et al.*, 2003; Olade, 2003; Rizzuto

et al., 1994), it is essential to encourage nurses to actively participate in research by shaping positive attitudes to research.

As more than half of the nurses replied that they intend to conduct research if somebody would help them with research or if circumstances allow them to do so, it is recommended that full-time research nurses be employed within hospitals to help nurses' research at any time. It is also necessary to use differential strategies for those nurses who intend to do research and those uninterested in research by using mentor programs to increase the interest in research participation.

In conclusion, although a majority of the nurses showed a lack of experience and low confidence in research, some aspects of the research attitudes were positive. Nurses perceived many barriers in conducting research. Therefore, it is imperative that on a personal level nurses should try to increase their skills in implementing research, and that supportive environments for research should be created at an organizational level. Such efforts will encourage the expansion of nursing research in clinical settings in Korea.

## CONCLUSION

This study was conducted to provide basic data for the development of clinical nursing research by investigating the barriers and attitudes to research among nurses. Almost half of the respondents had never participated in nursing research. Even though the nurses had somewhat positive attitudes toward research, they perceived lack of experience, training in nursing research, and time as the greatest barriers. Therefore, there is an urgent need to promote both the ability and environment for clinical nurses to actively participate in research. As the majority of nurses had little experience and low confidence in research and perceived many barriers, this promotion can be accomplished by enhancing their confidence in research through continuing education and by gradually eliminating the barriers to research.

The value of this study is that it provided the basic data to develop a more systematic strategy for research facilitation by examining the barriers that have a clinical effect on research performance and by understanding nurses' actual research participation. In this study, only the experience of research utilization was examined. However, for further study, it is suggested that researchers try to identify facilitating elements and barriers

to maximize the synergistic effect that facilitates the research performance and utilization of research in practice. Lastly, the construction of a database of nurses or professors who are able to act as research mentors will provide better resources to nurses who need research help. However, generalization of these findings is limited due to the use of convenience sampling of nurses in one hospital.

## References

- Atkinson, J. W. (1964). *An Introduction to Motivation*. New York, NY: Van Nostrand.
- Bjorkstrom, M., & Hamrin, E. (2001). Swedish nurses' attitudes towards research and development within nursing. *J Adv Nurs*, 34(5), 706-714.
- Bostrom, A. C., Malmight, M., MacDougall, J., & Hargis, D. (1989). Staff nurses' attitudes toward nursing research: A descriptive survey. *J Adv Nurs*, 14, 915-922.
- Champion, V.L., & Leach, A. (1989). Variables related to research utilization in nursing: An empirical investigation. *J Adv Nurs*, 14, 705-710.
- Cronenwett, L. (1995). Effective methods for disseminating research findings to nurses in practice. *Nurs Clin North Am*, 30(3), 429-438.
- Edwards-Beckett, J. (1990). Nursing research utilization techniques. *J Nurs Adm*, 20(11), 25-30.
- Ehrenfeld, M., & Eckerling, S. (1991). Perceptions and attitudes of registered nurses to research: A comparison with a previous study. *J Adv Nurs*, 16, 224-232.
- Eller, L., Kleber, E., & Wang, S. (2003). Research Knowledge, Attitudes and Practices of Health Professionals. *Nurs Outlook*, 51, 165-170.
- Feather, N. T. (1982). *Expectations and actions: Expectancy value models in psychology*. Hillsdale, NJ: Lawrence Erlbaum.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. California: Addison-Wesley.
- Funk, S. G., Champagne, M. T., Wiese, R. A., & Tornquist, E. M. (1991). Barriers: The barriers to research utilization scale. *Appl Nurs Res*, 4, 39-45.
- Gething, L., Leelarthaepin, B., Burr, G., & Sommerville, A. (2001). Fostering Nursing Research among Nurse Clinicians in an Australian Area Health Service. *J Contin Educ Nurs*, 32(5), 228-237.
- Goode, C. J., Lovett, M. K., Hayes, J. E., & Butcher, L. A. (1987). Use of research based knowledge in clinical practice. *J Nurs Adm*, 17(12), 11-18.
- Hicks, C. (1996). A study of nurses' attitudes towards research: A factor analytic approach. *J Adv Nurs*, 23, 373-379.
- Hommelstad, J., & Ruland, C. (2004). Norwegian Nurses' Perceived Barriers and Facilitators to Research Use. *AORN J*, 79(3), 621-634.
- Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health Educ Q*, 11(1), 1-47.
- Kim, M. J., Oh, E., Kim, C., Yoo, J., & Ko, I. (2002). Priorities for nursing research in Korea. *J Nurs Scholarsh*, 34(4), 307-312.
- Lee, E. H. & Kim, H. S. (2000). Nurses' Perception of Barriers to

- Research Utilization. *J Korean Acad of Nurs*, 30(5), 1347-1356.
- Lewis, S., Prowant, B., Cooper, C., & Bonner, P. (1998). Nephrology Nurses' Perceptions of Barriers and Facilitators to Using Research in Practice. *ANNA J*, 25(4), 397-405.
- Lopez-Bushnell, K. (2002). Get research-ready. *Nurs Manage*, 33(11), 41-44.
- McCleary, L. & Brown, T.(2003). Association between nurses' education about research and their research use. *Nurse Education Today*, 23, 556-565.
- Miracle, V. (1999). The importance of nursing research. *Dimens Crit Care Nurs*, 18(5), 56.
- Olade, R. (2003). Attitudes and Factors Affecting Research Utilization. *Nurs Forum*, 38(4), 5-15.
- Parahoo, K. (1999). Research utilization and attitudes towards research among psychiatric nurses in Northern Ireland. *J Psychiatric Ment Health Nurs*, 6, 125-135.
- Rizzuto, C., Bostrom, J., Suter, W., & Chenitz, W. (1994). Predictors of nurses' involvement in research activities. *West J Nurs Res*, 16, 193-204.
- Tsai, S. (2000). Nurses' participation and utilization of research in the Republic of China. *Int J Nurs Stud*, 37, 435-444.
- Wills, C., Stommel, M., & Simmons, M. (2001). Implementing a completely Web-based nursing research course: Instructional design, process, and evaluation considerations. *J Nurs Edu*, 40(8), 359-362.