EXTENDED CARE NURSES' KNOWLEDGE ABOUT SUDDEN ONSET CONFUSION IN THE ELDERLY

By

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B.S.N., The University of British Columbia, 1985

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

IN

THE FACULTY OF GRADUATE STUDIES

(School of Nursing)

We accept this thesis as conforming to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

April, 1992

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ABSTRACT

The sudden onset of confusion in an elderly client requires accurate and expeditious nursing assessment. If the cause of the confusion is identified and treated, irreversible deterioration of the client's mental functioning may be prevented. Studies have suggested that nurses lack adequate assessment skills and knowledge about the causes of sudden onset confusion.

This descriptive study was designed to measure the knowledge possessed by registered nurses working in British Columbia Extended Care units about the causes of sudden onset confusion in the elderly. Relationships between knowledge scores and specific characteristics of the subjects (age, type of preparatory and additional nursing education, and length of experience in long term care nursing) were also examined.

A random sample of 130 British Columbia registered nurses working in Extended Care Units was generated by the Registered Nurses Association of British Columbia (R.N.A.B.C.) data bank. A questionnaire which tested knowledge about causes of confusion and a demographic
form were mailed to each subject. Sixty eight percent completed questionnaires were returned for a response rate of 52%. Of those, 62 were fully completed and appropriate for inclusion in data analysis. Sixty six percent of the respondents returned a coupon indicating their desire to receive a summary of the research study when it was completed. The nurses' test scores were analyzed to determine their knowledge about confusion and correlations between test scores and demographic characteristics were explored.

The highest score possible on the confusion questionnaire was 15. Test results of subjects ranged from a high of 15 to a low of 5, with the mean being 12.6 (M = 12.6, SD = 2.3). Although the majority of nurses scored higher than the mean, some subjects obtained scores of less than 50%.

Knowledge scores were seemingly unaffected by demographic characteristics. For example, no relationship was found between the subjects' knowledge about confusion and their age, education, or length of experience in long term care nursing.

Based on the findings of this study, implications for nursing practice, education, and administration are
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proposed. Recommendations for further research are also made.
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ACKNOWLEDGEMENTS

I wish to thank Janet Gormick, Ray Thompson, Nancy Thornton, and Marilyn Dewis for their invaluable assistance and encouragement.

This work is dedicated with love, respect, and gratitude to the memories of my father, Henry Ivan Burger, and my husband, Al Amdam. They were the wind beneath my sails.
CHAPTER ONE

Introduction

Background to the Problem

More than 3 million Canadians are currently over the age of 65 (Woods Gordon, 1984). In 1988, approximately 9% of them resided in some type of long term care facility or retirement home. For the group aged over 75, this percentage rose to 17.5% (Institute for Health Care Facilities of the Future, 1988).

Many elderly facility residents experience some form of confusion. Butler (1981), Lipowski (1983), and Hirst and Metcalf (1986) suggested that between 30% and 50% of clients suffer from some type of mental impairment. The 1985 American National Nursing Home Survey found that 63% of elderly facility residents experienced memory impairment and/or disorientation severe enough to hamper their daily activities of living (Hing, 1987).

Lipowski (1983) stated that the terminology used to describe the various types of confusion which can occur in the elderly client have overlapped, been inconsistently used, and poorly defined. He listed delirium, senile delirium, acute confusional state, acute brain syndrome, and clouded state as words
commonly used as synonyms for confusion. Wolanin and Phillips (1981) classified confusion according to cause, type of onset (rapid or slow), duration of symptoms, degree of severity, prognosis for recovery, and age of the client. These authors challenged society to question its traditional view that confusion in old age is irreversible and equal to senility.

Butler (1981), Ludwick (1981), LaPorte (1982), Lipowski (1983), Foreman (1986), and Linderborn (1988) all concluded that when confusion in the elderly occurs suddenly over a period of hours or days, it is usually caused by a treatable physical or psychological disease or condition. When the underlying disease or condition is treated, the symptom of confusion disappears. Conversely, if the disease remains untreated, the confusion will eventually become irreversible and chronic.

Accurate assessment of changes in mental status is required in order to implement effective treatment (Yazdanfar, 1990). Nurses play a key role in the early detection of sudden onset confusion in the aged (Wolanin, 1981; Hall, 1988; Fawdry & Berry, 1989; Foreman, 1990). Thus, nurses need special knowledge in order to accurately assess changes in the mental status
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of their elderly clients (Robb & Malinzak, 1981; Brady, 1987; Blixen, 1988). Studies to measure nurses' knowledge about assessing confusion in elderly clients have revealed that knowledge to be inadequate (Ludwick, 1981; Palmateer & McCartney, 1985).

This researcher's experience is that in long term care facilities, nurses often lack the required knowledge and skill to thoroughly assess sudden onset confusion. This is a serious problem for Extended Care clients who generally require a high level of medical and nursing care. Because of the advanced years and physical frailty of Extended Care clients, sudden onset confusion is frequently seen.

Nurses may possess inadequate knowledge about causes of confusion because basic nursing programs in North America place low emphasis on gerontology or care of the aged (Gioiella, 1986; Nodhturft, Banks & MacMullun, 1986; Lee & Cody, 1987). Where knowledge deficits are identified, continuing education programs are a valid way for nurses to meet their learning needs (Wolanin, 1981; Harrison & Novak, 1988).

In order to provide content which is relevant and appropriate, such programming must be based on accurate learning needs assessment (Knowles, 1980; Austin, 1981;
O'Connor, 1986). Educational programs must also be evaluated to determine if they have been effective in enhancing the skills and knowledge of those attending (Puetz, 1985).

**Statement of the Problem**

Several researchers have concluded that nurses who care for the elderly do not know enough about the causes of sudden onset confusion (Lincoln, 1984; Palmateer & McCartney, 1985). As a result, nurses may fail to detect potentially reversible causes of confusion in time to prevent permanent damage to the client's intellectual ability (Wolanin, 1981; Linderborn, 1988). Nurses may lack assessment skills because their basic nursing education placed low priority on knowledge about caring for the elderly (Gioiella, 1986; Lee & Cody, 1987). Continuing education programs can be designed to provide this information when it is demonstrated that the nurse's failure to assess actually relates to lack of knowledge. To determine if such a learning need exists, this study will measure the knowledge about sudden onset confusion possessed by British Columbia nurses working in Extended Care units.
Purpose

The purpose of this study was to describe nurses' knowledge about the causes of sudden onset confusion in the elderly, and to identify the relationship between knowledge and selected characteristics of the nurse: age, level and type of education, and length of experience in long term care nursing.

Conceptualization of the Problem

The nursing process, the scientific approach to nursing care, is comprised of assessment, planning, implementation, and evaluation. To assess a client, the nurse collects and analyzes data in a systematic way, drawing conclusions about the client's need for nursing care (Campbell, 1987). Deliberate, systematic client assessment is a prerequisite of professional nursing care (Salisbury, 1991).

Because assessment of the client is the first step in the nursing process, the success of all subsequent nursing intervention depends on the adequacy of this step (Campbell, 1990). A meaningful nursing care plan must be based on a comprehensive assessment. Without it, nursing care provided will be at best inappropriate; at worst, it could harm the client.
Gerontological nurses must possess high levels of skill and knowledge in assessing elderly clients (Eliopoulos, 1990). Disease often manifests itself differently in older adults (Jessup, 1984). Also, many elderly clients are unable to communicate effectively, making the process of assessment even more difficult (Hall, 1988).

In addition to competency in the assessment skills of interviewing, observing, and physical assessment, nurses must be able to differentiate between normal and pathological processes in the elderly client. They must also have specialized knowledge about the many causes of reversible confusion in the elderly (Jessup, 1984). Without such knowledge, nurses who recognize a rapid onset confusional state will be unaware of the need to investigate the problem and obtain appropriate treatment for the client (Wolanin, 1984).

Clients with sudden onset confusion must receive the appropriate treatment of the underlying cause of the confusion. This treatment must be based on accurate assessment and instituted immediately. Without this essential care, the client may suffer permanent and disabling damage resulting from chronic confusion (Wolanin, 1984).
Therefore, to provide safe and competent care, Extended Care nurses must have knowledge about confusion in the elderly. Nurses can find information about differentiating between reversible and irreversible confusion in virtually every gerontological nursing textbook currently on the market (Wolanin, 1981; Rossman, 1986; Matteson & McConnell, 1988; Hogstel, 1990; Chenitz, Stone, & Salisbury, 1991). Prominent nursing journals also regularly contain information about assessment of confusion.

Despite the availability of this information, the literature suggests that nurses lack adequate knowledge about assessing confusion (Lincoln, 1984; Morgan, 1985; Palmieri, 1991). If this is true in British Columbia, Extended Care clients may not be receiving acceptable nursing care. This study seeks to determine if nurses are aware of the causes of confusion in the elderly by administering a True/False test of knowledge. The tool tests very basic knowledge about confusion, asking for example, if an elderly person could become confused because of a move to a nursing home.

All authors writing about confusion in the aged agree that it is essential for nurses to understand confusion and be knowledgeable about assessing causes
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(Wolanin, 1981; Jessup, 1984; Eliopoulos, 1990; Salisbury, 1991). This researcher believes it is reasonable to expect Registered Nurses working with elderly clients to have no difficulty obtaining a score of 90% on this test. Scores of lower than 90% would indicate a serious lack of knowledge about confusion, giving rise to concerns about that nurse's ability to provide safe and competent care.

Research Questions

The following research questions guided this study:

1. What do British Columbia Registered Nurses working in Extended Care units know about the causes of sudden onset confusion in the elderly?

2. Is there a relationship between knowledge of sudden onset confusion and

   2.1 age of the nurse

   2.2 type of nursing education completed

   2.3 length of experience in long term care nursing

Definition of Terms

Confusion - a term used by nurses to describe a constellation of behaviors including disorientation, distractibility, impaired attention span, memory deficits, inappropriate verbalizations, disruptive

Sudden onset confusion - confusion in which the onset of the inappropriate behavior is abrupt, usually observed over the course of hours or days. The confusion can often be reversed when the underlying physical or psychological cause is treated.

Slow onset confusion - confusion in which onset of inappropriate behavior is noticed over a period of months or years. This confusion is usually related to one of the dementing diseases and is chronic.

Extended Care Unit - a facility which provides residence and care for clients who require a 24-hour program of supervised care. These clients are not able to independently walk, use a wheelchair or transfer from bed to chair (B.C. Ministry of Health, 1984).

Registered Nurse - a person in possession of a current, practicing R.N. membership in a professional nursing organization.

Gerontological Nurse - A registered nurse who cares for elderly clients in any setting.

Elderly person - any person aged 65 years or older.
Significance of the Study

Foreman (1990) stated that from both patient care and health care administrative points of view, sudden confusion in elderly clients is a serious problem. For the individual client who does not receive appropriate treatment for sudden confusion, the physical and mental health issues can be devastating. From an economic viewpoint, failure to quickly identify and correct the underlying cause of a sudden onset confusion means the client's recovery will be slower and more costly.

Another relevant concern of health care administrators is the appropriate distribution of ever-shrinking continuing education dollars (O'Connor, 1986). Content of inservice and continuing education programs must be based on proven learning needs thus ensuring money is spent in the most meaningful way. Collective agreements between hospitals and nurses in British Columbia now direct administrators to allocate money and time for nursing continuing education (Health Labour Relations Association/British Columbia Nurses Union, 1989). Therefore, the findings of this research will interest long term care nurses, teachers and administrators.
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Assumptions

For the purposes of this study, it was assumed that:

1. Knowledge level influences the quality of care Registered Nurses provide.
2. Respondents from the random sample will comply with instructions to complete the questionnaire without assistance or discussion with others.

Limitations

1) The generalizability of this research study's findings was limited by sample size and the inability to ensure that respondents complied with the instructions for completing the questionnaires.
2) The tool used to measure knowledge level has had limited testing to date, thus reliability and validity are not fully established.
3) The mood of subjects as they completed the questionnaire could not be measured.

Ethical Considerations

The information letter sent to selected subjects informed them they had the right not to participate in the study. They were also informed that should they choose to participate in the study, they were not required to answer any question they preferred to leave
blank, and that participation was anonymous. Return of completed questionnaires was taken as the subject's consent to participate in the study. The proposal for this study was reviewed and accepted by The University of British Columbia Behavioral Sciences Screening Committee For Research and Other Studies Involving Human Subjects.

Organization of Thesis Content

This thesis is comprised of five chapters. Chapter One introduced the background to the problem, problem statement, purpose, conceptualization of the problem, research questions, definitions of terms, and significance of the study. In Chapter Two, selected literature is reviewed and presented under the headings of sudden onset confusion, nurses' knowledge of causes of confusion, gerontological content in nursing curricula, and meeting identified learning needs. Chapter Three describes the study methodology, including research design and sampling procedure, data collection instruments and procedures, ethical considerations, and techniques of data analysis. In Chapter Four, the study sample and research findings are presented. Chapter Five presents a summary of the thesis and research conclusions. Implications for
nursing practice, education and administration, and recommendations for further research are presented.
CHAPTER TWO
Review of Literature

Introduction
The purpose of this literature review was to provide a framework within which to examine nurses' knowledge about the causes of sudden onset confusion in the elderly. Areas reviewed were: (a) sudden onset confusion in the elderly; (b) nursing assessment of sudden onset confusion; (c) type and amount of gerontological content in nursing school curricula; (d) the level of knowledge that nurses actually have about assessing confusion; (e) ways to meet identified learning needs of practicing gerontological nurses.

Sudden Onset Confusion
Wolanin and Phillips (1981) stated that no matter what name is used to describe it, mental impairment is the most critical deterrent to quality of life in the aged. LaPorte (1982) suggested most people fear dementia more than death itself. Fawdry and Berry (1989) proposed that one of older adults' greatest fears is senility with its resultant loss of control and independence. Despite the fact that the phenomenon is prevalent in geriatric settings, research into
sudden onset confusion has only begun in earnest over the past ten years (Vermeersch, 1991).

Terminology used to describe "confusion" in the elderly patient has been poorly defined and inconsistently used. Examples of terms which are used synonymously with "sudden onset confusion" include delirium, senile delirium, acute confusional state, acute brain syndrome, and clouded states (Wolanin, 1981; Lipowski, 1983).

LaPorte (1982) described acute brain syndrome as a frequently reversible abnormal mental state, characterized by fluctuating levels of awareness and global mental impairment of varying degree. Foreman (1986) referred to sudden onset confusion as "acute confusional state", defining it as an acute syndrome which is potentially reversible.

Ludwick (1981) stated acute confusion usually begins suddenly and subsides with the correction of the underlying cause. Butler (1981) identified more than 100 forms of treatable confusion. Rabins (1983) suggested that between 10% and 33% of cases of acute confusion in the elderly are due to reversible causes. Linderborn (1988) listed metabolic disorders, infection, cardiovascular disease, sensory overload or
deprivation, and medication toxicities as examples of reversible causes of sudden confusion. Palmieri (1991) stated that although confusion can be a result of a multitude of causes, in an "alarming" number of cases, the confusion is iatrogenic, the result of a medication reaction.

Chisholm, Deniston, Igrisan and Barbus (1982), in their study of the presence and predictors of confusion in elderly patients, clearly differentiated between acute (reversible) and chronic (irreversible) confusion. They identified abrupt onset confusion as a complication secondary to a primary disease, noting it could be related to organic or psychic causes.

**Nursing Assessment of Sudden Onset Confusion**

The nursing process, (assessment, planning, implementation, and evaluation), is the basis for nursing practice (Campbell, 1987). The first step, assessment, is the systematic collection and analysis of client data. Next, based on assessment findings, the nurse designs and implements an appropriate plan of care.

The Gerontological Nursing Association of Canada practice standards (1987) state that use of the nursing process is fundamental to gerontological nursing
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practice. In British Columbia, the professional nursing organization expects nurses to use the nursing process as a basis for clinical decision making (R.N.A.B.C. Standards for Nursing Practice in British Columbia, 1992). Therefore, to practice safely, the nurse requires knowledge with which to assess clients experiencing specific problems such as sudden onset confusion.

It is important that sudden onset confusion be detected early through systematic and comprehensive assessment of the patient's cognitive status (Foreman, 1991). Extended Care nurses play a key role in recognizing, assessing, and providing or obtaining appropriate treatment for sudden onset confusion in elderly clients (Wolanin, 1981; Ludwick, 1981; Fawdry & Berry, 1989; Chiverton, 1990). In order to assess a client who has suddenly become confused, the nurse must possess knowledge about the possible causes of the symptom. Assessing confusion is complex because it may be the first or only sign of any one of hundreds of conditions or diseases (LaPorte, 1982; Lipowski, 1983; Foreman, 1986). It is also a challenging and complex task because the elderly client may be unable to share
reliable information about health concerns (Hall, 1988).

Hodkinson (1976) claimed that acute confusion is a more frequent first sign of illness in the elderly person than such common signs as fever or pain. Lipowski (1983) stated that nearly every physical illness may cause a mental status change in an aged person.

Lucas, Steele and Bognanni (1986) stressed the need for the nurse to be able to differentiate confusion from psychiatric symptoms, because confusion can often be mistaken for depression in the elderly. LaPorte (1982) stated that assessing sudden onset confusion is also complicated when the client has a pre-existing chronic disease such as Alzheimer's. In this case, the nurse must be able to recognize and assess the effects of dementing diseases.

Nurses' Knowledge of Causes of Confusion

To accurately assess the complex condition of sudden onset confusion in elderly clients, nurses require knowledge about the causes of confusion (Wolanin, 1981; Hirst & Metcalf, 1986; Gioiella, 1986). Studies conducted to measure nurses' knowledge about
confusion and their assessment skills have reported differing findings.

Lincoln (1984) used a paper and pencil test to measure the knowledge about confusion possessed by nurses and aides working in nursing homes. In Lincoln's study, data analysis revealed that subjects experienced most difficulty with questions related to reversible causes of confusion. She found younger subjects scored higher than older ones, and that those with more formal education had higher mean scores. No relationship was found between knowledge about confusion and years of experience in nursing homes.

Palmateer and McCartney (1985) conducted a study to evaluate nurses' ability to accurately assess impaired mental status in patients over the age of 65 years who were admitted to medical/surgical units in a general hospital. The nurses in the study identified only 28% of the patients with impaired mental status. In other words, nursing assessment failed to detect 72% of those patients known to have abnormal mental status.

Morgan (1985), studying confusion in nursing home settings, reported residents in large facilities were less likely to be assessed as confused than those residing in small facilities. Also, nurses assessed
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residents as confused more often when the residents were more dependent in activities of daily living.

Williams, Ward and Campbell (1988) measured nurses' skills in assessing mental status in elderly, hospitalized patients. In this study, the nurses correctly identified patients with impaired mental status much more frequently: 78% of the time when testing a group of patients on post operative day 2, and 79% when testing patients on day 5. Williams et al. recognized these results to be higher than those found by previous investigators and attributed these findings to the Hawthorne effect. (For example, subjects were sensitized to observe and record confusional behavior because of being involved in the study.) The researchers went on to suggest that where nurses use appropriate guidelines to assess elderly clients, the result would be collection of data about mental status "that in usual practice is at best unrecorded and, at worst, unobserved" (p. 28).

Foreman's research (1991) revealed that doctors and nurses conceptualize and assess confusion in the elderly differently. Palmieri (1991) noted that professional caregivers often regard an elderly
patient's confusion as an accepted reaction to hospitalization or to aging.

Scott, Bramble and Goodyear (1991) studied the general knowledge about dementia possessed by Veterans' Administration nurses. In part, their study utilized a 10 point True/False test of knowledge. They reported that 80.1% of respondents demonstrated a "high" level of knowledge, giving the correct answer to at least 80% of the ten questions. However, despite this apparent high level of knowledge, two statements related to knowledge of reversible causes of confusion were answered incorrectly by at least one quarter of all respondents. The first statement "many forms of intellectual impairment in the elderly are treatable and reversible" was incorrectly answered as false by 27% of the respondents. Another statement "there is no effective treatment for any of the dementias" was incorrectly answered as true by 26% of respondents (p.22). This research revealed no correlation between number of correct answers and demographic variables of nurses' age, educational level, and length of experience. The authors conclude in part that gerontological nursing education should focus on the
reversibility of dementia, given the high incidence of occurrence in the elderly.

These study findings and my own personal experience as a clinical preceptor of diploma nursing students prompted me to investigate the literature regarding gerontological content in the curricula of North American nursing programs. The purpose of this inquiry was to determine how much knowledge about care of the elderly is being provided for registered nursing students.

**Gerontological Content in Nursing Curricula**

As early as 1975, the National League for Nursing acknowledged that nurses' basic education must include information about care of the elderly (Gioiella, 1986). Although controversy exists regarding the best way to include gerontological content (Maddox & O'Hare, 1991), all Canadian and American literature reviewed suggests gerontological content in basic nursing educational programs is wholly inadequate.

Nodhturft, Banks and MacMullen (1986) stated that curricula in American nursing programs place little emphasis on gerontology. Gioiella (1986) concurred, stating that nursing programs do not teach, either in depth or in any systematic way, nursing care for the
Lee and Cody (1987) concluded that in American schools of nursing, no consensus about components of a core curriculum in gerontology currently exists. They suggested that a systematic process of curriculum development is urgently needed to properly educate nurses in how to care for the elderly client.

Kuehn (1991) argued that while the need for nurses prepared to work in gerontology continues to escalate, nursing programs continue to offer inadequate gerontological content. She suggested that this is related to the profession's ongoing emphasis on teaching nurses to care for clients with acute, short-term, reversible, medical problems.

The American Nurses' Association (A.N.A.) (1986b) conducted a survey of 498 American schools of nursing to determine the profile for teaching gerontological content. The study reveals wide variations in amount of content and formats for presenting it. Of greater interest were the significant questions about faculty preparation revealed by the study. For example, 40% of faculty who taught gerontological content had no educational preparation for this teaching. Clinical preceptors or supervisors also lacked preparation in
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gerontology. The A.N.A. survey stated that faculty preparation in gerontology is a critical issue which the nursing profession must address.

American society generally devalues its elderly and negative attitudes towards aged clients are often reflected in the attitudes of nurses and other care givers (Marte, 1991). However, lack of gerontological content in nursing curricula may also contribute to a documented reluctance of nurses to enter the field of gerontology (Feldbaum & Feldbaum 1981; Williams, Lusk, & Kline, 1986; DeWitt & Matre, 1988; Dellasega & Curriero, 1991). This problem translates into a shortage of nurses qualified to work in long term care settings (Shields & Kick, 1982).

In an attempt to identify essential gerontological content for Associate Degree Nursing (A.D.N.) programs in the United States, Kuehn (1991) utilized the Delphi method with a sample of A.D.N. educators and expert long term care nurses working in skilled nursing facilities over 50 beds. Both panels rated commonly encountered health problems, ethical issues, chronic illness, long term care, and nursing process as essential and appropriate content areas for A.D.N. practice.
Gunter and Estes (1979) suggest that gerontological nursing can be distinguished from practice in other areas of nursing because nurses in gerontology use a specific body of knowledge about health/aging/illness interactions in the elderly when they design nursing care for their clients. However, Palmore (1980) studied nurses' general knowledge about the elderly and found it lower than knowledge other groups of health care providers possessed. Robb and Malinzak (1981), believing that educational preparation of nurses to care for the aged was deficient in both quality and quantity, measured the knowledge about gerontology of 435 nurses who provided care to the predominantly elderly clients in an American medical center. Item analysis indicated that the test was not difficult; the mean number of correct responses to the 75-item test was 53 or 70% with a range in scores from 27 to 67. The researchers found that the highest scores belonged to nurses aged 20 to 30 who had taken courses in gerontology, had completed their formal educational nursing preparation in the past 10 years, and were assigned to acute care. The authors suggested that results of their study supported the contention
that information about care of elderly clients should be included as part of nursing curricula.

This researcher reviewed curriculum reports from each British Columbia diploma nursing program to determine if any specific courses on care of the elderly client were included. Programs surveyed were: British Columbia Institute of Technology (General Nursing Program, 1982), Camosun College (Nursing Department Report, 1987), Cariboo College (Nursing Diploma Program Report, 1987), The College of New Caledonia (General Nursing Program, 1988), Douglas College (General Nursing Program Submission, 1988), Kwantlan College (Diploma Nursing Program Submission, 1987), Malaspina College (Diploma Nursing Program, 1987), Okanagan College (Diploma Nursing Program, Phase VI, 1987), Selkirk College (Diploma Nursing Program Submission, 1988), Vancouver Community College, Langara Campus (Nursing Program Report, 1986) and the Vancouver General Hospital (School of Nursing Diploma Program, 1984). Review of these documents was followed up with personal communication with a faculty member from each program to confirm currency of information.

Currently, only the British Columbia Institute of Technology (General Nursing Program, 1982), and Cariboo
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College (Nursing Diploma Program Report, 1987) require courses in nursing care of the older adult. In all other programs, content about gerontology is integrated throughout the basic curricula. The amount and type of content varies between programs.

Not every Extended Care nurse working in this province graduated from a British Columbia nursing program. However, information about gerontological content in British Columbia nursing programs is relevant. It provides a local perspective from which to view the criticism noted in the literature that in general, nursing educational programs do not place adequate emphasis on gerontology.

Meeting Identified Learning Needs

Thirteen years experience in nursing administration and nursing continuing education has provided empirical evidence for this researcher that many nurses working in British Columbia Extended Care units lack knowledge about causes of sudden onset confusion in the elderly, and support for this perception is found in the literature. Concerned that apparent lack of knowledge about care of the elderly is related to inadequate educational preparation, many nurse gerontologists stress the need for development of

Robb and Malinzak (1981) stated that personnel responsible for providing gerontological continuing education programs face enormous challenges. For example, these authors maintained that program content must be highly applicable, readily amenable to implementation with few resources, and sufficiently appealing to attract tired and busy long term care nurses.

In its survey of gerontological nurses in clinical settings, the American Nurses' Association (1986a) reported data which supported the beliefs of Robb and Malinzak (1981). The A.N.A. study sought to provide a demographic description of nurses in the U.S.A. who care for the elderly, to determine their roles, functions and responsibilities, as well as to identify levels of job satisfaction. Three thousand, five hundred surveys were mailed and 2,244 were returned, giving a response rate of 64%. The study reported that continuing education related to nursing care of the
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The elderly was a critical professional issue for the respondents. The nurses stated that continuing education programs were especially needed in long term care facilities. Nurses also identified that programs needed to be "creative" in their modes of delivery because of how difficult it was for facility nurses to participate. Confusion states, along with immobility and sensory loss, were reported as key clinical issues of concern for long term care nurses.

Nurse educational administrators such as Popiel (1977), Austin (1981), Puetz and Peters (1981), Cooper (1983), O'Connor (1986), and Farley and Fay (1988) argue strongly that nursing continuing education must be based on accurate assessment of learning needs in order for programs to meet the real needs of the intended participants. Therefore, knowledge of British Columbia nurses about the causes of sudden onset confusion in the elderly must be measured in order to determine if continuing education programs are needed.

Summary of Literature Review

The purpose of this literature review was to provide a framework within which to examine nurses' knowledge about the causes of sudden onset confusion in the elderly. Literature pertaining to confusion and...
nursing assessment of confusion was reviewed. Data regarding gerontological content in nursing basis curricula was presented. Research which measured nurses' knowledge about assessment was presented, and finally, literature identifying ways to meet learning needs of gerontological nurses was reviewed.
CHAPTER THREE

METHODS

Research Design

This study utilized a descriptive design to measure knowledge about confusion and to identify any relationships between test scores and demographic characteristics of the subjects. This method was chosen because of the limited amount of available information about the topic and because in the few research studies measuring nurses' knowledge about confusion, findings were inconsistent (Burns & Grove, 1987).

Sampling Procedure

A random sample of 130 B.C. Extended Care registered nurses was generated by the Registered Nurses Association of British Columbia (R.N.A.B.C.) data bank. Individuals who identified themselves as Extended Care staff nurses on the 1990 R.N.A.B.C. Registration Renewal Form were eligible for selection. A sample form is found in Appendix A.

A minimum sample of 68 respondents was desired for this study; a mail out of 130 packages was expected to result in at least this response size. The number of subjects required for this study was calculated
Knowledge About Confusion

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according to Cohen (1977) for the Pearson Product Moment Correlation Coefficient (r).

Data Collection Instruments

A questionnaire adapted from one designed and used by Lincoln (1984) was used to measure levels of knowledge about causes of confusion. The tool, entitled simply "questionnaire", is a true/false test and was used in research which measured knowledge levels of nursing home personnel in a midwestern suburban area of the United States. Lincoln's original tool is found in Appendix B.

The tool is based on the content of Wolanin and Phillips' (1981) book about confusion in the aged. Questions 2, 3, 5, 6, 7, 8, 10, 13, and 15 refer to physiologic causes of confusion such as dehydration, low blood pressure, and so forth. Questions 4, 11, and 12 test subjects' knowledge about psychological causes of confusion. Questions 1, 9, and 14 ask about subjects' attitudes about and general knowledge of confusion in the elderly client. Scoring consisted of calculating a total score by summing each subject's response to the knowledge of confusion in elderly scale.
Tests for internal consistency and reliability of the original instrument indicate moderately high results, the reliability coefficient being .692. Lincoln's item analysis revealed that five statements on the tool had either very high difficulty scores or a negative discrimination score, or both. These statements were deleted from the tool.

Lincoln's letter of permission to use the tool is found in Appendix C. A copy of the revised tool is contained in Appendix D.

A short demographic questionnaire was included in the package. Additional information asked of subjects included: age, type of nursing education completed, and length of experience in long term care nursing. Appendix E contains a copy of this questionnaire.

Pilot Test

The tools used in this study were pretested at a greater Vancouver Intermediate Care facility. Eight volunteer nurses at this facility were recruited because they were exempt from selection for the study by the R.N.A.B.C. computer bank. Participation of the nurses was voluntary and strictly anonymous. They were made aware that they were under no obligation to participate in the study and that non-participation
would not result in any negative job-related consequences. Confidentiality of completed questionnaires was protected by this researcher. No evidence of any significant hindrances to completing the questionnaires were revealed.

Data Collection Procedures

The method of data collection was chosen to provide access to a province wide sample of nurses. The R.N.A.B.C. sent a package to each selected subject. This researcher was unaware of the nurses' identities. The letter of explanation notified subjects of their random selection and explained the purpose of the study. A copy of this letter is found in Appendix B.

The package included a letter of explanation, a questionnaire designed to test knowledge about causes of sudden onset confusion, a stamped, self addressed envelope, and a coupon. Subjects were instructed to complete the coupon if they wished to receive a summary of the research study, once it was completed.

As questionnaires were returned, each envelope was opened, checked for completeness and date stamped. A log book was maintained to record incoming questionnaires on a daily basis and monitor the response rate. Without looking at the name, the coupon
was removed from the envelope, if one had been sent by the subject, and placed in random order in a file folder.

Two weeks after the original packages were mailed, envelopes containing a thank you/reminder letter were mailed to each study subject. The letter thanked subjects for participating in the study and urged those who had not yet returned their questionnaires to do so.

Data Analysis

A sample size of 68 was desirable at a significance level of .05 (alpha), with a medium effect size of .30, and a power of .80, using a one-tailed test. One hundred and thirty questionnaires were mailed out to ensure this sample size, given an expected return rate of 60%.

Raw data collected from questionnaires were coded onto a Fortran sheet and entered onto a data file using the University of British Columbia mainframe computer. The statistical package for the Social Sciences (SPSS) computer program was used to analyze data.

Both non-parametric and parametric tests were used to analyze data. Because of the random sampling technique used, parametric testing was appropriate. To answer question I, the following were calculated: mean
score, mode, median, standard deviation, standard error for the mean and median, histograms, and ranked means.

To answer question 2, correlations between knowledge scores and age, between knowledge scores and education, and between knowledge scores and experience were calculated using the Pearson Product Moment Correlation Coefficient $(r)$. Finally, statistical significance of $r$ was tested for each variable pairing.

**Summary of Methods**

This chapter described the research design used in this study, the sampling procedure, data collection instruments and procedures, the pilot test prior to the study, and methods of data analysis. The study utilized a descriptive design. A random sample of 130 British Columbia registered nurses was generated by the Registered Nurses Association of British Columbia. The questionnaire used to test knowledge about sudden onset confusion was adapted from one designed by Ruth Lincoln, R.N. in 1984. A demographic form was mailed to subjects with the Confusion questionnaire. These tools were pretested at a greater Vancouver area long term care facility. Both non-parametric and parametric tests were used to analyze data.
Characteristics of the Sample

The sample consisted of 62 registered nurses who worked as staff nurses in Extended Care units throughout the province. A total of 130 questionnaires were mailed out and two weeks later, reminder letters were sent. None of the questionnaires were returned as undeliverable. Of the 68 questionnaires returned, three were missing demographic information, two were completed by nurses who did not work in Extended Care, and one was sent back by the husband of a nurse who was recently deceased.

The response rate for the present study was 52%, which is deemed acceptable considering the lack of personal contact subjects had with the researcher. According to Burns and Grove (1987), the response rate for a mailed survey is usually 25-30% with a rate of 50% being sufficient to prevent response bias. It is not known how the 62 non-respondents may differ characteristically from the 68 who did respond. A significant percentage of this study's respondents (66%) completed the coupon indicating a desire to receive a summary of the research study.
The following demographic information was collected from subjects: age, nursing education, type of employing agency, and length of experience in long term care nursing. Eight and one tenth percent of nurses were between 20 and 30 years of age. This finding may support the growing concern that new nursing graduates are not entering the field of gerontology. Almost 60% of subjects were between the ages of 31 and 50; however the largest single age group (43.5%) were nurses between 41 and 50 years (see Table I).

Table I

Age Distribution of the Sample

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 30</td>
<td>5</td>
<td>8.1</td>
</tr>
<tr>
<td>31 - 40</td>
<td>10</td>
<td>16.1</td>
</tr>
<tr>
<td>41 - 50</td>
<td>27</td>
<td>43.5</td>
</tr>
<tr>
<td>51 and over</td>
<td>20</td>
<td>32.3</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Levels of basic nursing education of the sample are presented in Table II. The majority of subjects (87.1%) possessed a diploma in nursing and of these,
72.6% were graduates of a three year hospital program. Two year college graduates comprised only 14.5% of the group. The high number of three year program graduates is an interesting finding because only one hospital program in the lower mainland of the province has graduated students since the early 1970's.

Five subjects (8.1%) had completed a baccalaureate degree in nursing as their basic education, and 3 did not answer the question.

Table II

Basic Nursing Educational Level of the Sample

<table>
<thead>
<tr>
<th>Type of Educational Program</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year diploma</td>
<td>9</td>
<td>14.5</td>
</tr>
<tr>
<td>3 year diploma</td>
<td>45</td>
<td>72.6</td>
</tr>
<tr>
<td>4 year university</td>
<td>4</td>
<td>6.5</td>
</tr>
<tr>
<td>5 year university</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>no answer</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>100.0</td>
</tr>
</tbody>
</table>

There were 17 nurses who indicated that they had educational preparation in addition to their basic level of nursing education. Ten nurses (58.8%) were educated in one additional area, five were educated in
two areas (29.4%), and two (11.8%) were educated in three areas. Educational areas other than basic nursing education were categorized by this researcher (see Table III).

Most subjects with additional education had studied in the clinical nursing category (38.6%). Only one subject out of 62 had completed post basic study in gerontology. The other subjects possessed post basic nursing education in midwifery, pediatrics, public health, and psychiatry. It would be very interesting to determine why the midwives, paediatric nurses and so forth entered the field of geriatrics. Over the past ten years, this researcher has encountered many nurses who recognized that gerontology was the "field of the future" and made a dramatic career change. If this were true for the subjects in the present study, one wonders if they attended gerontological continuing education programs when they changed specialties.

Eleven and one half percent of the staff nurses in the study had post basic education in the fields of nursing, business, or health administration. In Extended Care, it is not uncommon to find staff nurses attending management and supervisory courses because of a desire to advance to a Head Nurse or Supervisor
Table III

**Areas of Nursing Education other than Basic Nursing Preparation**

<table>
<thead>
<tr>
<th>Area of Educational Program</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwife/Maternity/Paediatrics</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Gerontology</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Public Health Nursing</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>5</td>
<td>19.3</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>38.6</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing Unit Management</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Health Care Management</td>
<td>2</td>
<td>7.6</td>
</tr>
<tr>
<td>Business Management</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Supervisory Management</td>
<td>2</td>
<td>7.6</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>30.6</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSN (returning RN)</td>
<td>2</td>
<td>7.6</td>
</tr>
<tr>
<td>RN Access (1 year)</td>
<td>2</td>
<td>7.6</td>
</tr>
<tr>
<td>MA Counselling</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Foreign country</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Health Sciences/ (graduate studies)</td>
<td>1</td>
<td>3.9</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>26</td>
<td>100.0</td>
</tr>
</tbody>
</table>
level. The impetus is often the advancing age of the nurse, as work in Extended Care is physically strenuous.

All subjects were employed as staff nurses. In addition to their positions in Extended Care, there were seven nurses (11.3%) also employed in other clinical areas (see Table IV). Several respondents indicated that they worked in small, rural hospitals and so were obligated to "float" throughout the agency.

Table IV

Areas of Employment Other than Extended Care

<table>
<thead>
<tr>
<th>Area of Employment</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day Care Surgery</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>Research Assistant</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>General Hospital</td>
<td>2</td>
<td>28.5%</td>
</tr>
<tr>
<td>Palliative Care</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>Intermediate Care</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>Cardiac Care</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

In terms of experience in Extended Care, 22 subjects (35%) had up to five years of experience, 24 had six to ten years (38.7%), 15 had 11 to 20 years (24%), and one had 21 to 30 years. In total, over two
thirds had worked in Extended Care longer than five years.

Findings

In the section to follow, findings are presented for the two research questions posed in this study. The level of knowledge about causes of confusion in the elderly was examined using descriptive statistics. The Pearson Product Moment Correlation Coefficient was used to examine the relationship between level of knowledge and age, educational level, and length of experience. Analysis of variance (ANOVA) was used to examine the differences between knowledge and age of nurses and knowledge and length of experience in long term care nursing.

Research Question 1: Knowledge about confusion

To address subjects' level of knowledge about causes of confusion, the results obtained from the Lincoln Confusion scale are presented using descriptive statistics. The frequency and distribution of scores on the confusion scale are outlined. In addition, the percentage of correct scores for each of the items on the scale are presented to show which items reflected the highest and lowest scores.
Subjects' responses to each question were compared with the correct answer and the score totalled. For example, a score of 0 would mean all questions were answered incorrectly. A score of 15 would mean all answers were correct.

The total score on the confusion scale ranged from a low of 5 to a high of 15, with the average score being 12.6 or 84% ($M = 12.6, SD = 2.3$) (see Table V). Forty subjects scored above the mean (64.5%) whereas 22 subjects scored below the mean (35.5%). Although the majority of subjects had moderately high scores, there were some subjects who had very low scores. For example, less than three quarters of the subjects obtained a score of 80% or greater. Unfortunately, these scores cannot be compared with Lincoln's initial research, as individual scores were not reported.

On the pilot test for the present study, scores ranged from 11 - 15, with the average being 13.3 (88%). This mean was just slightly higher than that of the study subjects.

There are 15 items on the confusion scale. The number of correct responses for each item are presented in Table VI. Items 1, 2, 4, 5, 13, and 15 reflected
the highest scores; items 6 and 12 reflected the lowest scores.

Table V

Total Knowledge for Nurses Working in Extended Care

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Percent on a total score out of 15</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td>0 - 20</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>4 - 7</td>
<td>27 - 47</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>8 - 11</td>
<td>53 - 73</td>
<td>16</td>
<td>25.9</td>
</tr>
<tr>
<td>12 - 15</td>
<td>80 - 100</td>
<td>45</td>
<td>72.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>62</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: 15 items scored true/false. The minimum score possible is 0 and maximum score possible is 15.

Question 3 was answered incorrectly by 30.6% of subjects. This was likely because the question was worded in an ambiguous way. Many respondents made this comment in the margin next to the question. Question 12 was answered incorrectly by 43.5% of subjects. The statement read "When staff expect a person to be confused, he will act that way", and the correct answer was "True". The statement implies that when staff treat residents as if they were confused, residents will often behave accordingly and is based on
Table VI

Correct and Incorrect Responses to Items on the Confusion Scale

<table>
<thead>
<tr>
<th>Content of Item</th>
<th>Correct Response</th>
<th>Percent</th>
<th>Incorrect Response</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Most people over 65 have senile brain disease</td>
<td>59</td>
<td>95.2</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>2. Physical illness that prevents oxygen to brain</td>
<td>60</td>
<td>96.8</td>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>3. Poor hearing</td>
<td>43</td>
<td>69.4</td>
<td>19</td>
<td>30.6</td>
</tr>
<tr>
<td>4. Moving to a nursing home</td>
<td>58</td>
<td>93.5</td>
<td>4</td>
<td>6.5</td>
</tr>
<tr>
<td>5. Dehydration</td>
<td>61</td>
<td>98.4</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>6. Low blood pressure</td>
<td>43</td>
<td>69.4</td>
<td>19</td>
<td>30.6</td>
</tr>
<tr>
<td>7. How much a person can see</td>
<td>47</td>
<td>75.8</td>
<td>15</td>
<td>24.2</td>
</tr>
<tr>
<td>8. Mental ability and having a physical illness</td>
<td>55</td>
<td>88.7</td>
<td>7</td>
<td>11.3</td>
</tr>
<tr>
<td>9. Sources of confusion that we can do something about</td>
<td>48</td>
<td>77.4</td>
<td>14</td>
<td>22.6</td>
</tr>
<tr>
<td>10. Hypothermia</td>
<td>56</td>
<td>90.3</td>
<td>6</td>
<td>9.7</td>
</tr>
<tr>
<td>11. Lack of stimulation</td>
<td>50</td>
<td>80.6</td>
<td>12</td>
<td>19.4</td>
</tr>
<tr>
<td>12. Staff expectations about confused behavior</td>
<td>35</td>
<td>56.5</td>
<td>27</td>
<td>43.5</td>
</tr>
<tr>
<td>13. Brain disease is worse at night</td>
<td>58</td>
<td>93.5</td>
<td>4</td>
<td>6.5</td>
</tr>
<tr>
<td>14. Little can be done for the person with senile brain disease</td>
<td>53</td>
<td>85.5</td>
<td>9</td>
<td>14.5</td>
</tr>
<tr>
<td>15. Medications</td>
<td>58</td>
<td>93.5</td>
<td>4</td>
<td>6.5</td>
</tr>
</tbody>
</table>
literature which reveals that staff/resident interactions do influence resident behavior (Chenitz, Stone, & Salisbury, 1991; Heacock et al, 1991). Six respondents noted on their tools that this question was unclear. Others who answered incorrectly were apparently not aware of this information.

Another example of a question which many subjects answered incorrectly was number 7: "How much a person can see makes little difference in the amount of confusion he has". Again, several subjects circled the word "little" in the sentence, indicating that the meaning was unclear, or tricky.

With the exception of these ambiguously worded questions, the confusion tool was simple. Questions reflected minimal knowledge for nurses working in Extended Care. Although the majority of subjects had moderately high scores, some subjects had very low scores. One subject attained only 33%. These findings are disturbing because over two thirds of the sample had greater than 5 years experience in long term care nursing. It seems reasonable to this researcher that nurses with 5 years of experience should have basic knowledge of confusion.
Knowledge About Confusion

It is also of concern to note that some subjects answered very simple questions incorrectly. For example, 30.6% of the respondents incorrectly answered that low blood pressure does not result in confusion. Also, 19.4% of subjects did not know that lack of stimulation (sensory deprivation) can result in confusion. Twenty two and six tenth percent of subjects answered question 9 incorrectly. They answered false to the statement that there are "few sources of confusion that we can do nothing about". These facts about sources of confusion in the elderly are found in many textbooks on gerontological nursing (Wolanin, 1981; Steffl, 1984; Agate, 1986).

High overall marks were also expected because the test was completed by subjects at their leisure, in the privacy of their own home. This non-threatening environment should not have negatively influenced the subjects' ability to answer the questions.

Inadequate knowledge about confusion as evidenced by some low scores may reflect a lack of emphasis on client assessment in role descriptions for Extended Care nurses. In British Columbia, the ratio of registered nurses to nurse aides in Extended Care is generally 20% to 80%. Registered nurse team leaders,
who can be responsible for up to 75 clients on a shift, concern themselves primarily with administration of medications and treatments. Individual time with clients is limited and assessment may occur only when a problem is brought to the nurse's attention by an aide (A. Welton, personal communication, February 13, 1992).

Also, although assessing elderly clients is a specialized skill, gerontological nurses may have few expert role models from whom to learn (Ebersole & Hess, 1990). Generally, the primary function of Extended Care Head Nurses is administrative, and positions for Clinical Nurse Specialists in geriatrics are not routinely funded (L. Jodouin, personal communication, February 13, 1992).

Knowledge levels may also reflect a contention noted in the literature that appropriate continuing education programming is not available for gerontological nurses (Crenshaw, McLin & Lewis, 1990).

Research Question 2: Relationships between knowledge and demographic characteristics

To address the question related to the relationship between knowledge of confusion and age of nurse, level of nursing education completed, and length
of experience in long term care, the findings of the Pearson Product Moment Correlation were examined.

Knowledge scores were seemingly unaffected by demographic characteristics of age, education, and experience. The findings indicated there was no significant relationship between knowledge of confusion and age of the nurse. (See Table VII). Although there was a slight tendency for younger nurses to score higher than older ones, no clear directional relationship was evidenced ($r = -.21, p = .10$). There was no significant relationship between knowledge of confusion and level of nursing education ($r = .04, p = .75$), and no significant relationship between knowledge of confusion and number of areas of education completed ($r = .29, p = .24$). There was also no significant relationship between knowledge of confusion and years of experience.

<table>
<thead>
<tr>
<th>Table VII</th>
<th>Total Knowledge Score by Age of Nurse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td>n</td>
</tr>
<tr>
<td>20 - 30</td>
<td>5</td>
</tr>
<tr>
<td>31 - 40</td>
<td>10</td>
</tr>
<tr>
<td>41 - 50</td>
<td>27</td>
</tr>
<tr>
<td>50 and over</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
</tr>
</tbody>
</table>
relationship between knowledge of confusion and length of nursing experience ($r = .48, p = .00$). Lack of correlation between knowledge and the variables of education and experience are consistent with the findings of Lincoln (1984).

When subjects were grouped according to age, and analysis of variance was performed, no significant difference was found between knowledge of confusion and the groups according to age ($F = 1.32, p = .27$). The knowledge means and standard deviations for each of the groups (age of nurse grouped) are presented in Table VII. When subjects were grouped according to number of years of experience, and analysis of variance was performed, no significant difference was found between knowledge of confusion and the groups according to length of experience ($F = .38, p = .76$). The knowledge means and standard deviations for each of the groups are presented in Table VIII.

There was no correlation between length of nursing experience in long term care and knowledge about confusion. This finding supports literature claiming that continuing education programs are not sufficiently available to long term care nurses. For example, a senior nurse should have had greater opportunity to
broaden gerontological nursing knowledge through experience and attendance at continuing education programs that a new nurse. Either nurses are not attending such programs, or else programs are not providing information about confusion.

No statistical difference in knowledge about confusion existed between nurses with two, three or four years of nursing education. Nurses' knowledge was apparently not influenced by the type of nursing program they attended.

Table VIII

**Total Knowledge Score by Length of Experience**

<table>
<thead>
<tr>
<th>Length of Experience Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>22</td>
<td>12.4</td>
<td>2.6</td>
</tr>
<tr>
<td>6 - 10</td>
<td>24</td>
<td>12.5</td>
<td>2.3</td>
</tr>
<tr>
<td>11 - 20</td>
<td>15</td>
<td>13.2</td>
<td>2.0</td>
</tr>
<tr>
<td>21 - 30</td>
<td>1</td>
<td>12.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>12.6</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Summary of Findings

The response rate for this study was 52%. The sample consisted of 62 registered nurses who worked as staff nurses in Extended Care Units throughout British
Columbia. Demographic information regarding age, type of nursing education, type of employing agency, and length of experience in long term care nursing was collected from subjects.

In relation to the first research question, scores on the confusion scale ranged from a low of 5 to a perfect score of 15, with the average score being 12.6 or 84% ($M = 12.6, SD = 2.3$). Sixty four and a half percent of subjects scored above the mean whereas 22 subjects scored below the mean. Less than three quarters of the subjects obtained a score of 80% or greater.

In relation to the second research question, knowledge scores were seemingly unaffected by demographic characteristics of age, education and experience. Findings did not reveal any significant relationship between knowledge of confusion and age, level of nursing education, and length of experience in long term care nursing.
CHAPTER FIVE
Summary, Conclusions, Implications and Recommendations

Summary

Sudden onset confusion in the elderly is a common problem in long term care. Nurses must be able to conduct an expeditious assessment to determine what is causing the confusion and ensure appropriate treatment in instituted. Studies have concluded that nurses do not possess adequate knowledge to detect potentially reversible causes of confusion in time to prevent permanent damage to the client's intellectual ability (Wolanin, 1981; Linderborn, 1988).

This study was designed to measure the knowledge about sudden onset confusion possessed by British Columbia Registered Nurses working in Extended Care Units. Relationships between test scores and demographic characteristics of the subjects were also investigated. A random sample of 130 nurses was used in the study. The nurses were sent explanatory letters, a questionnaire which tested their knowledge about confusion, a self-addressed envelope and a demographic form. Two weeks after the first mail-out, a reminder/thank you letter was sent. A total of 68
questionnaires were returned, and of these, 62 (52%) were suitable for inclusion in the study.

The final sample used in the study was comprised of 62 staff nurses working in Extended Care. The majority (75.8%) were over 40 years of age. Forty five out of 62 nurses (72%) received their basic education in a three year, diploma school of nursing. Only five out of 62 (.08%) were educated at the baccalaureate level. Forty six out of 62 (74%) had worked in long term care for ten or less years.

The true/false questionnaire which measured knowledge about confusion was scored out of a possible 15. The minimum score possible was 0 and the maximum score possible was 15. Subjects' scores ranged from a low of 5 to a high of 15 (M = 12.6, SD = 2.3). Forty subjects scored above the mean (64.5%) whereas 22 subjects scored below the mean (35.5%). Although the majority of subjects had moderately high scores, some subjects had very low scores.

One subject scored below 50%, and over one quarter of the subjects scored 73% or less. These low scores give rise to concern because the content of the questionnaire reflected a knowledge level of minimal
Knowledge About Confusion


To determine relationships between the subjects' knowledge about confusion and specified demographic characteristics, the findings of the Pearson Product Moment Correlation were examined. The findings indicated that there was no significant relationship between knowledge of confusion and age of the nurse, \( (r = -.21, p = .10) \). There was also no significant relationship between knowledge of confusion and type of basic nursing education \( (r = .04, p = .75) \), as was there no significant relationship between knowledge of confusion and number of areas of education other than basic nursing educational preparation \( (r = .29, p = .24) \). Finally, no significant relationship between knowledge of confusion and length of nursing experience was found \( (r = .09, p = .45) \).

When subjects were grouped according to age, and analysis of variance was performed, no significant difference was found between knowledge of confusion and the groups according to age \( (F = 1.32, p = .27) \). When subjects were grouped according to number of years of experience, no significant difference was found between
Knowledge scores were seemingly unaffected by demographic characteristics of age and experience. It is interesting to note that while the difference was not significant, \( r = -.21, p = .10 \), younger nurses tended to score higher on the knowledge scale than older nurses.

Conclusions

The following conclusions are drawn from the findings of this research study:

1) Subjects who scored less than 90% on the test may possess inadequate knowledge about causes of sudden onset confusion.

2) Knowledge scores were unaffected by demographic characteristics of age, education, and length of experience in long term care. Although a larger sample size might have resulted in significant findings, this suggests experience in long term care did not increase the subjects' knowledge about confusion.

3) Reliability of the knowledge questionnaire has been refined. The initial tool developed by Lincoln revealed a reliability coefficient of .692.
Reliability of the modified tool in the present study was .71.

4) The confusion questionnaire reflected a level of minimal knowledge of assessment expected of a gerontological nurse. Subjects should have achieved uniformly high scores.

**Implications**

Although the findings of this study are not generalizable due to sample size, they do identify many implications for nurses working in geriatric clinical practice and administration. Implications for basic nursing education and for continuing professional education can also be identified.

**Nursing Practice**

1) To ensure that a baseline for comparison is available to the registered nurse who is assessing sudden onset confusion, nursing history forms in Extended Care should contain information about mental status.

2) Unit based nursing care standards should specify that team leaders (R.N.'s) in Extended Care are responsible for both initial and ongoing resident assessment.
Knowledge About Confusion

Nursing Administration

3) Low scores on the confusion questionnaire suggest nurse administrators should also review professional care standards and methods of staff performance appraisal. Documented entry level competencies related to assessing sudden onset confusion should be available. Also, the performance of staff nurses should be measured against a framework of professional standards, such as those developed by the Registered Nurses Association of British Columbia (1992), and the Gerontological Nurses Association (1987).

Basic Nursing Education

4) Curricula of both diploma and baccalaureate nursing programs should be reviewed for adequacy of content on confusion in the aged.

5) As a number of subjects scored less than 50%, there are implications for future development of Canadian National Association Testing Service examinations. For example, content on assessment in general, and on the causes of sudden onset confusion specifically should be included.

Continuing Nursing Education

6) Providers of continuing education programs in Extended Care Units should review available programs
designed to augment nurses' knowledge about assessment of sudden onset confusion in the aged. Where none exist, programs should be designed in collaboration with Head Nurses who are responsible for care provided to client.

7) Providers of marketed continuing education programs for gerontological nurses such as the R.N.A.B.C. and the British Columbia Health Association, should evaluate the need for programs designed to meet the need for knowledge about causes of sudden onset confusion in the elderly.

Recommendations for Further Research

This descriptive study was the first to study the knowledge about confusion of British Columbia Extended Care nurses. As first level research, the study has generated additional areas for inquiry and provided clearer direction for the questions. Therefore, based on the findings of this study, the following suggestions are made for subsequent research in the area:

1) This study should be replicated with a larger sample size with a view to obtaining an increased response rate. Consideration could also be given to
sending a second "reminder" letter four weeks after the initial mail out to increase return rate.

2) The study questionnaire detected inadequacy of subjects' knowledge about confusion. It warrants further development and should be re-written to reduce ambiguity inherent in some questions. The reliability and validity of the tool should be more fully developed.

3) The questionnaire should be expanded to include more than True/False questions. For example, multiple choice questions could be added. Also, a section asking the respondent to answer narrative questions relating to a case study would result in more reliable information about a respondent's assessment skills and knowledge.

4) The demographic questionnaire should be broadened to identify respondents' history of participation in continuing education about confusion. For example, information should be solicited about attendance at workshops and seminars, and participation in self learning activities such as review of journals or independent guided study. Knowledge scores would be correlated with subjects' participation at continuing education.
5) Future studies of this type should attempt to correlate knowledge scores and the availability of onsite continuing education programs. Also, nurses' knowledge about confusion should be compared between Extended Care Units with and without established standards of professional practice in place.

6) This study could be replicated using a sample of nurses from Intermediate Care. Intermediate Care clients whose physical conditions deteriorate are generally transferred to Extended Care. Although many similarities in workload between the two areas exist, the mental status of the two client groups is usually different. It would be interesting to compare test scores of nurses in each group.

7) An experimental research study could be conducted to determine the effects of continuing education programming on the ability of the nurse to assess sudden onset confusion in the aged.
REFERENCES


Knowledge About Confusion


Knowledge About Confusion


Vancouver Community College, Langara Campus. (1986). *Nursing program - Report to the R.N.A.B.C.*

Vancouver, British Columbia: Vancouver Community College.

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Appendices
Appendix A

R.N.A.B.C. Registration Renewal Form
1991 REGISTRATION RENEWAL FC
Due on or before March 1, 1991

REGISTRATION NO.

PLEASE COMPLETE SECTION BELOW ONLY IF ABOVE INFORMATION IS INCORRECT OR INCOMPLETE.

SURNAME 2

FIRST 3

MIDDLE

APL BOX NO 4

STREET ADDRESS

Telephone 46

CITY/TOWN 5

PROVINC E 6

POSTAL CODE 7

SOCIAL INSURANCE NO 9

PREVIOUS NAMES 8 If your name has changed, please enclose a photocopy of legal change of name document.

SEX 1 Male Status 12 5 M F Date of Birth 13 Y M D

IF ABOVE INFORMATION IS INCORRECT OR INCOMPLETE, PLEASE COMPLETE SECTION BELOW. For more information, see the back of the form and enclosed pamphlet.

1 Our records show

IS THE ABOVE INFORMATION CORRECT? YES NO

IF NO, CORRECT BELOW. Are you employed by more than one employer? No Yes How many

EMPLOYED IN NURSING 27

Regular Basis 27

Employment Seasonal 27

EMPLOYED NOT IN NURSING 27

Seeking Employment in Nursing 3

Not seeking Employment in Nursing 3

Not employed 27

Seeking Employment in Nursing 3

Not seeking Employment in Nursing 3

IF NO, CORRECT BELOW. How many hours did you work in nursing in 1990?

Actual hours or Full-time all year (170 hours will be recorded) 43

Have you completed a nursing refresher course or a nursing degree in the past 5 years? No Yes If yes, when? Yr 4

Are you now on maternity, disability, educational or other leave of absence from work? No Yes 4

Do you hold a current practicing/active membership in another Province/Territory? No Yes If yes where?

I HEREBY APPLY FOR PRACTICING MEMBERSHIP 33 Fee (includes G.S.T.) 4

DATE COMMENCED PRESENT EMPLOYMENT 28

Employment Status Full-time Part-time Casual 28

Date of Birth 13 Y M D


How many hours did you work in nursing in 1990?

If you wish to pay by Credit Card (Mastercard or Visa), complete this section and place of employment. Have you completed items 1 through 6?

Date Submitted 5

YOUR PERSONAL SECURITY WORD

PLEASE REVIEW THE FOLLOWING SECTIONS CAREFULLY.

The employment, education and other information on our files are given in the sections below indicated by a star (*) or letter in the shaded column. If the information is out of date or incomplete please correct it by placing a check (X) in the unshaded column. You are our only source of information, please help us to keep it correct.

FOR YOUR PRIMARY EMPLOYMENT CHECK ONE ONLY IN EACH OF A, B AND C.

DIRECT PATIENT CARE

1. POSITION 24

Director 24

Assistant Director 24

Supervisor 24

Administrative Nursing 24

Assistant Director 24

Other not listed 24

DIRECT PATIENT CARE 25

Medical Surgical 13

Critical Care e.g. ICU, ICU ER 13

Operating Room 13

Post-Anesthetic Recovery Room 13

Neurosciences 13

Maternal-Neonatal 13

Geriatrics Gerontology 13

Occupational Health 13

Rehabilitation 13

Other Not listed 13

NURSING ADMINISTRATION 26

Nursing Education Administration 26

Other Administration 26

NURSING 27

Teaching Students 32

Teaching - Employed 32

Teaching - Paid Clinics 32

Teaching - Other Education 32

RESEARCH 40

EDUCATION 41

BASIC NURSING EDUCATION 42

Baccalaureate Degree 42

Master's Degree 42

POST BACCALACURATE MEANS EDUCATION COMPLETED AFTER YOUR ORIGINAL NURSING PROGRAM WHICH LED TO NURSE REGISTRATION. PLEASE CHECK ONLY HIGHEST LEVEL COMPLETED.

OTHER THAN NURSING 43

None of the following 43

Doctorate 43

Master's Degree 43

Baccalaureate Degree 43

Certificate - Diploma 43

Check all boxes which are appropriate.

CURRENT ENROLLMENT IN AN EDUC PROGRAM 44

Not Currently Enrolled in Program 44

Enrolled in Nursing Program 44

Continuing in Non-Nursing Program 44

Full-Time Student 44

Part Time Student 44

TYPE OF PROGRAM 45

None of the following 45

Doctorate 45

Master's 45

Baccalaureate Degree 45

Certificate - Diploma 45

Check all boxes which are appropriate.
Appendix B

Lincoln Confusion Questionnaire
QUESTIONNAIRE ABOUT CONFUSION IN THE ELDERLY

Please answer the following questions TRUE or FALSE. Circle the T for TRUE and the F for FALSE. Put down the first answer that comes to mind. Do not change your answers. Please do not skip any questions.

T F 1. Most people over the age of 65 have senile brain disease.

T F 2. A physical illness that prevents oxygen from getting to the brain can cause confusion.

T F 3. Poor hearing will rarely make a person act confused.

T F 4. The stress of moving to a nursing home is enough to make a person confused.

T F 5. Confusion and disorientation can come from being dehydrated.

T F 6. The usual reason for senile brain disease is problems with the blood vessels in the person's brain.

T F 7. Some elderly get confused from having low blood pressure.

T F 8. How much a person can see makes little difference in the amount of confusion he has.

T F 9. A person's mental abilities can be affected by having a chronic physical illness.

T F 10. Confusion can result from having to be fed all the time.

T F 11. There are few sources of confusion that we can do anything about.

T F 12. Hypothermia (body temperature below normal) can be responsible for confused behavior.

T F 13. Lack of stimulation from the environment is enough to make a person confused.
T F 14. When staff expect a person to be confused, he will act that way.

T F 15. When a person acts confused at night, it is because his brain disease is worse at night.

T F 16. Once a person has a diagnosis of senile brain disease, there is little that can be done to help him.

T F 17. Medications rarely will cause a person to act confused.

T F 18. Being alone without family or friends can increase disorientation.

T F 19. Scolding a person when he does something wrong will help lessen his confusion.

T F 20. Pain can lead to confusion in a normally alert person.
Appendix C

Letter of permission
Dear Colleague:

My name is Lori Amdam. I am a graduate student in the University of British Columbia School of Nursing and am conducting a research study for a Master's thesis. My faculty advisor is Ms. Janet Gormick, R.N., M.S.N. This study is designed to measure knowledge that long term care nurses have about sudden onset confusion in the elderly. My interest in this area comes from fourteen years experience in long term care nursing.

Your name has been randomly selected to receive this package by the R.N.A.B.C. computer bank. I have not been made aware of the identities of the nurses whose names were selected to ensure complete anonymity. Please be aware that you are under no obligation to be part of this study, and that if you do, you are free to not answer any questions you prefer to leave blank.

To participate in this research, simply complete the questionnaire and return it to me in the enclosed envelope. About 15 minutes will be required to answer the questions. All information is confidential and you are not required to identify yourself by signing your name. Please answer the questions without consulting books or discussing the questionnaire with others.

I hope that you will choose to be part of this study because the results should be helpful for long term care nurses in clinical, teaching and administrative positions. If you participate, and wish to receive a summary of the results when they are available, please complete the attached form and send it back with the questionnaire. Upon arrival, the form will be separated from your response to keep your identity confidential. If you return the questionnaire, it will be assumed that you are consenting to participate in the study.

If you have any questions about this letter, please contact me at (604) 859-2008. Thank you in advance for your help.

Sincerely,

Lori Amdam, R.N., B.S.N.

Encl.
Appendix D

Revised tool
QUESTIONNAIRE ABOUT CONFUSION IN THE ELDERLY

Please answer the following questions TRUE or FALSE. Circle the T for TRUE and the F for FALSE. Put down the first answer that comes to mind. Do not change your answers. Please do not skip any questions.

T F 1. Most people over the age of 65 have senile brain disease.

T F 2. A physical illness that prevents oxygen from getting to the brain can cause confusion.

T F 3. Poor hearing will rarely make a person confused.

T F 4. The stress of moving to a nursing home is enough to make a person confused.

T F 5. Confusion and disorientation can come from being dehydrated.

T F 6. Some elderly get confused from having low blood pressure.

T F 7. How much a person can see makes little difference in the amount of confusion he has.

T F 8. A person's mental abilities can be affected by having a chronic physical illness.

T F 9. There are few sources of confusion that we can do nothing about.

T F 10. Hypothermia (body temperature below normal) can be responsible for confused behavior.

T F 11. Lack of stimulation from the environment is enough to make a person confused.

T F 12. When staff expect a person to be confused, he will act that way.

T F 13. When a person acts confused at night, it is because his brain disease is worse at night.
T  F 14. Once a person has a diagnosis of senile brain disease, there is little that can be done to help him.

T  F 15. Medications rarely will cause a person to act confused.
Appendix E

Demographic questionnaire
ABOUT YOURSELF

I would like to know a few facts about yourself. This information is for statistical analysis only. Please check the description which applies to you in each of the sections below or fill in the blank. Thank you.

1. **Age**
   - ____ (20 - 30 years) ____ (31 - 40 years)
   - ____ (41 - 50 years) ____ (51 and over)

2. **Nursing Education**
   (Please check type of basic education completed)
   - ____ Two year diploma program
   - ____ Three year diploma program
   - ____ Four year university program
   - ____ Others (please specify):

3. **Agency of Employment**
   - ____ Extended Care Hospital
   - ____ Other (please specify):

4. **Nursing Position**
   - ____ Staff nurse
   - ____ Other (please specify):

5. **Length of Experience in Long Term Care Nursing**
   - ____ (0-5 years) ____ (6-10 years) ____ (11-20 years)
   - ____ (21-30 years) ____ (31 years or more)