

The Effects of Education and Attitudes
on Accessing and Utilizing Research Findings:
A Secondary Analysis

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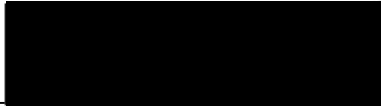
Masters Research Project

Oregon Health Sciences University

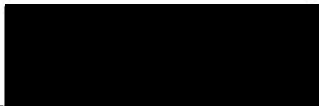
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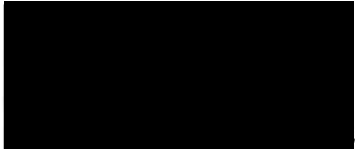
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Acknowledgments

The writer wishes to express sincere gratitude and appreciation to Jo Horsley, Ph.D, Joyce Crane, Ph.D., and Joanne Hall, Ph.D., of the Oregon Health Sciences University, School of Nursing, for their guidance and assistance in conducting this study. Special appreciation is extended to Dr. Horsley and Dr. Crane for the use of their data from the RU-N project.

Special thanks is extended to Jonathan Fields, MS, School of Nursing/Research, for his assistance with statistical analysis and computer glitches. This thanks is also extended to the faculty and staff of OHSU at the Eastern Oregon State College campus for their support and assistance during periods of extreme stress.

The writer is greatly indebted to his wife, Joan Hunt, and son Daniel, and his parents Ross and Violet Hunt for their emotional and financial support during a period of life that seemed at times to be never ending. This project should never be attempted alone.

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Introduction

Research utilization represents a measure of the nurse's involvement in research activities, is able to dramatically impact the nursing profession, and represents a vital link between research and practice. Research utilization has been defined as the use of either products or methods of research to verify practice methods, change practice methods or expand knowledge (Horsley, 1985).

Between 1985 and 1988, Horsley, Barnard, and Krueger conducted a study entitled Research Utilization - Nursing (RU-N Project) to obtain information regarding nurse's opinions about research utilization in nursing practice. Three hundred sixty-two nurses were asked about their perceptions regarding their use of research in practice. The survey covered such areas as the nurse's organization (i.e. workplace), attitudes about research, research activities in which they had been involved, how research knowledge was accessed, what research methods or tools were used in practice, and personal demographic information about education level and years since earning their last degree.

The data collected for the RU-N Project were used for this study. This study examined the relationship between nurses' education level and attitudes about research utilization, their use of research, and also examined the relationship between education level and attitude toward research in general. The relationships between both attitude and education was examined in relation to three outcome variables: a) how

information is accessed by nurses to solve practice problems, b) use of research methods in practice, and c) the extent to which nurses have been involved in research activities. Only the following factors from the RU-N Project were used: a) highest educational degree received, b) years since last graduation, c) nurses' attitudes about research, d) nurses' use of research methods in practice, e) extent to which nurses accessed research findings, and f) involvement in research activities.

Review of Literature

In the mid 1970's, the Western Interstate Commission for Higher Education (WICHE), conducted a Delphi type study to determine priorities for nursing research (Lindeman, 1975). Facilitating the utilization of research findings in practice was identified as an area of major importance.

Also during the 1970's, several efforts were undertaken to facilitate the evaluation and utilization of research (Barnard, 1980; Haller, Reynolds, & Horsley, 1979; Horsley, Crane, & Bingle, 1978; Stetler & Marram, 1976). These efforts were aimed at increasing the use of research in clinical practice.

Research utilization is important because it can impact nurses by changing their knowledge base, their clinical behavior, or both (Stetler & Marram, 1976). Both of these outcomes have been used in a variety of ways to evaluate research utilization. Some studies have examined factors associated with the use, or non-use of research (Miller & Messenger, 1978; Champion & Leach, 1988), while others have evaluated specific knowledge usage in practice (Coyle & Sokop, 1990; Ketefian,

1975; Kirchhoff, 1981; Luckenbill-Brett, 1987). Still others have examined models for explaining or enhancing research utilization in nursing (Barnard, 1980; Horsley, Crane, & Bingle, 1978; Krueger, 1979). Articles, editorials, and position statements have also stated the elements of, and the need for, research utilization (Butts, 1982; Fawcett, 1982; Stetler & Marram, 1976; Westfall & Crane, 1986).

Luckenbill-Brett (1987) evaluated the utilization of 14 nursing research studies that met the CURN Project criteria (Haller, Reynolds, & Horsley, 1979) of scientific merit, significance and usefulness, and suitability for application. The purpose of the study was to determine the extent to which nurses were aware of research findings. The 279 nurse respondents reported their level of awareness of the fourteen research findings. Some of the findings were known by as few as 34% of the nurses. Others findings were known by as many as 94% of the nurses. The study concluded that research was being utilized. While this apparent use of research findings was encouraging, no clear reasons were reported for the use of a particular research finding nor for non-use of other findings.

Many of the research studies used for the evaluation by Luckenbill-Brett (1987) had also been used as part of the CURN Project. In fact, the six studies that rated the highest levels of nurse awareness were either CURN protocols, or were original research reports that had been transformed into practice protocols for that project. Coyle & Sokop (1990) conducted a study based on the Luckenbill-Brett (1987) study with similar results. It is reasonable to question whether

the results of both studies indicate a general usage of research findings, or reflect the effectiveness of transforming research reports into practice protocols.

Factors Associated With Research Utilization

In general, the factors that effect research utilization in nursing are similar to factors that effect utilization of research in other professions. These factors can be divided into three categories: a) characteristics of the knowledge, b) characteristics of the user, and c) characteristics of the organization (Glaser, Abelson, & Garrison, 1983; Horsley & Crane, 1986).

Characteristics of the knowledge. The first category, characteristics of the knowledge, is concerned with the type and usability of information available to the clinician. It is not enough that findings are available, they must be in a form that is usable (Horsley & Crane, 1986; Miller & Messenger, 1978; Stetler & Marram, 1976). The topic of usability of knowledge has been addressed in a variety of ways. Since research based knowledge may, or may not, be in a form that is directly usable in practice, usability must be determined by nurses as their needs arise. Usability may be determined through the use of evaluation tools that are currently available to nurses (Haller, Reynolds, & Horsley, 1979; Tanner, 1990).

Some research findings have already been written into a format that is usable in the practice setting (Barnard, 1980; Haller, Reynolds, & Horsley, 1979; Luckenbill-Brett, 1987). This process of changing research findings to practice methods is called transformation. In these

cases, much of the work of determining how the information can be used has been accomplished and the information can be more readily used to impact practice. As such the usability of the research is enhanced.

The transformation of findings also facilitates the nurse's determination of the relative advantage of using research based practice. The nurse must believe that a particular research based practice is better than what is currently being done before it will be accepted as a part of practice. The term 'better' may be applied to parameters such as cost or improved patient care (Horsley & Crane, 1986). Evidence suggests that findings are less likely to be used if the relative advantage can not be determined, or if there is no relative advantage (Horsley & Crane, 1986).

The usability of innovations can also be influenced by their complexity, compatibility, trialability, and observability (Glaser, Abelson, & Garrison, 1983; Horsley & Crane, 1986; Rogers, 1983). Complexity refers to how difficult a research based innovation or practice may be to understand or implement. Complex innovations may be viewed as less usable than innovations that are not as complex. However, some complex innovations have been implemented, such as nursing diagnosis and care plans, possibly because of the relative advantage of improved continuity of care (Horsley & Crane, 1986; Tanner, 1990).

Compatibility refers to how research based practices fit a population or a practice setting (Horsley & Crane, 1986; Tanner, 1990). Rogers (1983) has identified three areas that affect compatibility as sociocultural norms, previous ideas, and existing needs. Some examples

of incompatibility are 1) a birth control clinic in a Catholic neighborhood, 2) nursing diagnosis models in a predominately medical model setting, and 3) innovations that create, rather than satisfy, needs (Horsley & Crane, 1986). Incompatibility would tend to lessen the potential for research utilization.

Trialability refers to the ability to test an innovation, or a research finding, prior to a complete change in practice. Reversibility is also considered as a part of trialability. If the result of implementing a research based innovation could potentially result in an irreversible negative effect, there would be increased resistance to implementing the finding (Horsley & Crane, 1986).

Observability is the extent to which a research based practice, or the results of using that practice, can be seen by persons engaged in the practice (Horsley & Crane, 1986). Increasing the observability tends to enhance research utilization. Observability can be enhanced through inservice education, announcements, and feedback about the use of a research based practice. It is probable that complexity, compatibility, trialability, and observability act in concert to enhance research utilization (Horsley & Crane, 1986; Tanner, 1990).

In addition to these factors, Batey (1975) indicated that research needs to be disseminated, not just communicated, and that multiple audiences need to be made aware of findings. The reporting of results to other researchers is not sufficient to enhance research utilization. Dissemination could increase observability as well as promote the relative advantages of specific research findings. The success of the

CURN Project in making nurses aware of research based practices is an example of the successful combination of relative advantage, complexity, compatibility, trialability, observability, and transformation (Coyle & Sokop, 1990; Luckenbill-Brett, 1987).

Characteristics of the user. The second factor associated with research utilization deals with characteristics of the user. These characteristics include age, socio-economic status, experience, and psychological factors (Glaser, Abelson, & Garrison, 1983; Horsley & Crane, 1986; Rogers, 1983; Tanner, 1990).

One user characteristic that inhibits research utilization is the inability of nurses to determine whether a particular research finding satisfies the criteria of complexity, trialability, compatibility, and observability (Fawcett, 1982; Miller & Messenger, 1978). One source of this deficiency is the lack of formal education relating to research utilization. Studies that have investigated barriers to research utilization have identified that as many as 75% of nurses sampled found research language and statistics to be a significant barrier to understanding research (Crane, 1979; Miller & Messenger, 1978).

Rogers (1983) states that early adoption of innovation correlates positively with increased education level. In fact 74% of the research studies he evaluated indicate a positive correlation between education and use of research knowledge. In 1969, Rogers (cited in Glaser et al., 1983) stated that higher socioeconomic status and increased education tend to contribute to earlier exposure to new knowledge and increased implementation of findings.

A nurse's attitude toward research (Champion & Leach, 1989) and individual characteristics such as empathy, intellect, and abstract reasoning also have a bearing on research utilization (Glaser et al., 1983; Rogers, 1983). While these characteristics are the most difficult to alter, the introduction of more nursing science, an increased emphasis on the importance of basing nursing care on the best scientific knowledge available, and the entry of more baccalaureate prepared nurses into the nursing profession, have begun to have a positive impact (Horsley & Crane, 1986).

An indication of change in attitudes within the nursing profession may be evident. Batey (1975) indicated that an adversarial relationship existed between nurses in research and nurses in practice. While this may have been a factor in 1975, the literature does not indicate that such a relationship is currently a limitation to either conducting research or utilizing research findings.

Characteristics of the organization. Characteristics of the organization make up the third category of factors relating to research utilization. Organizational factors not only influence research utilization, they may also be the most difficult factors to change. Characteristics such as size, structure, and goals of the organization are major factors affecting research utilization that are difficult to change (Horsley & Crane, 1986).

Some characteristics of organizations that have been identified as having an adverse effect on research utilization include lack of rewards for using research in practice (Batey, 1975; Champion & Leach, 1989),

excessive workload, inadequate time to explore research findings (Miller & Messenger, 1978), and lack of organizational support (Horsley, Crane, & Bingle, 1978; Westfall & Crane, 1986). Examples of organizational support include endorsements of research activities by hospital and nursing administration and statements of support and funding for the activities.

The attitudes of a particular organization's management team will affect the nurses' attitude about research. Fugleberg (1986) found that the statements and actions of management were positively correlated with staff attitudes. Negative attitudes were correlated with the lack of research generation and use. This finding supports the contention that institutional management attitudes directly impact staff attitudes.

Professional organizations may also impact research utilization. The Oregon Nurses Association has adopted the position that the research utilization process is complimentary to, but different from the process of conducting research and that both are important to nursing (Westfall & Crane, 1986). Some of the activities that are specific to utilization are: accessing research findings, evaluating the usability of research findings, translating reported findings into clinical terms, trials with evaluation for predicted outcomes, and communication of clinical findings to other practitioners. Research utilization is an important part of the research process.

Research Utilization

The utilization of research can be evaluated across a broad range of variables (Horsley, Crane, & Bingle, 1978; Stetler & Marram, 1976;

Sunesson & Nilsson, 1989). This study focused on research utilization in terms of the use of either products or methods of research in practice (Horsley, 1985).

One such product, knowledge, may be used directly to change patient care or it may contribute to the cognitive development of the user (Stetler & Marram, 1976). Cognitive changes can contribute to behavioral change (Stetler & Marram, 1976; Sunesson & Nilsson, 1989). If behavioral change occurs on a management level, as in the event of policy change, the resulting research utilization may impact the practice of several nurses.

Research methods can be used in a variety of ways. The methods may be used to evaluate other findings (Tanner, 1990), or transform findings into a practice protocol (CURN Project; Luckenbill-Brett, 1989). Research methods may also be used directly to collect data and measure the efficacy of procedures being used in practice.

Attitudes Toward Nursing Research

Attitude relates to a state of mind held over a period of time (Wilson & Kneisl, 1988). One objective of this study was to examine the relationship between nurses' attitudes and research utilization. Champion & Leach's 1986 review of the literature about variables related to research utilization indicated that a positive relationship existed between the nurse's attitude and research utilization. Later they empirically found a significant positive correlation between attitude and research utilization (Champion & Leach, 1989).

Bostram (1989) reported that nurses' involvement in research was dependent upon their attitudes. While nurses tended to support research as a means of answering clinical questions, strong support was given for nurse educators to take the responsibility for initiating the research process. This indicates that while nurses express a generally positive attitude toward research, the attitude does not necessarily result in their active involvement in the research process.

Champion & Leach (1989) found three factors that correlated highly with utilization of research. They reported that attitude accounted for the most variance of three variables used to predict research utilization. The other two variables were availability of research findings and institutional support for research utilization. These findings were consistent with other findings that attitude toward research is positively correlated with research utilization.

It is evident from the review of the literature that many factors can impact research utilization. This study focused on the relationships between the factors of education, attitude and research utilization.

Purpose

The purpose of this study was four fold. One purpose of this study was to evaluate the associations between education level and the nurse's attitude toward research. Another was to examine the relationship between education and the three outcome variables of use of research methods in practice, accessing research knowledge to solve practice problems, and involvement in research activities. A third purpose was to examine the relationship between attitude toward research and the three

outcome variables. Finally, time since receiving their last degree was examined as a factor that may impact the nurse's attitude toward utilization of research.

If the relationships among these variables were understood, interventions that would increase research utilization may become evident. At the least, clearer directions should be seen for research that could contribute to increased research utilization in nursing.

The literature indicates consistent support for research and research utilization. Articles reporting either the use or non-use of research results have become more prevalent. The preponderance of evidence indicates that research has not been incorporated into practice at nearly the pace that information is being generated (Ketefian, 1975; Horsley, Crane, & Bingle, 1978; Kirchhoff, 1982; Luckenbill-Brett, 1987). The aim of this project was to fill some of the gaps in understanding relationships among variables that impact research utilization.

Conceptual Framework

The conceptual framework for this study linked the two main concepts of education and attitude toward research with three variables used as outcome measures that are believed to be related to research utilization. The outcome variables were 1) research methods used in practice, 2) accessing knowledge to solve practice problems, and 3) involvement in research related activities.

The relationships can be graphically shown as follows:

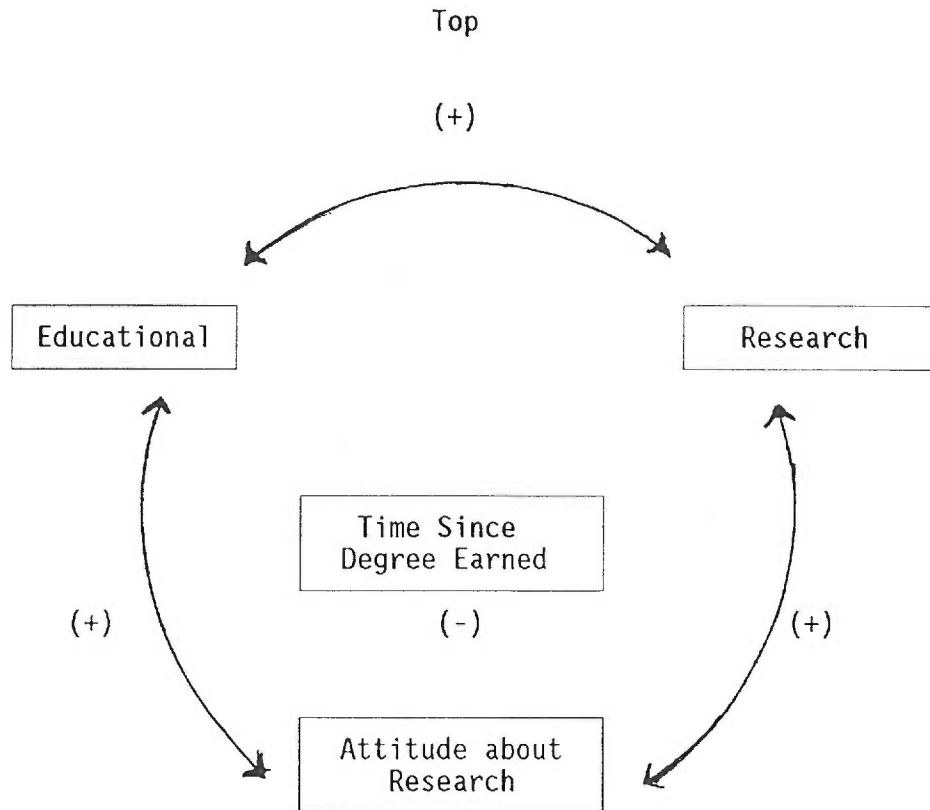


Figure 1. Conceptual Framework

Since the factor of time may also be associated with attitude toward research, the number of years since receiving the last degree (time) is illustrated as correlating with attitude toward research. The potential relationship between time and attitude toward research is represented as being negative. A nurse's attitude toward research will be less positive as the years since earning the latest degree increases. Time may represent differences in educational programs relative to emphasis on research that evolved within nursing education with the passage of time.

The variables that are arranged in the circle are all positively related. An increase in the value of one variable will relate to an increase in the value of the other variables. Nurses with more education can be expected to be more involved in research activities and have a higher attitude toward research scale score. The framework also indicates that nurses who utilize research more, or who score higher on the attitudes toward research scale, have more education.

This diagram is not intended to imply a causal relationship. It is not clear that involvement in one set of activities will cause the other to occur, or in the case of time, that passage of time will cause a lessening in attitude toward research. However, the arrows are intended to represent the directional characteristics of relationships that exist among the variables.

Hypotheses Four hypotheses were used in this study:

- 1) Nurses who have earned Master's degrees will score higher on the 'attitudes toward research' scale than nurses with Baccalaureate degrees or lower.
- 2) Time since last degree is inversely related to attitude toward research for each of two groups: nurses with Baccalaureate degrees or lower, and those with Master's degrees.
- 3) Nurses who have earned Master's degrees will score higher than nurses with Baccalaureate degrees or less on the three research utilization outcome measures of:
 - a) Use of research methods in practice.

- b) Accessing of research findings to solve practice problems.
 - c) Involvement in research activities.
- 4) Nurses who score higher on the 'attitudes toward research' scale will also score higher on the research utilization outcome measures of:
- a) Use of research methods in practice.
 - b) Accessing of research findings to solve practice problems.
 - c) Involvement in research activities.

Methods

Design

This project was a descriptive survey that utilized a secondary analysis of data collected by the Research Utilization-Nursing (RU-N) Project. All the data was taken directly from that research utilization survey (Horsley et al., 1986) in which Likert-type scales were used for all the measures. A complete list of scale items, and possible responses, is contained in Appendices A through D.

The specific scales from the RU-N project questionnaire that were used in this study are the following: 1) attitudes toward research, 2) sources for accessing research knowledge, 3) research methods used in practice, and 4) research activities in which the nurse has been involved. The reliability of the scales are:

Table 1

Reliability of RU-N Scales Used For Analysis

Scale Name	Range	N	Mean	Cronbach's	
				SD	Alpha
1) Attitude scale (six items)	1-6	361*	5.19	0.56	0.72
2) Use of research methods in practice (nine items)	0-5	361*	2.10	1.18	0.84
3) Access sources of knowledge (thirteen items)	1-5	361*	2.99	0.45	0.76
4) Research activities (six items)	0-3	361*	1.26	0.74	0.85

Note: *Reliability done on original RU-N sample

Demographic data about the highest degree that a nurse had earned and the number of years since earning the degree are the only demographic data that were included in this study.

Education level was divided into two groups. Baccalaureate degree and below included all nurses in the sample who were licensed and held any degree less than or equal to a Baccalaureate degree in nursing. This included Baccalaureate degrees in disciplines other than nursing as well as Associate degree and Diploma prepared nurses. The Master's degree group included nurses who had earned a Master's degree in nursing or in fields other than nursing.

Sample

For the RU-N Project, 362 registered nurses were surveyed by telephone after they were mailed a copy of the survey form. This study

used the data from 340 of those nurses. Nurses who had received higher than a Master's degree were eliminated from the RU-N sample for this study. The assumption was made that the focus of a doctoral program, and subsequent employment, is more research oriented and bias the results of this study. The remaining subjects were divided into two groups, Baccalaureate degree and lower (N = 194) and the Master's degree group (N = 146).

Year of birth ranged from 1920 to 1958 with a median of 1947. The median age of the sample was 41.5 years old, the mean age was 46.4 years old, with a range of 28 to 66 years old. Ethnicity was reported as 301 Whites, 18 Blacks, 11 Asians, two Hispanics, four Native Americans, three who were mixed race and one who did not know. All but ten of the nurses were employed at the time the survey was conducted.

Data Analysis

Two types of statistical tests were used to evaluate the data, t-test and correlation, with $P < .05$ used to determine statistical significance (Polit & Hungler, 1987; Winer, 1962). The t-test was used to compare the means of the two educational groups - Baccalaureate degree and lower, and Master's degree - for Hypotheses 1 and 3.

For Hypothesis 2, a correlation between time since receiving their degree and attitude toward research was computed for each of the two education groups. This was done to evaluate how attitude toward research related to passage of time since earning the last degree.

Hypothesis 4 was evaluated using the t-test to compare the mean outcome scores for nurses with a highly positive attitude toward

research and the corresponding mean scores for nurses with a less positive attitude toward research. The means of the two groups were compared as they related to the means of the three research utilization outcome scales of accessing knowledge, use of research methods in practice, and research activities.

A review of the attitudes towards research scale indicated that the results were skewed. All of the nurses interviewed had been selected from a sample that had been involved in research activities. According to the conceptual framework it was assumed that they would have a positive attitude toward research since they had been involved in previous research related activities. The mean of 5.19, with an SD of 0.56, indicated a clustering of scores at the high end of the scale. Since the highest score possible was 6.0, the samples' overall attitude toward research was high. Since the scores were skewed, a median split was used with 5.17 and below indicating a less positive attitude toward research, and 5.33 and above a more positive attitude. This separated the subjects into similar size groups. This also split the group at the median of 5.17. There were no scores between 5.17 and 5.33. These two groups were compared using the three research utilization outcome variables mentioned earlier.

Results

Table 2 and Table 3 contain both the pooled and separate variance scores for the all the t-test results. The pooled variance values are used in this study since it was assumed that both groups would have similar variability in their scores.

Table 2

Comparison of Nurses With and Without Graduate Degrees
On Four Utilization Outcomes

Dependent Variable		Baccal- aureate Degree	Master's Degree		Separate Variance	Pooled Variance
Attitude toward research	N***	193	146	T	1.62	1.61
	mean	5.12	5.22	DF	322.05	337.00
	SD	0.58	0.54			
Use of research methods	N***	193	146	T	2.50**	2.47**
	mean	1.90	2.20	DF	324.70	337.00
	SD	1.16	1.07			
Accessing research knowledge	N***	193	146	T	4.20*	4.09*
	mean	2.88	3.07	DF	334.20	337.00
	SD	0.47	0.38			
Research activities	N***	193	146	T	5.81*	5.73*
	mean	1.03	1.47	DF	326.35	337.00
	SD	0.73	0.66			

Note. * $P < .001$ ** $P < .05$
 ***One subject did not complete the survey

Hypothesis 1, nurses who have earned Master's degrees will score higher on the 'attitudes toward research' scale than nurses with Baccalaureate degrees or lower, was rejected. A t-score of 1.61 was computed (See Table 2). This t-score is not significant at $P < .05$.

Hypothesis 2, time since last degree is inversely related to attitude toward research for each of the two education groups, was accepted. A correlation coefficient of $r = -0.17$ with $P < 0.02$ was computed for 194 nurses with Baccalaureate degrees and lower. The 146 nurses in

the Master's degree group results were computed with $r=-0.17$ with $P<0.04$.

Hypothesis 3, nurses who have earned Master's degrees will score higher than nurses with Baccalaureate degrees or less on the three research utilization outcome measures of (See Table 2):

- a) Use of research methods in practice, was accepted, ($t=2.47$, $P<.01$).
- b) Accessing of research findings to solve practice problems, was accepted, ($t=4.09$, $P<.001$).
- c) Involvement in research activities was accepted, ($t=5.73$, $P<.001$).

Table 3

Comparison of Levels of Attitude Toward Research
With Three Utilization Factors

Dependent variable	Attitude Scale		Separate Variance	Pooled Variance	
	Lower Score	Higher Score			
Accessing research knowledge	N** mean SD	188 2.84 0.42	151 2.33 0.43	T DF 5.86* 316.27	5.88* 337.00
Use of research methods	N** mean SD	188 1.80 1.10	151 2.32 1.11	T DF 4.40* 320.91	4.40* 337.00
Research activities	N** mean SD	188 0.96 0.66	151 1.54 0.70	T DF 7.85* 312.29	7.91* 337.00

Note. * $P<.0001$

**One subject did not complete the survey

Hypothesis 4, nurses who score higher on the 'attitudes toward research' scale will also score higher on the research utilization outcome measures (See Table 3):

- a) Use of research methods in practice, was accepted, ($t=5.88$, $P<.001$).
- b) Accessing of research findings to solve practice problems, was accepted, ($t=4.4$, $P<.001$).
- c) Involvement in research activities, was accepted, ($t=7.91$, $P<.001$).

Discussion

The results of this study indicate that nurses who have earned Master's degrees tended to have no higher attitude toward research in general than other nurses in the sample. This finding was not consistent with the findings in the literature review. However, when the population from which the sample was drawn was considered, this finding was more easily understood. The nurses in the sample had been previously involved in research utilization projects such as the CURN Project or WICHE. The skewed results of the 'attitude toward research' scale may have been a result of the nurses' involvement in the research utilization projects. That involvement could have lessened the difference that education would have contributed.

When educational level was compared to research utilization outcomes, the difference between the groups was found to be significant. Even though accessing information and becoming involved in research activities may be associated with characteristics of the user, and use

of methods could be more influenced by organizational factors, each of the factors was found to be different for the two groups, relative to their educational level.

Another factor that was initially assumed to be related to the results for this sample was the similarity in the emphasis placed on nursing research at the time the nurses received their degrees. It was assumed that educational programs for Baccalaureate and Master's degree programs were not extremely different in relation to the emphasis placed on research methods and research training at the time most of the sample received their education. Any possible differences in research education could have been minimized by the fact that the respondents had been involved in lengthy programs whose purpose was to increase the nurse's utilization of research. Even though they had all been involved in the research utilization projects, increased level of education still related to increased research utilization outcomes.

The results of the comparisons on attitude toward research were consistent with the findings of the literature review. The more positive the nurse's attitudes toward research, the more likely they were to be involved in utilization and research activities. Even though the overall scores on the 'attitude toward research' scale, of the nurse's involved in the RU-N Project tended to be high, a significant difference existed between the two groups (higher scores and lower scores) relative to their utilization of research. The higher the attitude scale score, the greater was the utilization of research scale score.

Time since degree earned was found to relate negatively with the nurse's attitude toward research for both groups. The greater the time interval that existed since the degree was earned, the lower 'attitude toward research' scale score. While there is statistical significance, the clinical significance is negligible. The correlation coefficients ($r = -0.17$ and $r = -0.167$) indicate that less than four percent of the variance of the responses can be explained by time.

Suggestions for Further Research

The results of this study were consistent with current literature or were understandable through the use of the conceptual framework, in identifying education and attitude as factors in research utilization. A problem remains in identifying factors within education that may contribute to either improved attitude or increased research utilization. Particular aspects of education need to be evaluated for their relationship to research utilization.

No research was found that attempted to identify factors within education that may contribute to improved attitude or increased research utilization. It is possible that more difference, related to educational level, could have been found if the group of Baccalaureate degree and lower had been divided with Associate degree, and Diploma, being separate groups from Baccalaureate prepared nurses.

Research needs to be conducted that more clearly defines the relationships among the variables. Research that identifies factors that affect attitude, or experiences within education that affect subsequent research utilization needs to be done. While it is clear that the

factors are related, it is not clear what contributes to the factors. The next logical step is to attempt to develop an understanding of the causative factors that impact the variables.

More research needs to be done relating to barriers to research utilization. The review of literature for this study showed a general lack of research utilization by nurses. A better understanding of the barriers could be used to increase the nurse's attitude toward research and their research utilization.

Limitations of the Study

There are several limitations in generalizing the results of this study. Since the majority of the sample had been involved in research related activities, they probably do not represent the entire nursing population. While this does not negate the results for this sample, it may have introduced bias that limits the generalization potential.

The clustering of scores in the attitudes scale is also a weakness of this study. The clustering could possibly be viewed as a response bias of the original study, however the median split used in the analysis of this study should limit that bias.

Potential Utilization of Findings

Current literature is consistent in its support of nursing research as a major means for nursing to grow as a profession. The relationships that enhance the utilization of research knowledge must be found to facilitate improvement of patient care.

The literature is contradictory as to the actual extent that research is being utilized, but general consensus indicates that

research results are not being fully used. If specific relationships between variables related to the utilization of research can be identified, they can be studied and new approaches employed to enhance the use of scientific information in nursing. Not only would the nursing profession benefit by its practice becoming more grounded in supportable interventions, but more people may see the value of research and increase their use of research findings and new innovations.

As nursing proceeds in its effort to gain recognition as a profession it is imperative that research continue, but more importantly, that the results are utilized. Without utilization of research findings it is reasonable to question the need to invest time and funding in the generation of knowledge.

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Appendix A

We are interested in knowing how you feel about research activities in general.

To what extent do you agree or disagree with the following statements?

- A. Research can provide valuable clinical information.
- B. You would like to base more of your care on research findings.
- C. There are many topics for which research findings are useful for clinical decision-making.
- D. Being involved in activities related to research motivates you to go back to school.
- E. You gain nothing when you're involved in research-related activities.
- F. Participation in nursing research stimulates your thinking.

Possible Responses:

Strongly		Slightly	Slightly		Strongly
Disagree	Disagree	Disagree	Agree	Agree	Agree

Appendix C

When you have clinical practice problems, how often do you use each of the following sources to identify solutions for those problems?

In order to identify solutions, how often do you use:

- A. Nursing personnel in your work setting?
- B. Other personnel (e.g., physicians) in your work setting?
- C. Nursing personnel from other settings?
- D. Nursing research journals (e.g., Nursing Research)?
- E. Clinical nursing journals (e.g., MCN, Heart & Lung)?
- F. General nursing journals (e.g., Nursing '86, AJN)?
- G. Textbooks?
- H. University nursing faculty in your community?
- I. Direct interaction with nurse researchers (excluding faculty in "H" above)?
- J. Clinical conferences (covers multiple topics)?
- K. Research conferences?
- L. Workshops (covers single topic)?
- M. Newsletters?

Possible responses:

Not at all	Seldom	Some- Times	Frequently	Always
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Appendix D

We are interested in knowing how often you have engaged in the following research activities during the past year. Indicate the number of times you have engaged in each activity provided in the right-hand column (A-F). Include activities you did alone or as part of a group; estimate the number if necessary.

Research Activities:

- A. You attended research conferences and heard about new studies.
- B. You reviewed research literature in an effort to identify new knowledge for use in your practice.
- C. You evaluated a research study to determine its value for practice.
- D. You transferred the knowledge included in the results of the research studies into useful practice activities.
- E. You planned for the implementation and evaluation of new research-based practices.
- F. You discontinued or rejected a practice activity because of knowledge included in the results of research studies.

Possible responses:

0 1 2-4 5 OR MORE

Abstract

Title: The Effects of Education and Attitudes on Accessing and Utilizing Research Findings: A Secondary Analysis

Author: Russel A. Hunt, RN.

Approved: _____
Jo Anne Horsley, RN, Ph.D, Advisor

This was a secondary analysis of data that was collected as part of the Research Utilization-Nursing (RU-N) Project. The purpose of the study was to evaluate the relationships between level of education and attitude toward research on the three research utilization outcome variables of accessing knowledge to solve practice problems, use of research methods in practice, and the nurse's involvement in research activities.

The data from 340 nurses, of the 362 surveyed for the RU-N Project in Michigan, was used to evaluate the relationships. All were licensed Registered Nurses who had been previously involved in research utilization projects. T-tests comparing the means of two groups, Baccalaureate degree and lower, and Master's degree, showed that level of education and attitude toward research is positively related to the three outcome variables at a significance level of $P < .05$. Time since earning the last degree was shown to be statistically significant but clinically irrelevant at the $P < .05$ ($r = -.17$) as a predictor of attitude toward research. Generalizability could be limited due to the involvement of the sample in previous research utilization projects. The overall attitude toward research of the sample was high (with a mean scale score of 5.17 out of a 6.0 possible). This study supports the concept that education is strongly related to attitude toward research and research utilization.

