INFLUENCE OF HIV MODE OF TRANSMISSION ON NURSES' WILLINGNESS TO CARE

by

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DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

1995

MAJOR: NURSING

Approved by:

Adviser

Date: May 24, 1995
DEDICATION

I would like to dedicate this work to my dear friend and fellow traveler in life's journey, James J. Kane, who has completed this dissertation with me vicariously and has generously offered his support and encouragement, in many tangible and intangible ways.
ACKNOWLEDGEMENTS

I respectfully acknowledge the expertise and guidance provided by Chair­person Dr. Fredericka Shea, and Dr. Hertha Gast, Dr. Fran Board, and Dr. Sandor Brent who served on my dissertation committee. I am grateful for their knowledge, research experience, and the opportunity to learn from them.

I acknowledge and thank Sharon Cummins who provided statistical consultation, emotional support, and consistent encouragement throughout the entire process. I thank David Heikkila who volunteered his time and talents in producing the videotaped intervention used in this study, and I thank Anne Leu for her expertise in compiling the final document.

This dissertation would not be complete without the generous caring and support of fellow summer doctoral students at Wayne State University (i.e., the "Cosmic Circle"). In particular, I would like to thank June Miller, Nancy Sanders, Judy Cohen, Judy Wuest, Chris Miller, Marilyn Ford-Gilboe, and Linda Cooper. I also thank Alan Lappin and Rhonda Amber for creating the "San Diego-Detroit connection" which led to many fun social memories and much needed support during my four summers (1989 to 1992) living on campus in Forrest Apartments at Wayne State University.

I also thank my friends and family in San Diego, California, who have graciously and sincerely supported me on this journey throughout my graduate studies, namely: Kay Gilbert, Jim Kane, Gina Livesay, Claire Wise, Jim Ewing, Ellen Colangelo, Ann Kelly, Sharon Weld, and nursing faculty from San Diego State University who generously participated in my "Dinner and Dialogues" including Joan Flagg, Betty Broom, Sue Hadley, Jan Heiniken, and John Lantz. I acknowledge the support of my long-distance friends, namely Sarah Plagman and Marsha Gunderson,
and the nearby members of "Girls Night Out"—Brenda Wong and Cherie Leonard who have witnessed my challenges and personal growth. A special thanks to Mary Gibson who delightfully helped me regain a sense of perspective, humor, and balance in my life during the final year of this project.

Finally, I especially and sincerely thank my parents, Earl and Lois Bormann, and my sisters, Kathleen and Sharon, who have nurtured and encouraged me with loving support to pursue my interests and take on new challenges in my life and career.
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CHAPTER 1

STATEMENT OF THE PROBLEM

Nursing as a discipline is founded on a philosophy of providing care to support and enhance the health of individuals, families, and groups, and to comfort and support persons who are dying and their loved ones. From this philosophy, there are many theoretical perspectives or "mirrors of reality" that attempt to describe, explain, predict, or prescribe nursing care (Meleis, 1985). As nurses move through the 1990s, there is a growing challenge to promote "theories based on discovery of phenomena and relationships depicting realities from patients' and nurses' perspectives" (Meleis, 1985, p. 103).

The purpose of this study was to examine the influence that information on the mode of transmission of the Human Immunodeficiency Virus (HIV) has on nurses' willingness to care for persons with HIV. This research was guided by King's Model of Human Interactions. Constructs from theories in social psychology were added to King's Model in order to elaborate on components of the model which are implied or vague.

Nursing Phenomenon

According to Newman (1979) theory development begins by identifying a phenomenon in nursing that becomes one's "concept of concern" (p. 43). This investigator noticed negative reactions and comments of some nursing students indicating they were unwilling to care for persons with Acquired Immunodeficiency Syndrome (AIDS). AIDS is a complex, contagious disease consisting of opportunistic infections and/or malignancies that has spread in epidemic proportion since its detection in the early 1980s. It is caused by the Human Immunodeficiency Virus (HIV), a retrovirus that invades the genetic composition of T-lymphocytes (also
known as T-helper or CD4 cells) and destroys them (Krowka, 1989; Rosenberg & Fauci, 1992). These cells play a crucial role in the immune response of the body to fight infection, and, therefore, individuals who are infected with HIV often suffer from a variety of infectious diseases or HIV-associated malignancies and eventually die. Although HIV infection can be prevented, it cannot be cured and continues to be spread.

Persons who are HIV-infected can transmit the virus to others primarily through three routes: (a) sexual contact with an infected person; (b) exposure to infected blood or blood products, including contaminated intravenous needles shared among injecting drug users; and (c) perinatally from an infected mother to her child (Lifson, 1992). There is no evidence to support HIV transmission by casual and household contact (Gershon, Vlahov, & Helson 1990; Lifson, 1988). Therefore, transmission of HIV can be prevented by sexual abstinence, having sex only with a non-infected person, or practicing “safer sex” using a condom and by avoiding contact with HIV-infected blood or blood products.

In the workplace, there have been reports of some health care providers contracting the virus from percutaneous injury with HIV-infected blood. It is currently estimated that the seroconversion rate is approximately 0.3% per exposure (Henderson et al., 1990). The majority of these cases have resulted from injuries that occurred when disposing of wastes, infusing parenteral fluids, during surgery and blood drawing, and recapping used needles. There have also been a few reports of health care workers who became infected from HIV-infected blood contacting broken skin from dermatitis and chapping. To reduce the risk of occupational transmission, the Public Health Service has recommended guidelines for the practice of universal blood and body fluid precautions. A variety of devices to eliminate unnecessary exposure to used needles have been designed to reduce the
risk (Jackson, 1992). Precautions in the workplace, known as "universal precautions," include wearing gloves when in contact with infected blood or fluids, disposing of contaminated needles or equipment properly, and using the same care and caution as if all persons were HIV-infected.

Diagnosis of HIV infection is based on laboratory tests of blood samples to detect the presence of antibodies that are produced in response to HIV (Krowka, 1989). It may take up to 6 months from the time of exposure for these antibodies to be detected in the blood, and, therefore, persons who test negative during this "window" may be asymptomatic carriers of the virus. In persons who are HIV-infected, additional tests are done to evaluate the degree of damage to the immune system. The most common tests evaluate T-cell counts. Normal ranges of T-cells in non-infected persons range from 500 to 1,500 per cubic millimeter (mm³). With a decline in T-cells of less than 500 per mm³, HIV-related symptoms occur such as night sweats, fever, fatigue, weight loss, oral lesions, diarrhea, and psychiatric, neurologic, and cognitive manifestations.

A diagnosis of AIDS is based on T-cell cell counts below 200 per mm³ and the presence of life-threatening opportunistic infections such as Kaposi's sarcoma and Pneumocystis carinii pneumonia designated by the Centers for Disease Control (CDC) (Volberding, 1992). Persons with T-cells less than 400 mm³ are likely to develop AIDS, although some people have remained asymptomatic with counts as low as 200 (Krowka, 1989). Evidence from the National Cancer Institute has shown that there is low probability of death until T-cell counts drop below 50 per mm³ (Volberding, 1992). Due to an increase in the use of antiviral therapy and, thus, the ability to delay certain AIDS-defining opportunistic infections, the meaning of the term "AIDS" is becoming less and less clear (Volberding, 1992).
Statistics indicate that persons infected with HIV eventually die of AIDS. There is a high degree of variability in the course of illness which has an incubation period of an estimated 8 to 10 years from the time of seroconversion to being diagnosed with AIDS (Cohen, Sande, & Volberding, 1990). Currently, there is no cure but the life expectancy for persons who are HIV-infected has improved due to more effective treatment and management of symptoms. As increasing numbers of people become infected, there is and will continue to be an ever growing need for nurses to care for them and their family/friends who are affected by the consequences of their loved one being HIV-positive.

The American Nurses' Association (ANA) developed the Code for Nurses with Interpretive Statements (1985) which provides general principles of ethical conduct for nursing actions. The first statement of this code asserts that it is the nurse's professional responsibility to provide care to all clients regardless of their uniqueness and "unrestricted by considerations of social or economic status, personal attributes, or the nature of health problems" (ANA, 1985, p. 1). Only those nurses who are pregnant or immuno-suppressed are exempt from this guideline. Despite information on the transmission of HIV, universal precautions, and discussions about one's professional duty to provide care to all individuals regardless of diagnoses, some students and practicing nurses continue to voice concern, fear, and refusal to care for persons who are HIV infected or have AIDS. Therefore, the nursing phenomenon chosen to be examined is nurses' willingness to care for persons who are HIV-infected and the extent to which willingness is influenced by information on how HIV is acquired.

**Research Questions**

The research questions were:
1. Is there a statistically significant difference in nurses' willingness to care for a person with HIV based on mode of transmission?

2. To what extent does nurses' willingness to provide care to a person with HIV vary as a function of how he acquired HIV, above and beyond the variance accounted for by nurse characteristics and attitude? Three modes of HIV transmission were examined: (a) from a blood transfusion, (b) from injecting drug use, and (c) from gay sexual activity. Differences in nurse characteristics including demographics, HIV-related experience, and three components of attitude were controlled for in a multiple regression equation.

3. To what extent do nurses' evaluative judgment of the patient and predictive judgment of perceived occupational risk of contagion, taken singly and in combination, account for the variance in nurses' willingness to care for a person with HIV infection, above and beyond the variance accounted for by nurse characteristics, attitude, and mode of transmission? Differences in nurse characteristics including demographics, HIV-related experience, and three components of attitude were controlled for in a multiple regression equation.

Rationale

There are two central reasons for choosing willingness to care for HIV-infected persons as an area of interest. The foremost reason is the incidence of HIV infection. In 1991, the World Health Organization (WHO) estimated that approximately 10 million people have been HIV-infected worldwide and approximately one million people have been infected in the United States. As of June 30, 1994, 401,749 AIDS cases had been reported and 243,423 people had died (CDC, 1994). The incidence of reported cases in United States had increased by 23% between 1989 and 1990 (Chu, Berkelman, & Curran, 1992). It is estimated that "every
13 minutes another American is infected with HIV and every 17 minutes someone
dies of AIDS" (Cassetta, 1993, p. 16).

The first cases of AIDS in the United States were reported in gay and
bisexual men. They currently account for the majority of cases in the United States.
By 1988, AIDS was the third leading cause of death in all men 25 to 44 years of age
in the United States (Chu et al., 1992) and by February 1995, AIDS was cited as the

Through February 1991, AIDS among injecting drug users accounted for
47,071 (29%) of total cases in the United States. Of these, 10,916 (23%) occurred
in homosexual or bisexual men (CDC, 1991). The overall rate of AIDS (per 100,000
population) from injecting drug use in 1988 was estimated to be 18 and 14 times
higher among Blacks and Hispanics, respectively, as compared to whites (CDC,
1989).

Persons who acquired HIV from blood transfusions make up the next largest
group of reported AIDS cases. Before 1985, 70% to 90% of the hemophiliac
population in the United States became infected from infusions of contaminated
blood products (Overby, Lo, & Litt, 1989). Of the 5,621 cases reported through
February 1991, 28% were hemophiliacs and 72% of these were infected from blood
transfusions. Due to blood screening precautions that have been implemented since
1985, the risk of HIV through blood products has been markedly reduced and the
proportion of AIDS cases in hemophiliacs has remained stable over time at 1 to
2%.

The incidence of HIV and AIDS in women and children is increasing. In
1990, women accounted for 12% of all reported adult AIDS cases and 73% of these
were in Blacks and Hispanics. Fifty-one percent of women with AIDS were
reportedly infected from injecting drug use but there is an increasing trend toward
heterosexual transmission from men to women (Chu et al., 1992). By February 1991, 2,903 children less than 13 years of age had been reported as having AIDS. Eighty-four percent were infected perinatally and 59% were among Black children and 26% among Hispanic children (Chu et al., 1992).

The second reason for this study is that nurses make up the largest number of health care providers in the United States and are "on the front line of AIDS patient care" (Kelly, St. Lawrence, Hood, Smith, & Cook, 1988, p. 78). Nursing leaders have described AIDS as the greatest challenge to the nursing profession in modern times (Foley, 1990; "Nurses' Fears," 1989). Persons with HIV/AIDS have been stigmatized by society including health care providers and negative responses to persons with AIDS continue to be perpetuated. For example, diagnosis of AIDS has fostered the tendency for social and emotional isolation of patients (Abrams, Parker-Martin, & Unger, 1989).

Nurses' attitudes, perceptions, and judgments of the patients they care for probably influence the quality of care they provide. Some nurses have reportedly avoided and neglected persons with AIDS because of negative attitudes, prejudice, and homophobia (Douglas, Kalman, & Kalman, 1985; Kelly et al., 1988; Strasser & Damrosch, 1992). Unless there is greater understanding of the unique and complex influences that foster nurses' refusal or willingness to care for HIV infected persons, it will be difficult to promote positive caring actions toward persons with HIV and AIDS.

**Nursing Theory Formulation**

Nursing theory, as described by Donaldson and Crowley (1978), is concerned with "the principles and laws that govern life processes, well-being, and optimum functioning of human beings . . . the patterning of human behavior in interaction with
the environment in critical life situations, [and] the processes by which positive changes in health status are affected" (p. 242).

Based on this description, the proposed research is a nursing theory refinement effort because the knowledge generated may contribute to the understanding, development, and usefulness of King's Process of Human Interactions Model. In addition, the findings may contribute to nursing education efforts to enhance nurses' willingness to care for HIV-infected persons. Improved care is likely to enhance the health of HIV-infected persons. This is consistent with Meleis' (1985) assertion that "the ultimate goal of theory development in nursing is to develop theories that guide care that nurses give to patients" (p. 191).

Nursing, in the context of the nurse-patient relationship, is concerned with quality of care and patient advocacy. According to Meleis (1985) nursing theory domain concepts include "nursing client, transactions, interaction, nursing process, environment, nursing therapeutics, health" and the goal of nursing is "to maintain, promote, and facilitate health" (p. 184). Attitude, perception, and judgment are examined in this research. They are asserted to predict nurses' willingness to provide care to persons with HIV. They are also assumed to influence transactions and interactions between nurses and patients; however, this is not the focus of the proposed research. The primary intent is to examine nurses' attitude, perception, and judgment prior to the nurse-patient interaction. The empirical evidence and observations for this inquiry was based on nurses in hospital settings.

**Conceptual and Theoretical Framework**

Imogene King's (1981) conceptual framework is relevant to this investigation because it provides the context for examining human relationships and interactions. The basic assumption of King's framework is that "nursing is the care of human
beings" (King, 1981, p. 10). Nursing care occurs as a transaction or interchange between the patient and nurse. Two of King's assumptions about nurse-patient interactions are particularly relevant to this study: (a) "perceptions of nurse and client influence the interaction process," and (b) "goals, needs, and values of nurse and client influence the interaction process" (p. 143).

According to King (1981), transactions occur within a set of three dynamic interacting systems: (a) personal, (b) interpersonal, and (c) social (see Figure 1). "Personal systems are composed of individuals; interpersonal systems are composed of two or more persons, or groups; and social systems are composed of families, religious groups, educational and work systems" (King, 1981, p. 10). Social systems (e.g., media, public opinion, and educational information) influence personal and interpersonal systems. In this study, nurses' willingness to care for HIV-infected persons may be influenced by social stigmatization, and by other negative attitudes related to AIDS as reported in the media and reflected by public opinion as well as demonstrated by health professional colleagues.

**King's Model of Human Interactions**

King's theory of goal attainment was developed by drawing on research from social psychology and other disciplines in the early 1970s. In her theory, King describes a Model of Human Interactions indicating that a nurse's perception influences judgment and action which ultimately results in a transaction (see Figure 2). Transactions involving nurse and client are necessary for goal attainment.

In 1981, King supervised a descriptive study using a non-participant observation technique to study the nurse-patient interactions of 17 nurse-patient dyads. The findings resulted in the classification system of six observable elements
Figure 1. A conceptual framework for nursing: Dynamic interaction systems.

of nurse-patient interactions that led to transactions and goal attainment. These elements include "action, reaction, disturbance, mutual goal setting, explore means to achieve a goal, and agree on means to achieve a goal" (King, 1981, pp. 150-151).

King (1988) later defined transactions as "dynamic acts of individuals that are observable in unique concrete spatial and temporal interactions as they communicate, judge, and make decisions for action within their personal perceptual milieu" (p. 24).

Figure 2. A process of human interactions.

King (1992) asserted that transactions result from a series of unobservable elements in the Process of Human Interactions (see Figure 2). She states, "although one cannot directly observe these behaviors, some inferences are made by nurses and clients about the others' behavior" and that "a transaction cannot be defined in and of itself but is defined when the six elements in the interaction are present" (King, 1992, p. 21). This study is guided by the unobservable processes from King's Process of Human Interactions Model which involve perception, judgment, and decision-making in caring for persons with HIV.

In order to clarify King's work, a brief summary of research that has emanated from King's theory is described. It is organized according to three areas: (a) tool development, (b) theories and models derived from King's systems conceptual framework, and (c) testing King's theory of goal attainment.

**Tool development.** Three instruments specifically designed to measure concepts in King's theory and based on King's conceptual framework have been constructed. The first, called the Assessment of Functional Abilities and Goal Attainment Scale, was developed by King (1988). It is a criterion-referenced tool to measure goal attainment in nursing situations. The second, called the Family Needs Assessment Tool, was developed by Rawlins, Rawlins, and Horner (1990). It is designed to assess special needs of families with chronically ill children. The third, called the Postpartum Satisfaction Inventory, was developed by Pfoutz (1990). It measures postpartum women's satisfaction with maternity care. A variety of other pre-existing instruments were adapted and utilized to measure concepts in the following research studies.

**Theories and models derived from King's systems framework.** Frey (1989) derived a theory from King's framework on the relationship of social support, family,
health, and child health. She empirically tested this theory on 103 families and the results supported three hypotheses; providing indirect support for King’s framework.

Omár (1989) derived two separate models from King’s framework using variables related to family coping and life satisfaction in step families and biological families. Support for each model was provided. Zurakowski (1990) derived a model from King’s framework and tested three hypotheses related to social support and health status of nursing home residents. These hypotheses were not supported.

Studies on King’s theory of goal attainment. Kim (1990) conceptualized supportive nursing care within King’s theory to examine its relationship to depression and mood in 150 male, military patients with low back pain. In this experimental study, outcomes suggested that supportive nursing care in the form of nurse-patient interaction does have a positive influence on mood and depression, lending support to King’s theory. Jacono, Hicks, Antonioni, O’Brien, and Rasi (1990) did not cite King, but implied use of her framework in a study that examined perceived needs of families with critically ill patients. Findings supported King’s proposition that perceptions of the nurse and client influence interactions. Hanna (1990) designed an experimental study to assess female adolescents’ contraceptive perceptions and adherence to their contraceptive regimen. King’s assumption that goals are achieved through transaction based upon perceptions was supported.

Testing of King’s theory of goal attainment in combination with other theories has been cited in several studies. Hanucharumkul and Vinya-nguag (1991) conducted an experimental study combining King’s and Orem’s theories to test the hypothesis that nurse-patient interaction focusing on the promotion of self-care has a positive influence on post-operative recovery and increases patient satisfaction. Their findings supported King’s proposition that the nurse-patient interaction provides a means to achieve goals and increase patient satisfaction.
Glenn (1989) utilized several adult learning and educational theories with King's theory to investigate how diploma nurses' autonomy scores compared with standardized scores. Using a longitudinal, quasi-experimental design, Glenn's (1989) findings suggested that subjects' scores on autonomy were lower than standardized populations and scores were minimally influenced by time or educational level. Empirical support for King's work was not made clear in Glenn's discussion of the results.

Duffy (1990) utilized King's theory and Watson's theory to identify relationships between nurse caring behaviors and selected outcomes of care in hospitalized medical-surgical patients. Findings supported a positive relationship between nurse caring behaviors and patient satisfaction. A valid and reliable measure of nurse caring was also constructed and tested.

King (1986) cited four additional research studies designed to test her theory that were conducted by graduate students under King's supervision. Nodhturft (1989) examined the relationship of locus of control, morale, and mutual goal setting in patients with cardiovascular problems and found support for the association between mutual goal setting and increased morale. This study was replicated in four settings (i.e., geriatric, psychiatric-mental health, rehabilitation, and pediatric nursing units) with similar results (Nodhturft, 1990). Another study targeted patients diagnosed with hypertension, and the final study was designed to use King's (1988) Assessment of Functional Abilities and Goal Attainment scale to test several hypotheses related to mutual goal setting in patients with strokes.

From this review, most of the studies generated from King's work focused on the outcome of goal attainment or patient satisfaction. Only three studies (Jacono et al., 1990; Kim, 1990; Hanucharurnkul & Vinya-nguag, 1991) examined aspects of the
nurse-patient interactions leading to goal attainment and none of these specifically defined or operationalized King's elements in her Model of Human Interactions.

One explanation for the sparsity of research may be related to the lack of clarity in King's theoretical and operational definitions of the concepts and their relationship to one another. Sometimes her concepts are described as a process and other times as an outcome. Greater clarity is needed in order to operationalize King's concepts of perception and judgment.

**Perception.** King asserts that is important to understand the concept of perception because "it is a central concept in studying human interactions that lead to transactions" (King, 1981, pp. 80-81). Perception is defined very broadly by King (1981) as "each person's representation of reality . . . an awareness of persons, objects, and events" and is "related to past experiences, concept of self, socio-economic group[s], biological inheritance, and educational background" (p. 146). Perception "gives meaning to one's experience and influences one's behavior" (King, 1981, p. 24).

One of King's propositions states that "behavior flows from one's perception and perception influences one's behavior" (King, 1981, p. 61). King asserts that "nurses need to be aware of factors that influence their perceptions in patient care settings and of inferences that are made about patients" (King, 1981, p. 25).

King's definition of perception is multi-faceted. In this study it is defined as "picking up of information" through one's senses (Heil, 1983, p. 50). Perception is "a causal process—leading from some perceived thing or event to a belief-like cognitive state via a chain consisting of information-bearing physical stimuli and sensory mechanisms" (Heil, 1983, p. 137). Based on King's model, the writer predicted that nurses' perception and their judgment on how persons acquired HIV infection influence nurses' willingness to provide care. In this study, subjects perceived or
“took in” the stimuli of an attitude object consisting of written information on how a person acquired HIV and a video of an HIV-infected person. The process of “taking in” could not be measured directly but was inferred by subjects' responses to a fill-in-the-blank response asking how the person in the video acquired HIV on the posttest.

**Judgment.** Perception precedes judgment in King's model. To clarify King's concept of judgment, it is helpful to examine definitions of judgment found in social psychology. Johnson (1955) defined judgment as "the evaluation or categorizing of an object of thought. This is logically differentiated from productive thought in that typically nothing is produced. The material is merely judged; i.e., put into one category or another" (p. 51). Hammond (1975) described judgment as "a cognitive process similar to inductive inference, in which the person draws a conclusion, or an inference about something" (p. 73). Such conclusions are drawn from pre-existing knowledge structures or cognitive systems known as schemas, beliefs, and theories as well as from logical or statistical strategies (Nisbett & Ross, 1980).

Hogarth (1980) makes a distinction between two types of judgment: evaluative and predictive. Evaluative judgment reflects individual preferences or opinions. It has been described by Howe (1991) as the outcome of weighing evidence in a court decision, but is not so much a legal or prescriptive term as it is a "cognitive psychological description" of personal opinion (p. 877). Evaluative judgment, as a personal preference, is formed by one's subjective bias. Such biases may result from either pre-existing knowledge and beliefs or may occur during the process of obtaining and encoding new information (Nisbett & Ross, 1980). It is asserted that evaluative judgment of the patient, in the context of caring for persons with HIV, may influence willingness or refusal to care based on placing personal value on pieces of information.
In contrast to evaluative judgment, predictive judgment describes what may happen in a situation (Hogarth, 1980) or the likelihood and frequency of particular events (Nisbett & Ross, 1980). Predictive judgment is based on beliefs about consequences and is a useful tool in forecasting or planning desired outcomes (Simon, 1982). Predictive judgment about the nurse's intentions reflects the potential concerns a nurse may have in carrying out a task. Many studies have reported that nurses fear risk of contagion in caring for persons with HIV. Because King refers to decision making as "an act of judging between alternatives based on an analysis of consequences" (p. 131), it seems likely that she is referring in her model to predictive judgment as described by Hogarth.

However, both evaluative judgment of the patient and predictive judgment of the nurse's intentions play a part in decision making. Therefore, these are added to King's model. Evaluative judgment of the patient is defined in this study as the nurses' subjective opinion the patient's responsibility for his illness. Predictive judgment of the nurse is defined as the nurses' perceived occupational risk of HIV infection. Each of these judgments precede behavioral intention which is the mental action or decision of whether or not to provide care.

**King's Model of Human Interactions—Reformulated**

Since King's model has not been changed or further developed since 1971, a review of the current literature on judgment, social judgment, and attitude theories in social psychology suggests that additional concepts could update and clarify the model. Below the writer presents a reformulation of King's model in order to elucidate components that are implied and to include others which are absent (see Figure 3). For example, King assumes that a nurse is willing to provide care to patients; however, only if this assumption is met does her model apply. In clinical practice nurses have refused care to patients with HIV infection. The reformulated
model adds concepts that may account for nurses who are unwilling to care for patients. It suggests that attitude is a missing link between nurse characteristics and perception. Attitude is conceptualized as having three components consisting of cognitive, affective, and behavioral responses. Attitude influences perception which, in turn, influences judgment and behavioral intentions.

Nurse Characteristics → Attitude → Perception → Judgment → Behavioral Intention

(a) Cognition (b) Affect (c) Behavioral Intention

(a) Nurses’ Evaluative Judgment of Patient (b) Nurses’ Predictive Judgment of Risk of Contagion to Care for Persons with HIV in General

Figure 3. King’s model of human interactions—reformulated.

Attitudes. Social psychologists have had a long history of studying attitudes and their influence on human behavior. King does not include attitude in her model and does not elaborate on the relationship between attitudes, values, or beliefs and behavior. She does, however, refer to “stereotyping as a facet of perception that needs exploration” (King, 1981, p. 24) and that “perception may be distorted by high emotional states such as anger, fear, love” (King, 1981, p. 24). King (1981) also asserts that perceptions may be affected by a subjective factor called a “set,” or pre-conceived ideas based on information that isn’t necessarily accurate. These statements imply that King acknowledges the importance of attitude and, therefore, it is added to the model. Empirical studies support the notion that people develop biases from their subjective experience (Hill, Lewicki, Czyzewska, & Boss, 1989). In order to examine the relationship between perception, judgment, and action in King’s
Research on attitudes. Olson and Zanna (1993) state that “there is no universally agreed-upon definition” of attitude, but most theorists define attitude as a form of evaluation involving cognitive, affective, and behavioral processes (p. 119). Eagly and Chaiken (1993) define attitude as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (p. 1). Such evaluations “can exert profound effects on perceivers’ judgments of their social world. Indeed, theorists have argued that attitudes and beliefs can influence every step of the information processing sequence” (Olson & Zanna, 1992, p. 129). Attitude refers to an internal mental state that predisposes an individual to respond either positively or negatively to an attitude object (i.e., a behavior, an inanimate object, a person, or an abstract idea). Attitude is “an evaluative state that intervenes between certain classes of stimuli and certain classes of responses” (Eagly & Chaiken, 1993, p. 3). These definitions of attitude serve as a missing link between nurse characteristics and perception in King’s model.

Social psychologists have widely held the perspective that attitude consists of three components or evaluative processes that can be measured (i.e., cognitive, affective, and behavioral responses). Cognitive refers to one’s beliefs or knowledge about the attitude object. Affective refers to one’s emotional response or feelings related to the attitude object. Behavioral response refers to one’s actions or intentions related to the attitude object (Eagly & Chaiken, 1993). Although the empirical evidence supporting this view varies, this tripartite conceptualization is considered very useful by social psychologists.

Much of the nursing research on attitudes towards persons with AIDS, however, has not differentiated attitude as consisting of these three evaluative
processes. With the exception of studies that utilized Ajzen and Fishbein's (1980) conceptualization of attitudes, most studies on nurses' attitudes toward persons with AIDS did not theoretically define attitude. A variety of instruments were designed to measure attitudes, but clear theoretical definitions of attitude were not given. The writer asserts that an explicit conceptualization of attitude which includes the tripartite components may help explain nurses' behavior towards persons with HIV.

Review of Attitude-Behavior Models

In an extensive review of the literature on attitudes and the relationship between attitude and behavior, Eagly (1992) summarized the research as representing two general schools of thought: (a) attitude-expectancy models that focus on attitudes toward behaviors and the perceived consequences of behavior, and (b) attitude-object models that predict behavior from attitudes toward the attitude object to which behavior is directed. These resemble, in part, the definitions of predictive judgment and evaluative judgment described previously. That is, predictive judgment is similar to attitude-expectancy models that evaluate the consequences of behavior whereas evaluative judgment is comparable to attitude-object models that focus on individual preferences toward the target of the behavior. Each of these perspectives is summarized below.

Attitude-Expectancy Models

The most popular attitude-expectancy model is Ajzen and Fishbein's (1980) Theory of Reasoned Action. In this model, attitude is a function of the value that one gives to the consequences of a behavior. Subjective norm is the perception of how much or to what extent one's significant others expect one to perform the behavior. Attitude and subjective norm combine to determine beliefs underlying behavioral intentions. Ajzen and Fishbein (1980) state, "We have argued that a person's attitude toward a behavior is determined by the set of salient beliefs he [she] holds
performing the behavior. The first step toward an understanding of attitude requires elicitation of the salient beliefs” (p. 65).

This model has been used successfully to predict a variety of behaviors such as dental hygiene practices, education, voting, and purchasing consumer products (for a review see Ajzen, 1985; Fishbein & Ajzen, 1980). It has been used by nurses to predict compliance behavior in patients with myocardial infarction (Miller, Johnson, Garrett, Wikoff, & MacMahon, 1982; Miller, Wikoff, MacMahon, Garrett, & Ringel, 1985, 1988) and in patients with hypertension (Miller, Wikoff, & Hiatt, 1992). It has also been useful in predicting nurses’ intentions to avoid or care for persons with HIV/AIDS (Goldenberg & Laschinger, 1991; Jemmott, Freleicher, & Jemmott, 1992; Jemmott, Jemmott, & Cruz-Collins, 1992; Laschinger & Goldenberg, 1993).

It is important to note, however, that this model “does not include attitudes toward objects, people, or institutions” and is based on the assumption that one’s attitude toward the behavior may differ from or is independent of one’s attitude toward the object of the behavior (Ajzen & Fishbein, 1980, p. 8). A criticism of the model is that external variables (i.e., prior behavior, personality traits, or demographic characteristics) are not important mediators of behavioral intentions. Another criticism is that the model applies more easily to behaviors that require minimal effort or planning versus behaviors that are complex, involve many tasks, and require deliberate planning (Bagozzi & Baumgartner, 1990). Nursing interventions in caring for patients are often complex and often involve considerable planning and skill. In addition, the definition of attitude in this model represents a more unidimensional concept in contrast to the tripartite conceptualization of attitudes (Eagly & Chaiken, 1993). Based on these criticisms, this writer has chosen a model from among those that emphasize attitudes toward objects and include a tripartite conceptualization of attitude.
Models of Attitudes Toward Objects

Models that predict behavior from more general attitudes toward the attitude-object tend to link theories of mental representation with theories of attitudes. These models are often based on information processing or associative networks that link information about an object to one's evaluations of the object (Eagly & Chaiken, 1993). Some of these models explain the role of stereotyping, prejudice, and stigma. Depending on the context, additional variables that predict behavioral intentions have been suggested. For example, variables such as time pressure, motivation, opportunity (Fazio, 1990; Fazio & Zanna, 1981; Sanbonmatsu & Fazio, 1990), or past experiences (Bar-Tal, 1992) have been shown to influence behavioral intentions.

In the context of helping behavior, Weiner's (1980, 1985) attributional model of helping could be categorized as an example of an attitude-behavior model because it explicates the three evaluative processes of attitude (i.e., cognitive, affective, and behavioral intention) toward a person in a given situation. It is based on attribution theory which purports that people attempt to find causes for things that happen to them in order to make sense of their world and to feel a sense of control or predictability over events (Heider, 1958; Weiner, 1971, 1985).

Weiner, Perry, and Magnusson (1988) utilized attribution theory in analyzing people's reactions to various stigmatizing conditions, including AIDS. They used 13 bi-polar adjectives measured on a 9-point scale to determine the degree of stigma and attribution of responsibility for illness and blame for such conditions such as AIDS, Alzheimer's, blindness, cancer, child abuse, drug addiction, heart disease, obesity, paraplegia, and the Vietnam War syndrome. In a sample of 59 psychology students, AIDS was classified as an onset-controllable condition unlike blindness or cancer, and students reported less liking, less pity, and greater anger toward persons with AIDS than persons with blindness or cancer.
Outcomes of Weiner et al.'s (1988) study support the notion that "perceptions of the controllability of the onset of many stigmas can be altered, given pertinent information . . . this change in attributions tends to produce modifications of affective reactions and behavioral judgments" (p. 745). They also concluded that:

AIDS has a unique configuration of attributional properties that sets it apart from other stigmas. AIDS was the only onset-controllable, irreversible stigma that we identified. However, AIDS additionally has salient onset-uncontrollable origins (e.g., blood transfusions). Thus, causal perceptions regarding this illness were particularly amenable to shift. (p. 747)

The findings suggest that the perceived cause or mode of acquiring HIV could influence reactions toward persons with AIDS, including behavior toward them.

Additional research on nurses' reactions toward persons with AIDS has supported Weiner's (1980, 1988) model in relation to AIDS. Kelly, St. Lawrence, Smith, Hood, and Cook (1987) and Kelly et al. (1988) designed a study to compare and contrast the stigma of AIDS diagnosis with the stigma of sexual orientation in a sample of physicians and nurses. Subjects were presented with one of four case studies portraying identical vignettes except for the diagnosis which was either AIDS or leukemia, and the gender of the romantic partner of the patient which was either heterosexual or homosexual. Results revealed that both doctors and nurses reacted negatively toward the patients diagnosed with AIDS. Although homosexuality was not a strong contributor to AIDS stigmatization in the physician sample, in the nurse sample "gay patients were stigmatized with negative attitudes and attributions quite like those shown toward AIDS patients" (Kelly et al., 1988, p. 82).

Strasser and Damrosch (1992) extended the work of Kelly and colleagues (1987, 1988) by adding two more versions to their vignettes to measure attitude differences on how AIDS was acquired. They used six versions of a vignette describing a 32-year-old male patient who had one of three diagnoses (AIDS from uncontrollable origin such as a blood transfusion for hemophilia, AIDS from
unspecified or controllable origin, and leukemia), and he was either gay or heterosexual. They studied 180 Registered Nurses (RNs) in a Master's degree program. Judgment was measured by the Patient Judgment Scale consisting of nine items involving judgments of the patient such as responsibility for illness, deserving sympathy and understanding, or deserving to lose his job. These items were rated on a 1 (disagree) to 7 (agree) Likert-type scale. Alpha coefficient reliability was .65. Social interaction was measured by the Social Interaction Scale consisting of seven items describing behaviors of how willing the subjects would be to interact with the patient in social settings. These items were rated on a 1 (not at all) to 7 (very much) Likert-type scale. Alpha coefficient reliability was .90. Using a 3 x 2 analysis of variance (ANOVA), they found significant main effects for both the diagnoses ($F[2, 174] = 15.61, p < .001$) and for lifestyle ($F[1, 174] = 5.16, p = .02$) indicating that hemophiliacs with AIDS and leukemia patients were judged less deserving of and less responsible for their illness than were patients with AIDS of unspecified origin. Heterosexuals were judged less harshly than gays. Further analysis of the judgment items found the following three items significant: patient’s responsibility for illness ($F[2, 174] = 27.02, p < .001$), patient deserved what happened to him, ($F[2, 174] = 10.81, p < .001$), and patient is dangerous to others ($F[2, 174] = 25.16, p < .001$). Persons who had AIDS from both origins were viewed more dangerous than those with leukemia. Those who had AIDS from an unspecified origin were singled out as being more responsible for their illness and more deserving of it. Results of this study further support the influence that mode of HIV infection has on paper and pencil evaluations of male patients by nurses.

Forrester and Murphy (1992) replicated and extended Kelly et al.’s (1988) work by adding the variable of intravenous drug use (IVDU) to determine main and interaction effects of medical diagnosis (AIDS vs. non-AIDS), sexual orientation
(heterosexual vs. homosexual), and history of intravenous drug use (IVDU vs. non-IVDU) on nurses’ attitudes and willingness to interact socially with patients. In a completely randomized, partial hierarchical, experimental design, they distributed questionnaires describing vignettes to a sample of 360 RNs in large urban medical centers located in a region of high AIDS incidence. Over 83% of the nurses had provided direct care to persons with AIDS. Instruments used included the Prejudicial Evaluation Scale (PES) and Social Interaction Scale (SIS) to measure attitudes and willingness. Alpha coefficients for the PES and SIS in this study were .58 and .88, respectively. Findings revealed that nurses had significantly more negative attitudes and were less willing to interact with persons with AIDS and with persons identified as IVDU in contrast to persons with leukemia and non-IVDU. Unlike previous studies by Kelly et al. (1988) and Strasser and Damrosch (1992), sexual orientation did not influence attitudes. Multiple regression analysis indicated there was no relationship between nurses’ attitudes and willingness to interact with predictor variables of age, academic preparation, years of clinical practice or acute care nursing experience, and the number of persons with AIDS cared for. Limitations of the study included the lack of a supporting theoretical framework, and the low reliability of the PES. Forrester and Murphy suggested that future research be done to clarify the relationships between these variables and to address why such negative attitudes exist. The proposed study addresses these concerns.

The focus of this study was not to explore or to examine the temporal sequence of King’s model but to assess specifically the influence of newly perceived information (i.e., how one acquired HIV) on nurses’ evaluative judgment of the patient and willingness to care. Instead, subjects’ perception of how a person acquired HIV was manipulated by presenting to each subject, in written form, one of three modes of HIV transmission prior to subjects’ viewing a videotaped HIV-infected person. It
was predicted that nurses' perception of how one acquired HIV influenced their judgment toward the person and ultimately their behavioral intention to care. It was asserted that nurses who judged patients as responsible for deserving of HIV would be less willing to care for them. Behavioral intention or willingness to care, including comfort touching or talking, can be viewed as the "best" indicator of the decision to take action or provide care. In this study, willingness to care does not mean action, but is conceptualized as a precursor to the decision to act or provide care for persons with HIV (see Figure 4).

Nurse characteristics such as demographic data and HIV-related experience were also measured in order to assess the effectiveness of randomization across the three modes of transmission and to control for differences. Nurse characteristics included age, gender, sexual orientation, marital status, number of children, race/ethnicity, religious preference and importance of religion, and socioeconomic status. Socioeconomic status was determined using the Hollingshead (1983) Four-Factor Index of Social Status which was calculated based on responses to the variables of gender, marital status, subject and spouse's education and occupation. Educational background was measured by the highest type of educational program completed (Associate Degree Nursing [ADN], Diploma, Bachelor of Science in Nursing [BSN], Master of Science in Nursing [MSN] or other), and the number of hours of HIV/AIDS education/training. Experience variables included number of HIV-infected persons cared for who were asymptomatic for AIDS; number of persons cared for with AIDS; number of gay men known personally; number of injecting or recovering injecting drug users known personally; number of years of clinical nursing practice; average number of hours per week of direct patient care; and the type of and number of years of clinical nursing experience accumulated.
**King's Model of Human Interactions—Reformulated**

Nurse Characteristics → Attitude → Perception → Judgment → Behavioral Intention

- (a) Cognition
- (b) Affect
- (c) Behavioral Intention to Care for Persons with HIV in General

(a) Nurses' Evaluative Judgment of
(b) Nurses' Predictive Judgment of
Patient
Risk of Contagion

**Operationalization King's Model of Human Interactions—Reformulated**

Nurse Characteristics → Attitude → Perception → Judgment → Behavioral Intention

- (a) HIV-Related Video + Knowledge Mode of Transmission
- (b) Semantic Differential
- (c) Nurse Willingness Scale for Persons with HIV in General

(a) Patient Nurse Willingness Judgment Scale-Specific
(b) Perceived Occupational Risk of Contagion

(1) Talking-General
(2) Touching-General

**Figure 4.** Operationalization of reformulation of King's model of human interactions.
CHAPTER II

REVIEW OF THE LITERATURE

In order to provide empirical support for concepts in the reformulation of King's model, information on willingness to care for persons with AIDS was obtained from research studies in nursing, psychology, other social sciences, and medical journals from 1984-1993. Results of several surveys revealed a large percentage of nursing students who believe in their right to refuse to care for persons with AIDS. For example, in a 1987 survey of 47 Master's students, 18 registered nurses (RNs) who were enrolled in a BSN program and 77 students who were not RNs but who were also enrolled in a BSN program at Loyola University of Chicago, 54% believed that they have the right to refuse care for HIV-infected patients. An average of 36% said "they would definitely or probably refuse to care for AIDS patients" (Wiley, Heath, & Acklin, 1988, p. 244). Lester and Beard (1988) surveyed 177 baccalaureate nursing students in the midwest. Although 96.6% of the students believed that persons with AIDS should receive the same care as any other patient, 49% preferred not to care for them and 36% believed that students should not be assigned to care for persons with AIDS. Studies of medical, nursing, dental, and other health profession students also provided evidence that varying degrees of resistance or unwillingness to care for persons with AIDS still exists (Currey, Johnson, & Ogden, 1990; Tesch, Simpson, & Kirby, 1990). In one survey, even 50.6% of 170 medical faculty members reported they would prefer to avoid caring for persons with AIDS (Feldmann, Bell, Stephenson, & Purifoy, 1990).

Practicing nurses, as well as nursing students, believe that they have the right to refuse to care for persons with AIDS. In one study, 54% of the 1,019 nurses surveyed believed they should have the option of refusing to care for persons with
AIDS, and 23% said they would refuse a job caring for persons with AIDS (van Servellen, Lewis, & Leake, 1988). At the 5th International Conference on AIDS in Montreal, it was reported that 25% of the 629 nurses surveyed tried to avoid caring for persons with AIDS, and 55% believed hospital employees should have the right to refuse care for persons with AIDS ("Nurses' Fears," 1989). These results are alarming when one considers the increasing number of persons with HIV/AIDS and the growing need for caregivers.

A review of the literature on nurses' willingness to care for persons with AIDS produced several major themes which lend support to the reformulation of King's model. Most of these themes can be categorized as attitudes, beliefs, or experience; and as predictive judgment with respect to fear of contagion. Research indicates that these factors influence willingness to care. To begin, a review of research on nurses' attitudes toward death and dying will first be discussed followed by a review of studies on nurses' attitudes toward HIV/AIDS.

Nurses' Attitudes Toward Death and Dying

Fear of Death and Dying

It is asserted by the writer that some factors which influence nurses' attitudes toward dying patients might also influence attitudes toward persons with AIDS, although AIDS compared to other life-threatening illnesses is unique in certain ways. For example, according to the CDC (1988), 46% of all reported AIDS cases occur in the age group 30-39, and 26% of all reported AIDS cases occur in the 20-29 and 40-49 age groups. It is very unusual for persons to die in their prime of life and, therefore, nurses are less well prepared to care for such large numbers of young persons who are dying. This has created a major additional burden on nurses because "as they watch the degeneration of patients in their 20s and 30s, they are forced to confront their own mortality" ("Nurses' Fears," 1989, p. 180). This is
potentially a major issue because the median age of practicing nurses is 37.3 years (ANA, 1987). Thus, nurses are often caring for persons similar to themselves with respect to age.

Fear of death and dying are important within the context of HIV/AIDS because there is no known cure. Dying in American society is often considered a taboo subject. People frequently use euphemisms such as "s/he passed away," or is "at rest." In the past, it was not unusual for children to be exposed to death because young and old lived together in the same household. Today, however, exposure to death even in old age is limited. A major shift has taken place over the past generation or two making it rare for someone to die at home with family and friends nearby. Instead, hospitals, nursing homes, and other settings are institutions for the dying.

One consequence of this shift is the lack of society's exposure to the dying process. Most lay persons are protected from ever encountering an actual death. Close encounters with death and dying are only common for a small segment of society—health care providers. Nevertheless, nurses and other health care professionals as members of the general population "have many of the same fears and anxieties about death" (Conboy-Hill, 1986, p. 21). "Nurses are ill-prepared to deal with death" and they "withdraw socially from terminal patients" (Conboy-Hill, 1986, p. 19). Coping strategies of denial and avoidance have been observed in nurses caring for the terminally ill (Benoliel, 1983; Mood & Lakin, 1979; Mood & Lick, 1979). The following quotation from Kastenbaum and Costa (1977) is applicable today: "It has not taken long to discover that many of those who relate to the dying person are in distress themselves. . . . Nurses, as the personnel most frequently in contact with the terminally ill, most frequently have been observed to engage in evasive and other self-protective maneuvers" (p. 241).
Several studies have tried to isolate factors that have the greatest influence on nurses' and nursing students' attitudes toward death and dying. Fear of death and death anxiety, work setting, death education, and amount of death-related experience have been examined. These variables can be conceptualized within King's model as memory-based factors that influence evaluative judgment or willingness to care. They are examined briefly here.

Fear of death and death anxiety. Fear of death and death anxiety have been shown to decrease as exposure to dying patients increases (Hare & Pratt, 1989; Reisetter & Thomas, 1986). Nurses who consistently work with dying patients tend to be more familiar with the dying process and have an increased opportunity to work through their own personal issues regarding death.

Hare and Pratt (1989) examined the responses of 312 nursing personnel to determine the relationship between fear of death and dying and level of comfort in caring for dying patients. They administered two instruments: a Multidimensional Fear of Death scale that tapped both physical and psychosocial aspects of caring for the dying, and a Comfort Scale designed for the study. Both used Likert-type scales and had adequate reliability and construct validity. Results indicated that nurses with high and moderate exposure to dying patients and nurses with more education were significantly more comfortable with dying patients. This suggests that nurses may become more comfortable as they gain experience with dying patients or that some nurses may choose to work with dying patients because they are more comfortable with them in the first place (Hare & Pratt, 1989).

Reisetter and Thomas (1986) studied the influence of death anxiety and types of educational, personal, and professional experience on quality of nursing care. They examined the questionnaires filled out by a sample of 210 nurses to measure the influence of: (a) death anxiety, (b) education level, (c) death education,
(d) personal death experience, and (e) professional death experience on three measures of quality of care. They reported that death anxiety was inversely related to quality of care. They also found that nurses' personal and professional experiences with death and dying were positively correlated with quality of care ($r = .19$, $p = .05$; $r = .204$, $p = .05$).

**Work setting.** Nurses frequently work in hospitals or agencies where care is provided to the terminally ill. It is not surprising then to find that increased comfort level in caring for dying patients has been related to the type of work setting (Field, 1989; Thompson, 1985). Thompson (1985) examined the relationship of work setting to nurses' attitudes toward caring for dying patients in a sample of 52 nurses from three types of nursing units: palliative, surgical, and pediatrics. They were asked to complete a self-administered questionnaire that assessed death anxiety and attitudes toward caring for dying patients. Results indicated that nurses who work in palliative care settings were less likely to be uneasy around dying patients and were more likely to find their work rewarding. Findings also suggested that the work setting was a more significant force in shaping nurses' attitudes toward dying than the amount of nursing experience.

In a qualitative study to examine nurses' experience and attitudes on caring for dying patients in a coronary care unit, Field (1989) observed and interviewed 18 nurses over a 3-month period of time. Using non-directive and informal audio-taped interviews, Field reported that the coronary care setting provided effective support to nurses caring for dying patients. Nurses associated positive coping with high staff to patient ratio, low staff turnover, and good, supportive relationships with staff.

**Death education.** The amount and type of education on death and dying have been found to influence positive attitudes in caring for dying patients (Benoliel, 1987-1988; Cook Coolbeth & Sullivan, 1984; Degner & Gow; 1988a, 1988b; Hare &
Pratt, 1989; Reisetter & Thomas, 1986). In a review of literature, Benoliel (1987-1988) reported that fear of death decreases with an increase in death education.

Cook Coolbeth and Sullivan (1984) examined the effects of personal and academic exposure to death on attitudes toward death in a sample of 72 senior and 43 sophomore baccalaureate nursing students. They administered the Death Attitude Questionnaire which contained two parts: (a) 17 items on beliefs and attitudes about death measured on a 5-point Likert-type scale, and (b) four items on personal exposure to death. They found that nursing students’ attitudes toward dying patients were more positive with increased academic exposure. They did not find significant differences in attitude based on personal exposure to death, but noted this might have been related to few personal exposure items and to unknown reliability and validity of the instrument used.

Degner and Gow (1988a) critically reviewed 15 studies on death education for nurses and found numerous problems with design, instrumentation, and data analysis. As a result of their critique, they conducted a well-designed longitudinal, quasi-experimental study to investigate two alternative approaches on preparing nurses for care of the dying: an integrated curriculum approach and a required death education course with planned clinical experiences. Three cohorts of students (N = 269) representing an experimental group for the death education course (n = 102), a nursing control group for the integrated curriculum (n = 94), and a non-nursing control group (n = 73) were tested at three times: before the educational courses, at the end of the courses, and 1 year post-graduation. Two instruments were administered, the Collett-Lester scale (Collett & Lester, 1969), a 36-item scale designed to measure four dimensions of death anxiety; and part I of the Winget Questionnaire for Understanding the Dying Person and his Family (Ward & Lindeman, 1978), a 50-item scale. Both instruments used Likert-type response
scales and were reliable. Findings revealed that the experimental group maintained better attitudes toward care of the dying than the nursing control group, and the nonnursing controls had poorer attitudes than either nursing group over time.

The positive influence of death education was also supported by Hare and Pratt (1989) who found that registered nurses and those with more experience and education in caring for dying patients were more comfortable with them. Reisetter and Thomas (1986) also cited the positive influence of educational experiences, such as seminars or workshops on death and dying.

**Amount of death-related experience.** Brent, Speece, Gates, Mood, and Kaul (1991) examined attitudes of 424 graduate and undergraduate nursing students in Michigan to determine the effects that personal, professional, and educational experience have on attitudes of caring for dying patients. The self-administered survey-questionnaire had demonstrated reliability and validity. It was designed to measure not only negative aspects of caring for dying patients, but the attractive features as well. The findings revealed that the greatest influence on positive attitudes toward care of dying patients depended on: (a) the number of dying patients cared for, (b) the nurses' emotional closeness to family and friends who have died, and (c) the number of hours of education on death and dying they had received. Attractive features reported by nurses included learning things from dying patients and having feelings of reward.

From these studies, it appears that the most significant factors affecting nurses' attitudes toward death and dying or care of dying patients are: (a) the amount of experience with or exposure to dying patients, (b) the amount of education on death and dying, and (c) the type of work setting.
Nurses’ Attitudes Toward HIV/AIDS

There are also some unique characteristics of HIV/AIDS that may influence nurses’ attitudes toward caring for patients. One factor is the unpredictable dying trajectory of persons with AIDS (Clark, Curley, Hughes, & James, 1988). For example, some patients are considered terminally ill with their first bout of *Pneumocystis carinii* pneumonia, whereas others may be chronically ill for months or years before dying. Others have lived as long as 10 years after their initial diagnosis of AIDS. In addition, AIDS is unique in that it can be transmitted to others. This creates additional fear, negative attitudes, and avoidance of persons with AIDS due to the fear of contagion.

To examine the influence of an AIDS diagnosis on attitudes toward caring for dying patients, Bormann, Brent, and Mood (1993) conducted an exploratory study using King’s Conceptual Framework. They randomly distributed Brent et al.’s (1991) self-administered questionnaire to 140 undergraduate nursing students to assess attitudes toward dying patients and a revised version that identified dying patients as having AIDS. Results revealed that students had greater aversiveness to touching AIDS patients ($F [1, 128] = 11.49, p < .001$) and less aversiveness in talking about death to AIDS patients ($F [1, 128] = 7.56, p < .01$) than to non-AIDS patients. Using a semantic differential scale to measure affective responses to “AIDS” and “death,” paired $t$ tests yielded significant differences on all three components: Evaluation, Power, and Action. Students evaluated “AIDS” as significantly more negative, more powerful, and faster than “death” (Bormann, 1992). Such negative attitudes generated solely by the presence of the word “AIDS” to describe dying patients provide empirical support for the contribution and influence of “on-line” perception of new information on evaluative judgment or willingness to care in King’s model.
A review of the research on nurses' attitudes toward HIV/AIDS provides additional empirical support for the choice of variables in this study. The following factors have been identified as having an influence on nurses' willingness to care for persons with HIV/AIDS: (a) fear of contagion, (b) stigma of homophobia, (c) stigma of sexually transmitted diseases, (d) stigma of social irresponsibility, and (e) influence of HIV/AIDS education and experience. Each of these is discussed below.

Fear of Contagion

The most frequently reported factor influencing nurses' negative attitudes toward caring for persons with AIDS is fear of contagion ("Nurses' Fears," 1989; Reed, Wise, & Mann, 1984; Scherer, Haughey, & Wu, 1989; Treiber, Shaw, & Malcolm, 1987; van Servellen et al., 1988; Wallack, 1989). Fear of contagion, which is conceptualized as predictive judgment in the reformulated King model, was specifically reported as the cause for increased anxiety, occupational stress, and burnout among nurses working with persons with AIDS.

Fear of contagion has been defined as having four characteristics: "a) avoidance of contact, b) extreme and excessive precautions inconsistent with a knowledge base, c) lack of regard for the rights or well-being of those affected or at risk, and d) expressing fear of catching the disease" (Meisenhelder & LaCharite, 1989, p. 7). Even though HIV is not transmitted by casual contact, some nurses remain fearful due to the risk of needlestick injuries and contact with infected blood and body fluids. Although nurses can protect themselves by following guidelines on universal blood and body fluid precautions, fear of contagion persists. Nurses who work in areas such as the emergency room or intensive care units where direct contact with blood and body fluids is common and, therefore, exposure to HIV is more frequent, reported higher levels of stress (Blumenfield, Jordano-Smith, Milazzo, Seropian, & Wormser, 1987). "These fears get expressed in depersonalized modes
of care, isolation of the patient, and fragmentation of care, and in the case of AIDS, overly cautious behaviors to ward off perceived personal risk" (van Servellen et al., 1988, p. 7).

Not only is fear of contagion prevalent in the workplace, but nurses are reminded of the risks and fear of HIV even at home. Fear of contagion is a concern voiced by family and friends of nurses, particularly if the nurse has children (Blumenfield et al., 1987; Reed et al., 1984). "Two-thirds of the [298] nurses consistently reported that they have friends or family express concern about associating with hospital personnel who have had contact with AIDS patients" (Blumenfield et al., 1987, p. 59). Nurses who work with persons with AIDS have reported ostracism from others. Chafey, a registered nurse at the University of California in Los Angeles AIDS Clinical Research Center stated, "When you meet someone and tell what you do for a living, that person suddenly backs off and doesn't want to talk anymore" (Selby, 1990, p. 18). Such responses enhance the emotional burden of caring for HIV-infected persons. Relief from the stress and anxiety associated with AIDS cannot be escaped by leaving the work setting and such lack of positive emotional support can only add to the stress and anxiety of caregivers (Katz, Hass, Parisi, Astone, & McEvaddy, 1987).

To cope with the fear of contagion, nurses may seek current information on how to decrease their risk of contracting HIV. Unfortunately, new information is not always trusted. The mistrust about the accuracy or truthfulness of biomedical information on AIDS has been documented as enhancing the fear of contagion (Blumenfield et al., 1987; Currey et al., 1990; "Nurses' Fears," 1989; van Servellen et al., 1988; Wallack, 1989). This doubt may be explained by early media coverage about AIDS. When HIV was originally reported to be transmitted through "blood and body fluids," this implied all body fluids (e.g., saliva, tears, urine, mucous,
perspiration, phlegm, etc.) were potential sources of HIV infection. Later studies reported that transmission by these modes was highly unlikely, and the most infectious modes of transmission were blood products, semen, and vaginal secretions. Therefore, the greatest risk of contagion was from blood transfusions prior to screening the blood supply, contaminated needles and drug paraphernalia of injecting drug users, sexual contact (both heterosexual and homosexual), and across the placenta from infected mother to baby, or during the birthing process. Also, and very importantly, the government’s Secretary of Health and Human Services, Margaret Heckler, reported the virus as infecting certain high risk groups of people rather than identifying the high risk behaviors that facilitate transmission of the virus to any one person (Shiltz, 1987). People who did not belong to the high risk groups were considered “safe” until later studies revealed the misinformation.

Another reason for doubt about the accuracy of information on AIDS is the fact that early research on the virus reported diverse findings regarding transmission, incubation period, and infected populations at the same time that health care providers were treating persons with AIDS and were not absolutely sure of the risks involved. In a survey of 319 students in the health professions, written comments revealed that students had anxiety over occupational exposure to HIV based on inconsistencies in faculty lectures on AIDS. Students reported skepticism about reports in the scientific literature, such as the fact that HIV has been detected in saliva but has not been transmitted by saliva (Currey et al., 1990). Wallack (1989) surveyed 67 physicians and 172 nurses in 1985 and found that 63% were “either unsure about or did not believe national experts’ claims that they were not likely to contract HIV-infection on the job if they followed safety guidelines” (p. 508).

Even though knowledge about transmission has become more reliable in recent years, at the 5th International Conference on AIDS in Montreal it was reported
that "there was considerable misinformation, mistrust, and fear regarding AIDS" among nurses surveyed ("Nurses' Fears," 1989). van Servellen et al. (1988) examined questionnaire responses of 1,019 nurses and found that 24.5% reported fear of contagion despite knowledge about AIDS transmission. In yet another survey, Blumenfield et al. (1987) reported that half of the 298 nurses queried believed they may get HIV from handling clinical specimens such as blood or urine.

**Stigma of Homophobia**

Another variable frequently cited that interferes with willingness to care for persons with AIDS is homophobia (Barrick, 1988; Douglas et al., 1985; Kelly et al., 1988; Reed et al., 1984; Scherer et al., 1989; van Servellen et al., 1988; Wallack, 1989; Young, 1988; Young, Kock, & Preston, 1989). Homophobia is the irrational fear of homosexuality. It is based on misconceptions, moral and religious beliefs, and is prevalent in the United States and other countries as well. Since the beginning of the AIDS epidemic, the disease has provoked anxiety and fear not only because it is a contagious, terminal illness, but also because the majority of those afflicted with HIV in the United States are gay and bisexual men.

Some nurses, as members of society, are also homophobic. Sixty-four percent of 22 nurses who attended an AIDS workshop reported negative feelings such as "repulsion," "disgust," or "pity" toward homosexuals (Young, 1988). Many nurses still consider homosexuality a psychiatric disorder rather than a lifestyle, and as a result they experience anxiety in caring for homosexual patients (Reed et al., 1984). Some nurses believe that homosexuals with AIDS get what they deserve. Wallack (1989) reported that of 67 the physicians and 172 nurses surveyed, almost 48% had angry feelings toward gays and blamed gay promiscuity on causing the
epidemic. "Thirty-three percent of nurses agreed that homosexual men afflicted with AIDS have only themselves to blame" (Wallack, 1989, p. 508).

To determine the influence of homophobic attitudes on nurses caring for patients, Kelly et al. (1988) designed a study to compare and contrast the stigma of AIDS diagnosis with the stigma of sexual orientation. Kelly and colleagues randomly distributed three questionnaires, Prejudicial Evaluation Scale, Social Interaction Scale, and Interpersonal Attraction Inventory, to 500 nurses. The response rate was 32%. In the study's design, the nurses were presented with one of two case studies portraying identical vignettes except for the diagnosis and the gender of the romantic partner of the patient. The patient's diagnosis was labeled either as AIDS or leukemia and the patient's relationship was described as either heterosexual or homosexual. All four combinations of the vignette were distributed: AIDS/homosexual, AIDS/heterosexual, leukemia/homosexual, and leukemia/heterosexual. The results revealed that "gay patients were stigmatized with negative attitudes and attributions quite like those shown toward AIDS patients" (p. 82), and "nurses also react with much more attitudinal negativity toward a patient labeled as having AIDS than toward an identically described patient with leukemia" (Kelly et al., 1988, p. 81). These results suggest that some nurses are uncomfortable in developing positive, open, and nonjudgmental caring relationships with persons with AIDS and with gay patients with leukemia (Kelly et al., 1988).

Such negative attitudes have been specifically related to nurses' willingness to care for persons with AIDS. In a mail survey of 208 nursing personnel, Barrick (1988) found a positive correlation between negative attitudes toward gay men and lesbians and unwillingness to work with persons with AIDS ($r = .50, p < .01$). Despite limitations of the study such as sampling only one geographic area and the potential for respondent-bias from a mail survey, Barrack's findings support previous
results from surveys on homophobia and add specific information related to willingness to provide care.

Moral and religious beliefs are often cited as the reason for discomfort toward homosexuality. Wallack (1989) found that 18% percent of the 172 nurses he surveyed agreed that AIDS was God's punishment to gays. Negative attitudes related to gay sexual activity have been frequently associated with religious beliefs (Morgan & Treadway, 1989; Young, 1988). In a survey of 120 nurses in Tennessee who held Master's, bachelor's and associate nursing degrees, 90% answered "yes" to the question, "Do you consider yourself religious?" Of those, 51 (47.2%) believed that anal sex is against the laws of God and six (7.4 %) stated that persons with AIDS are immoral (Morgan & Treadway, 1989). Although this survey represents a small convenience sample of nurses in a specific part of the country and the results are not generalizable, it lends support to the influence that some religious beliefs have on negative attitudes toward homosexuality.

**Stigma of a Sexually Transmitted Disease**

Another unique aspect of AIDS that makes it more difficult to deal with than other terminal illnesses is the fact that it can be sexually transmitted. Open discussion of sexual activity has long been taboo in America making it difficult for nurses to provide AIDS education and patient teaching related to sexual practices. Fortunately, the term "safer sex" is gradually becoming a part of everyday conversation, and advertisements encouraging the use of condoms are becoming more widespread. Yet, most people are uncomfortable talking about sex, let alone discussing the sexual activity of gay men (and women). van Servellen et al. (1988) reported that of 1,019 nurses surveyed, 48.5% reported feeling uncomfortable discussing sex with gay men. One reason for this may be related to the assumption that gay sex involves only anal-receptive intercourse. Just as heterosexuals enjoy a
variety of pleasurable activities, so do gay couples. In addition, it has been estimated that two thirds of married couples practice anal-receptive intercourse (Francoeur, 1982).

Stigma of Social Irresponsibility

As previously stated, King did not differentiate between types of judgment in her original model, but many studies have compared judgment toward patients with AIDS to patients with cancer, diabetes, and heart disease and have found a common theme related to the attribution of responsibility for one’s illness. Such an attribution is conceptualized in the reformulated King model as the nurses’ evaluative judgment of the patient. Empirical support for evaluative judgment regarding responsibility for acquiring HIV/AIDS suggests it is a worthy contribution to the reformulated King model.

In one study, Katz et al. (1987) surveyed 433 subjects including 70 practicing RNs from two general hospitals and college, nursing, medical, and chiropractic students. A semantic differential scale with 21 bi-polar adjectives was used to measure competence, moral worth, dependence, depression, morbidity, and social responsibility. Responsibility for illness was assessed by a 31-point rating scale with opposite points labelled “responsible for illness” and “not responsible for illness.”

Persons with AIDS were:

. . . depicted very negatively by every type of subject. They [were] seen as less competent and morally worthy than other patients and [were] strongly rejected socially. The ratings support the opinion widely held by journalists and medical experts that AIDS is a severely stigmatizing condition whose adult victims are disdained by the general public and even by many health care personnel. . . . Our data suggest that the perception of AIDS patients as responsible for their illness underlies these extremely negative attitudes. The AIDS group receives the most unfavorable ratings of responsibility of any diagnostic category. (p. 627)

Persons with HIV/AIDS were the most negatively evaluated and most rejected by both lay persons and health care professionals including nurses (Katz et al.,

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Persons with AIDS were viewed with the most stigma. This study found that persons with AIDS were perceived worse than persons with cancer and they, in turn, were evaluated to be less socially acceptable than persons with other illnesses but "were strongly preferred over the mentally ill, and certain social groups such as homosexuals, ex-convicts, and alcoholics" (Katz et al., 1987, p. 617).

Other studies on AIDS stigma have reported that persons with AIDS were perceived more negatively than persons with hepatitis (Treiber et al., 1987), persons with leukemia (Kelly et al., 1988; Strasser & Damrosch, 1992), or persons who were dying, alcoholic, or suffering from psychiatric illnesses (Lev, 1986). From these studies, it is clear that persons with AIDS have often been blamed for their illness and held responsible for their plight.

These studies also link responsibility for contracting HIV to the mode of HIV transmission (Strasser & Damrosch, 1992; Weiner et al., 1988). If transmission was believed to be uncontrollable, then reactions to persons with HIV were less severe than if transmission was believed to be controllable. Therefore, in this study, it was hypothesized that nurses would be less willing to care for persons believed to be infected by injecting drug use or gay sex than those believed to be infected by blood transfusions.

Influence of HIV/AIDS Education and Experience

Several studies have examined the influence of HIV/AIDS education and increased HIV/AIDS experience on nurses' and nursing students' fear and anxiety in caring for patients. Wiley et al. (1988) found willingness to provide care was greater among students who had more education such as a Master's degree versus a baccalaureate degree. Lester and Beard (1988) found that nursing students who had experience caring for persons with AIDS had more positive attitudes and expressed greater willingness to care for them. In examining the influence of
personal, professional, and educational AIDS experience on undergraduate nursing
students’ attitudes toward caring for dying patients with AIDS, Bormann et al. (1993)
found that years of clinical experience was the best predictor of increased ease in
talking about death, general interaction, and touching patients. AIDS clinical
experience and AIDS personal experience both uniquely predicted professional
competency and together they accounted for 21% of the variance of professional
competency in a sample of 62 students. Armstrong-Esther and Hewitt (1990) and
Tesch et al. (1990) found that an increase in nurses' AIDS-related knowledge
resulted in more liberal attitudes toward persons with AIDS, including an increased
willingness to care for them.

Goldenberg and Laschinger (1991) examined nursing students’ intentions to
care for persons with HIV using Ajzen and Fishbein’s (1980) theory of reasoned
action. They collected data from a sample of 46 BSN nursing students 2 months
prior and immediately following a 2-hour class on AIDS. They found that attitudes
and subjective norms at the pretest accounted for 15.2% of the variance, and in the
posttest they accounted for 19% of the variance indicating that education had some
positive influence on intentions to care. They replicated this study in a sample of
141 nurses working in urban hospitals in Canada and found that nurses with higher
levels of education had more positive attitudes toward caring for persons with HIV
(r = .30, p = .04) (Laschinger & Goldenberg, 1993).

Jemmott, Jemmott, and Cruz-Collins (1992) examined the impact of nursing
education on willingness to care for persons with AIDS using Ajzen and Fishbein’s
(1980) theory of reasoned action to measure avoidance intentions, perceived
occupational risk, attitudes toward homosexuals and intravenous drug users, and
AIDS knowledge of 153 sophomore and senior nursing students. They found that
students with lower AIDS knowledge, greater perceived occupational risk of HIV, and
more negative attitudes toward gays and injecting drug users had greater avoidance intentions or unwillingness to care for persons with HIV. They also found a relationship between increased perceived risk of HIV infection and lower AIDS knowledge ($r = -.23$, $p < .004$), and that greater AIDS knowledge was related to less negative attitudes towards gay men and lesbians ($r = -.26$, $p < .001$). In comparing sophomores ($n = 83$) with seniors ($n = 69$) who had received AIDS content in the curriculum, the multivariate effect for year in school was significant ($F [5, 146] = 5.07$, $p < .001$) indicating that AIDS education had some positive effect on knowledge, perceived degree of risk, and attitudes towards gays and injecting drug users. When examining the effects of age and AIDS patient experience on intentions, Jemmott, Jemmott, and Cruz-Collins (1992) found no significant relationships.

Jemmott, Freleicher, and Jemmott (1992) replicated this study using a sample of 496 RNs and found that nurses who perceived greater occupational risk had more negative attitudes toward homosexuals and intravenous drug users and had greater intentions to avoid care. When the effects of perceived occupational risk were controlled in an multiple regression analysis, negative attitudes toward homosexuals and intravenous drug users still influenced avoidance. The relationship between educational level and avoidance intentions was mediated by perceived risk of contagion.

Education and experience in caring for persons with HIV/AIDS does not necessarily translate into an increased willingness of nurses to care for HIV-infected patients. Currey et al. (1990) surveyed 319 students in health professions, including 111 nursing students. Students were asked to complete anonymously a questionnaire on attitudes toward and willingness to care for persons with AIDS. The response rate was 81.2% with the majority (59.6%) indicating they would be willing to care for persons with AIDS. However, 16.9% said they would choose not to care
for persons with AIDS and 23.8% were uncertain. Results also indicated there was
no statistically significant relationship between knowledge of AIDS epidemiology and
willingness to care for AIDS patients. Currey et al. (1990) noted that having
increased information about HIV and the knowledge to protect oneself from infection
did not reduce the concerns about risk of contagion when caring for a person with
HIV. Findings from this study are not generalizable because it lacked a random
sample and was limited to one geographic area.

Kemppainen et al. (1992) evaluated responses of 541 staff nurses at five
Veterans Administration hospitals in the United States to determine the prevalence of
AIDS patient care experience and nursing education on nurses' willingness to
provide care. They administered the Nurse Willingness Questionnaire, a self-
administered instrument containing demographic data, a 500-word vignette
describing a gay male patient with AIDS, and 13 items to assess nurses' willingness
to perform AIDS patient care such as giving a bed bath, cleaning up stool or emesis,
etc. (Kemppainen et al., 1992). Items were rated on an 11-point Likert-type scale
using bipolar ratings ranging from not willing at all (0) to extremely willing (10). Items
were summed for a total willingness score with higher scores indicating greater
willingness. Results indicated that "nurses who felt the most knowledgeable about
infectious disease, with the most direct AIDS patient care experience, and higher
levels of education were consistently less willing to care for an AIDS patient on any
of the assessed dimensions" (Kemppainen et al., 1992, p. 113). These findings
conflict with studies that have shown educational background, AIDS knowledge, and
patient-care experiences as having positive influences on nurse attitudes. Possible
reasons for why better educated and more experienced nurses reported less
willingness to care for persons with AIDS may be related to patient characteristics,
anxiety from elevated risk of contagion, or nurse burnout. For example, one nurse
explained that when there were only a few persons with AIDS, nursing care was a learning experience, but when there were many more persons with AIDS, she became overwhelmed and exhausted from caring for them. This comment is supported by reports that nurse burnout is related to care of persons with AIDS ("Nurses' Fears," 1989). One variable which has not been reported on, as yet in the literature, is the number of hours that nurses work on average per week. This information may influence nurses' fatigue level which, in turn, may influence willingness to care.

Flaskerud (1991) suggests that "nurses' attitudes require more than just additional information and education about HIV" (p. 242). She purports that "education alone is not very effective in motivating attitude change. The most effective educational strategies for influencing attitudes appear to have a strong affective component in which feelings can be expressed openly and in a non-threatening atmosphere" (p. 242).

In a review of HIV/AIDS-related nursing research, Swanson, Chenitz, Zalar, and Stoll (1990) summarized their findings about AIDS knowledge by stating that:

Most nurses had a working knowledge of AIDS and HIV infection but gaps were identified (e.g., difficulty distinguishing AIDS symptoms, the correct means of transmission, and infection control procedures). Nurses had difficulty in identifying all risk groups for AIDS correctly. Some nurses felt they had insufficient information to protect themselves at the workplace. Knowledge increased with level of professional education. Knowledge was associated with fewer concerns about caring for persons with AIDS and an increased likelihood of volunteering to work on an AIDS ward. The main source of information about AIDS was the media. (p. 342)

Swanson et al.'s (1990) critique of HIV/AIDS-related nursing research revealed that the majority of studies were atheoretical, descriptive surveys. Only nine studies exclusively studied nurses and four studied nursing students. Most studied nurses and nurse administrators in large urban hospitals. Instruments were criticized as needing greater standardization and validation. They also found a need
to use more advanced quantitative methods and to move beyond descriptive statistics. Testing of theory related to stigma is also sorely needed. Swanson and colleagues summarized their findings by stating that:

Despite evidence that the risk to health care workers of acquiring AIDS was small, fear of AIDS transmission was paramount. Fear of AIDS transmission persisted despite the use of recommended precautions. Nurses reported spending less time with persons with AIDS than other patients; some refused care for persons with AIDS and felt nurses should be allowed to refuse care of persons with AIDS. Nurses reported that spouses, other family members, and friends voiced concerns about nurses' care of persons with AIDS. Demands for HIV testing of patients, isolation in hospital rooms, and limiting the rights of seropositive or infected persons to attend public schools were voiced by a minority. A small proportion of nurses felt persons with AIDS were deserving of their plight. Some nurses stated they would question their career intentions if faced with an increased workload of persons with AIDS. Negative attitudes toward homosexual men and women were associated with negative attitudes toward working with persons with AIDS. Contrary to previous studies, male respondents were less homophobic than females. Negative fears and behaviors decreased as nurses acquired accurate knowledge of AIDS and its transmission, knew someone personally with AIDS, and gave care to persons with AIDS. (p. 345)

Findings from Swanson et al.'s (1990) review and results from additional studies cited here empirically support the choice of variables measured in this study. The reformulated King model was used as a framework to predict nurses' willingness to care for persons with HIV.
CHAPTER III
RESEARCH METHODS

Design

This quasi-experimental study was designed to examine variables that contribute to nurses' willingness to care for persons with HIV infection and was guided by a reformulation of King's Model of Human Interactions. Specifically, it determined the extent to which mode of HIV transmission is related nurses' willingness to care for persons with HIV, and the extent to which other variables of attitude and judgment contribute to nurses' willingness to care for a specific HIV-infected patient.

Nurses who met the study's inclusion criteria were randomly assigned to one of three treatment groups (see Figure 5). They were given a pretest to

\[ O_1 \rightarrow R \rightarrow \begin{array}{c}
X_a \\
X_b \\
X_c \\
O_2 \\
O_2
\end{array} \]

- \( O_1 \) = pretest
- \( R \) = random assignment
- \( X_a \) = video of a person and information that he acquired HIV from a blood transfusion
- \( X_b \) = video of a person and information that he acquired HIV from injecting drug use
- \( X_c \) = video of a person and information that he acquired HIV from gay sexual activity
- \( O_2 \) = posttest

Figure 5. Diagram of research design.
assess nurse characteristics (i.e., demographic and experience variables) and HIV/AIDS-related attitudes (i.e., AIDS knowledge, affect, and willingness to care for persons with HIV in general). Then they were given the intervention (i.e., a written statement indicating how the person in a video acquired HIV—blood transfusion, injecting drug use, or gay sexual activity) followed by a 3-minute video of that HIV-infected person. Subjects then completed a posttest measuring their evaluative judgment of the patient in the video, their predictive judgment or perceived occupational risk of HIV infection, and their willingness to care specifically for the person in the video.

Subjects

Staff nurses who provided direct patient care at three urban hospitals in San Diego, California, were asked to participate in the study. Inclusion criteria were RNs who: (a) currently provided direct patient care, and (b) had a minimum of 1 year full-time (or equivalent) direct patient care experience. Nurses from all shifts were asked to participate.

A power analysis was computed for ANOVA and multiple regression to determine an appropriate sample size. The significance level or alpha, called Type I error, is the rate of rejecting a true null hypothesis and for this study was set at .05. In this study, the dependent variable was measured by the Nurse Willingness Questionnaire which demonstrated acceptable reliability and validity (Dubbert et al., 1994; Kemppainen et al., 1992). This study was designed to detect a medium effect and, therefore, with a desired power of .80, alpha of .05, and an estimated medium effect size of .25, a sample of approximately 156 subjects was needed, 52 in each group (Cohen, 1977). For multiple regression analysis, a sample of 156 with alpha at .05 and a medium effect size, yields a power of .97-.99. This calculation supported the sample size estimate according to the "rule of thumb" that there
should be at least 10-15 subjects for each predictor variable. Because of the large number of demographic and experience variables cited and the expectation that many of them would be highly correlated, simultaneous multiple regression was performed using these variables. Only those that emerged as significant predictors of willingness to care were retained. Therefore, with an estimated 10 predictor variables, a sample of approximately 156 was considered sufficient.

**Intervention**

Following the pretest, the intervention occurred in the form of written information describing how a patient acquired HIV and instructions to watch a 3-minute video of that patient. Subjects were randomly assigned to one of three modes of transmission (i.e., blood transfusion, injecting drug use, or gay sexual activity). Mode of transmission was typed in bold print and highlighted in yellow on a separate page inserted between the pre- and post-tests (see Appendix A). Instructions asked the subjects to wait until everyone had finished the pretest prior to watching the video.

Following this intervention, the video was shown. It began with titles that stated: "This is Mark, a 32-year-old who is HIV positive. He is hospitalized for injuries from a motor vehicle accident. He has been asked to talk about his HIV status." The video consisted of a Caucasian, male patient sitting in a hospital room. He talked about his experience of being HIV-positive but did not disclose any behaviors or information that might have indicated how he acquired HIV (see Appendix B). He was dressed in a hospital gown to control for other indicators of socioeconomic status due to appearance.

Following the video, subjects filled out the posttest with written instructions reminding them to answer these questions in response to the videotaped patient just seen. Instructions included a fill-in-the-blank statement of how the patient acquired HIV. The posttest measured nurses' evaluative judgment of the patient, nurses'
perceived occupational risk of HIV infection, and willingness to provide HIV care specifically to Mark in the video.

Data Collection Instruments and Measurement

The theoretical and operational definitions are provided below followed by a description of the data collection instruments.

Nurse Characteristics

Nurse characteristics included biographic and experience variables of the sample. They were assessed by a self-administered questionnaire (see Appendix C). Biographic variables included age, gender, sexual preference, marital status, number and ages of children, race/ethnicity, religion and importance of religion, level of nursing education, level of education other than nursing, and socioeconomic status. Socioeconomic status was measured by a score on the Hollingshead Four-Factor Index of Social Status (Hollingshead, 1983) which was computed from information about the occupation of both spouses, education, gender, and marital status.

Experience Variables

Experience variables were defined as previous encounters with people or events that might influence HIV attitudes. They were categorized as professional nursing characteristics and personal acquaintances with persons at risk for HIV. The professional nursing characteristics included: (a) area of nursing specialization; (b) number of years of nursing clinical experience; (c) average number of hours per week of direct patient care; (d) number of hours of HIV/AIDS education or training; (e) total number of persons cared for with HIV, but asymptomatic for AIDS; (f) number of persons cared for with HIV, but asymptomatic for AIDS, in the past 6 months; (g) total number of persons cared for with AIDS; and (h) number of persons cared for with AIDS in the past 6 months. The personal acquaintances with persons
at risk for HIV included: (a) number of personal acquaintances who are gay men, and (b) number of personal acquaintances who are injecting or recovering injecting drug users.

**Attitude**

Attitude was defined as an evaluative process composed of cognition, affect, and behavioral intention toward an attitude object. In this study, attitude was measured by the three sub-concepts of HIV-related cognition, affect, and behavioral intention.

**Cognition.** Cognition was defined as knowledge about an attitude object. In this study it was defined as a nurse's current understanding of the transmission of HIV/AIDS, risk behaviors, co-factors, symptoms, sexual history-taking, and precautions for health care workers. It was measured by a score on the AIDS Knowledge Survey (Flaskerud, Lewis, & Shin, 1989). This is a 48-item paper and pencil test designed for practicing nurses (see Appendix D). Responses to items were "yes" or "no." A knowledge score was calculated by summing the number of items answered correctly. Flaskerud et al. (1989) have reported content validity based on evaluation by expert nurses in HIV and AIDS care. According to Flaskerud et al. (1989), reliability of the knowledge scale was calculated with Kuder-Richardson 20 Formula alpha coefficient which was .83. For this study, the Kuder-Richardson correlation coefficient was .73; nevertheless, it was considered acceptable within the range of .50 to .95.

**Affect.** Affect was defined as an emotional response or feeling toward caring for persons with HIV infection. Affect was measured by the Semantic Differential (Sem-D) scale which consisted of bipolar adjectives that were rated on a 7-point scale (see Appendix E). The bipolar adjectives selected in this study represented the evaluative component of feeling (i.e., the degree to which a person feels
positively or negatively about something, such as good or bad, fair or unfair [Osgood, Suci, & Tannenbaum, 1969]). The instrument included standard written instructions asking subjects to indicate for each of the adjective pairs how strongly they associated the words with caring for persons with HIV. If they felt the adjectives had no connection or were equally related, they could choose the middle position which is neutral. To avoid position effects, the adjectives comprising the ends of the scales were balanced between right and left for their possible positive and negative connotations. Extensive research has revealed that semantic differential scales provide a valid and reliable method of comparing concepts in terms of affective meaning (Kerlinger, 1964; Leff, 1978). Test-retest reliability based on previous studies has been reported to range from .87 to .93 with a mean correlation of .91 (Osgood et al., 1969, p. 192). For this study, the Sem-D had a Cronbach's alpha coefficient of .79. Although this was lower than the $r = .91$ reported by Osgood et al., (1969), it was still within an acceptable range.

**Behavioral intention.** Behavioral intention to care for persons with HIV in general was defined as nurses' willingness to carry out various nursing tasks for persons who are HIV-infected. It was measured by the Nurse Willingness Scale (NWS) and Brent et al.'s (1991) Talking and Touching scales. These self-administered questionnaires were used to measure behavioral intention in both the pretest and the posttest. However, in the pretest, items were answered in response to persons with HIV in general (see Appendix F), whereas in the posttest, instructions asked subjects to answer the items in response to the videotaped patient just seen (see Appendix G).

The original Nurse Willingness Scale contained three parts: (a) demographic variables, (b) a 500-word vignette, and (c) items to assess nurses' willingness to perform AIDS patient care (Kemppainen et al., 1992). In this study, Part B was
replaced by the videotape and only Part C was used. Part C consisted of 13 items which were rated on an 11-point Likert-type scale using bipolar ratings (i.e., not willing at all (0) to extremely willing (10).

Content validity was established by a panel of expert nurses experienced in AIDS care. Factor analysis on the responses of 500 nurses revealed that all items loaded on one factor, namely, willingness to care (Dubbert, Kemppainen, & White-Taylor, 1994). Construct validity was demonstrated by a strong negative correlation with the fear of contracting AIDS via nonsexual interpersonal exposure and medical procedures measure ($r = -.47, p = .04$) (Dubbert & Jackson, 1993). Cronbach's alpha coefficient for reliability was .97. Test-retest reliability at 1 week on a sample of 40 nurses was .95. To assess for the presence of social desirability bias, the NWS was correlated with the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) demonstrating a negative and not significant relationship ($r = -.28, p = .27$) (Dubbert & Jackson, 1993; Dubbert et al., 1994). To score the NWS, responses to items were summed and provided a total willingness score that could range from 0 to 130 with higher scores indicating greater willingness.

For this study, a principal components factor analysis was done on the Nurse Willingness Scale-Specific ($N = 189$). Principal components was chosen over a common factor analysis (principal axes) to replicate Dubbert et al.'s (1994) original work. A single component accounted for 85.3% of the variance which was comparable to the original results of 82% of the variance obtained by Dubbert et al. (1994). This suggests that all items contributed to the construct of willingness to care. Internal consistency of the NWS was measured by Cronbach's alpha which was .95 and compared favorably to the alpha of .97 reported by Dubbert et al. (1994).
The Talking and Touching Scales were taken from a larger attitude questionnaire developed by Brent et al. (1991). They describe a specific concrete situation related to the care of a dying patient (e.g., talking to or touching) and a specific reaction to that situation (e.g., finding it uncomfortable or comfortable). The items were based on reactions reported by nurses and physicians from previous studies by Brent. These scales were administered in the pretest to measure comfort in talking or touching persons in general with HIV (Talk-Gen, Touch-Gen). In the posttest, they measured comfort in talking or touching the specific person in the video (Talk-Specific, Touch-Specific).

The Touching scale consists of two items: “I feel uncomfortable touching [persons with HIV/Mark] to provide physical care” and “I feel uncomfortable touching [persons with HIV/Mark] to provide emotional comfort.” Responses were recorded on a 10-point Likert-scale ranging from very uncomfortable (0) to very comfortable (10). Scores were summed for a total touching score and could range from 0 to 20, with higher scores indicating greater comfort in touching.

The Talking scale consists of five items that address aversive aspects of talking to a dying patient. These include “I would find it hard to discuss the actual dying process with a dying patient,” “I would avoid words like ‘dying’ and ‘death’ with a dying patient,” “I would feel unsure how to discuss issues relating to the dying process,” “I would avoid discussing death with a dying patient,” and “I would find it hard talking to the family of dying patient.” Responses were recorded on a 10-point Likert-scale ranging from disagree (0) to agree (10). Responses were reversed, scored, and then summed for a total score which could range from 0 to 50 with higher scores indicating greater ease in talking.

Psychometrics properties of the Touching and Talking scales, based on previous research, included Cronbach’s alpha of .87 for Talking and .86 for
Touching. Test-retest reliability on 43 graduate nursing students on the total attitude questionnaire resulted in correlations ranging from .61 to .76. Content validity was supported by 16 practicing nurses who evaluated the items. They had between 80% to 100% agreement on what would be "ideal" responses (Brent et al. 1991).

For this study, the internal consistency of the Talking and Touching scales was measured by Cronbach's alpha. Talk-Gen (i.e., comfort talking to persons in general with HIV) in the pretest had an alpha of .90 and Talk-Specific (i.e., comfort in talking to the specific person in the video) in the posttest had an alpha of .90. Touch-Gen had an alpha of .89 and Touch-Specific had an alpha of .90. These compared favorably to previous work by Brent et al. (1991).

Perception

Perception is a "person's representation of reality" (King, 1981, p. 146) and has been described as a "process of organizing, interpreting, and transforming information from sense and memory" (King, 1981, p. 24). In this study, perception was manipulated by using a written statement indicating how the patient in the video acquired HIV infection. To confirm that subjects noted the intervention, there was one fill-in-the-blank item on the posttest asking them to indicate the mode of HIV transmission.

Judgment

Judgment was defined as cognitive activity inherent in the decision making process that leads to a behavioral intention to act or not act. Two judgments were specifically examined in this study and were defined as the nurses' evaluative judgment of the patient and the nurses' predictive judgment of occupational risk of HIV infection.

Evaluative judgment of the patient. Evaluative judgment of the patient was defined as the nurses' opinion of the videotaped patient's responsibility and blame for
his illness. It was measured by a modified version of Kelly et al.'s (1988) Prejudicial Evaluation Scale (PES) and was called the Evaluative Judgment measure. Kelly et al.'s (1988) original instrument consisted of 12 items rated on a 7-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7). It was used to discriminate judgment between the diagnosis of AIDS and leukemia. Evidence of construct validity was provided by finding that judgments were significantly harsher for patients diagnosed with AIDS than with leukemia ($F = 15.78, p < .01$). Alpha coefficients for reliability were not reported.

Strasser and Damrosch (1992) and Forrester and Murphy (1992) used nine items from the PES and called it the Patient Judgment Scale. Responses were given on a 7-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7). Construct validity was supported in these studies by findings that indicated judgments were significantly harsher toward an AIDS diagnosis of controllable origin such as injecting drug use than toward an AIDS diagnosis of uncontrollable origin ($F = 15.61, p < .01$). Reliability was reported in these studies as .65 and .58, respectively, and, therefore, modifications of this scale were made by this writer for this study. Using previous items developed by Kelly et al. (1988) and additional items developed by the writer, a questionnaire consisting of 20 items was given to 34 nurses who completed it after reading the verbal script from the video. Two items (4 and 5) were deleted from the original PES to obtain an alpha coefficient of .75 for the remaining 18 items (see Appendix H). The improved reliability compared favorably to the work done previously on the Patient Judgment Scale.

The Evaluative Judgment measure was scored by first reverse scoring items 2, 4, 7, 13, 14 (Kelly et al., 1988). Then items were summed for a total Evaluative Judgment score ranging from 18 to 126. Higher scores indicated harsher judgment.
In this study, a principal components factor analysis was done on the Evaluative Judgment Scale (N = 189). No factors were hypothesized a priori. From the analysis, two major components emerged. The first component accounted for 45% of the variance in scores and a second component accounted for an additional 20% of the variance for a total of 65% of the variance. It appeared that component one primarily consisted of items which were punitive in nature such as "Mark deserves what has happened to him," "Mark should be punished for getting sick," and "Mark should be prosecuted for his illness," etc. Component two had items related to illness including: "Mark is responsible for his illness," "Mark could not have prevented his illness," and "Mark should have taken better care of his health." The Evaluative Judgment Scale had a Cronbach’s alpha of .80. This suggests that overall, the items were related to one another, and represented the domain of evaluative judgment. This result was comparable to the Cronbach’s alpha of .75 obtained on the pilot testing of the scale.

Predictive judgment. Predictive judgment was defined as the nurses' perceived occupational risk of HIV infection and was measured by four items that assessed the likelihood of contracting HIV from occupational exposure in the hospital (see Appendix I). The items were modified slightly to refer specifically to the patient in the video. The responses were given on a 5-point Likert-type scale ranging from strongly agree (1) to strongly disagree (5). Items were summed and averaged to produce a risk of infection score. Jemmott, Freleicher, and Jemmott (1992) and Jemmott, Jemmott, and Cruz-Collins (1992) reported construct validity by correlating this scale with discomfort in working with AIDS patients. A significant correlation (r = .52, p < .01) was found in 80 nursing students and similar correlations found in 66 nurses at urban hospitals. Internal consistency was reported with an alpha of .81 and .83, respectively. The mean inter-item correlation was not reported.
For this study, internal consistency of the Risk of Contagion Scale was measured by Cronbach's alpha coefficient which was .77 and is acceptable for a four-item scale. The alpha was, however, slightly lower than those previously reported—.81 and .83 (Jemmott, Freleicher, & Jemmott, 1992; Jemmott, Jemmott, & Cruz-Collins, 1992).

**Behavioral Intention**

Behavioral intention to care for a specific patient with HIV was defined as nurses' willingness to carry out various nursing tasks including touching and talking for the videotaped person who was HIV-infected. This was measured by the Nurse Willingness Scale-Specific, and the Touching and Talking scales with instructions to answer items in response to Mark in the video (Touch-Specific, Talk-Specific). These were scored in the same manner as the pretest.

In summary, a pretest and a posttest were used to measure the variables of interest. The pretest consisted of four sections. Section I included items on nurse characteristics and had two parts. Part A included biographic items and Part B asked about HIV-related experience. Section II consisted of the AIDS Knowledge Survey (AKS). Section III contained the Semantic Differential scale for persons with HIV and Section IV contained the Nurse Willingness Scale-General, Talking and Touching scales for persons in general with HIV (Talk-Gen, Touch-Gen).

The posttest consisted of three sections. Section I contained the Evaluative Judgment Measure. Section II contained the Perceived Occupational Risk of HIV Infection measure and Section III contained the Nurse Willingness Scale-Specific, Talking, and Touching scales in response to the videotaped patient Mark (Talk-Specific, Touch Specific).
Data Collection Procedure

Nurse managers and nurse research facilitators at the three hospitals were notified of the study approximately 1 month before it began and subjects were invited to participate through flyers and staff meeting announcements briefly describing the study. Several dates and times for data collection were given and volunteers were asked to sign up for the scheduled times or to call the investigator. Refreshments were provided to compensate subjects for their time and they received certificates of participation to verify that they had participated in nursing research. Nurses of all ages were recruited into the study.

Various meeting rooms for data collection on each floor in each hospital were designated and prepared with video equipment. Individuals were tested in groups ranging from 1 to 22, depending on subject availability. The research was explained by the investigator as a study examining nurses' perceptions of caring for persons with HIV. A script (see Appendix J) was read to assure that all participants received the same instructions. Every effort was made to encourage subjects to completely fill out the questionnaires to avoid missing data and not to talk to other nurses about the study. Completion of the entire data collection procedure took on average 25 to 30 minutes. The approved protocol for human subjects was followed.

Questionnaire packets were compiled. Using a table of random numbers, the three versions of the intervention were assigned such that each nurse had an equal chance of receiving any one of the three modes of transmission. Participants first filled out the pretest, and then read instructions indicating they would view a videotape of an HIV-infected person. They were to read the written intervention indicating how the person acquired HIV by one of three modes of transmission (i.e., blood transfusion, injecting drugs, or gay sex). The subjects then watched the videotape and filled out the posttest in response to the person in the video.
Human Subjects

Approval of the Human Subjects Investigation Committees of Wayne State University and the Institutional Review Boards at the three participating hospitals was obtained. Subjects were informed that this was a study of nurses and their perceptions of caring for patients with HIV. Each hospital was provided a summary of the results at the completion of the study. The summary was also made available to the participants, if they so indicated on a form. Nurse managers and research facilitators who helped coordinate data collection were also sent a copy of results.

Missing Data Decision Rules

Missing data decision rules were set prior to data analysis. For biographic variables such as age and gender, and experience variables such as number of hours of HIV/AIDS education, missing data would be reported as such. For scales consisting of items measured at the interval or ratio level, missing items were to be substituted by a mean score calculated from the remaining items that were responded to on that scale for that individual. This would create an average response-item to be expressed as a whole number with a two-digit decimal fraction to provide a more accurate representation of data for that individual subject (Tabachnick & Fidell, 1983). Missing items on the AIDS Knowledge Scale would be treated as incorrect. Up to 20% missing data would be tolerated for each scale. If more than 20% of items were missing on any one scale for an individual, then that subject’s data would be discarded.

Data Management and Analysis

All variables and their values were recorded in a codebook to ensure organization and accuracy. Variables were designated according to their level of measurement (nominal, ordinal, interval, and ratio). The CRUNCH-Version 4
(Crunch Software Corporation, 1991) statistical package was utilized for the system file and data analysis.
CHAPTER IV

RESULTS

This chapter presents the results of statistical analysis of the data. It includes a comparison of subjects included and excluded from the sample, a description of the sample, descriptive statistics of the major study variables in the pretest, assessment of the effectiveness of randomization, comparison of the sample across sites, and then the posttest results. Findings related to each research question are given. The chapter concludes with a summary of the salient findings.

Comparison of Subjects Included and Excluded from the Sample

Frequency distributions were examined on all variables to clean the data including identifying errors and outliers. Missing data were identified and treated according to the previously set decision rules discussed in Chapter III. The decision rule for handling occasional missing data was not applicable since subjects tended to either miss an entire page or an entire scale in the packet of the questionnaires.

Of the 209 subjects, 20 (9.57%) were eliminated from the analyses. Five subjects (2.4%) were eliminated due to failure to meet the inclusion criteria. One was eliminated as an outlier based on number of hours of AIDS education and number of persons cared for with HIV. This person reported having 4,000 hours of AIDS education and caring for 2,000 persons with HIV, whereas the next most extreme scores were 150 hours of AIDS education and 300 persons with HIV. Fourteen subjects (6.70%) were eliminated due to missing data and of these, four were called back to work on their units, thus interrupting their participation.

Biographic characteristics of all these subjects were compared to those retained (see Table 1) using chi-square and t tests. Subjects excluded from the final sample were significantly older (M = 44.80, SD = 10.95 versus M = 38.57,
Table 1

Comparison of Subjects Included and Excluded in Sample: Frequencies and Percentages

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Included in Sample (N = 189)</th>
<th>Excluded from Sample (N = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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<tr>
<td>20-29</td>
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<td>30-39</td>
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<td>55-66 (Maj. Bus. &amp; Prof.)</td>
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</tr>
<tr>
<td>45-54 (Med. Bus. &amp; Tech.)</td>
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<td>39.1</td>
</tr>
<tr>
<td>30-39 (Skilled Crafts)</td>
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<td>1.1</td>
</tr>
<tr>
<td><strong>Years of Clinical Experience</strong></td>
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<tr>
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<tr>
<td>Divorced, widowed, or separated</td>
<td>37</td>
<td>19.6</td>
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</table>

(table continues)
Table 1 (continued)

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<th>Characteristics</th>
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<th>Excluded from Sample (N = 20)</th>
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<tr>
<td></td>
<td>n</td>
<td>%</td>
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<td>One or more</td>
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<td>11.1</td>
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<tr>
<td>Importance of Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not important</td>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td>Somewhat important</td>
<td>49</td>
<td>25.9</td>
</tr>
<tr>
<td>Very important</td>
<td>61</td>
<td>32.3</td>
</tr>
<tr>
<td>Highly important</td>
<td>26</td>
<td>13.8</td>
</tr>
<tr>
<td>Extremely important</td>
<td>38</td>
<td>20.1</td>
</tr>
</tbody>
</table>
SD = 8.59) than those included (t [207] = -3.00, p < .05). They tended to be Hispanic and Asian/Pacific Islander ($X^2 [2, N = 209] = 16.29, p < .001$), Catholic ($X^2 [1, N = 184] = 6.61, p < .01$), and they placed greater importance on their religion ($r = .28, p < .01$). They also had more years of clinical nursing experience ($M = 20.83, SD = 12.58$ versus $M = 12.93, SD = 8.92; t [205] = -2.88, p < .05$). Not unexpectedly, age and number of years of clinical experience were highly related ($r = .95, p < .001$).

These findings suggest that nurses excluded from the study may have been "threatened" by it. Evidence supportive of this explanation stems from the difference between groups on age, religious preference, and ethnicity. It may be the case that older nurses had little exposure to nursing research since it is a relatively new, widespread development in nursing education and practice. Consequently, older nurses may not have had an educational background in nursing research and, therefore, were less committed to participate. Other evidence in support of this explanation comes from the finding that of those who failed to complete the questionnaire, 75% were either Hispanic or Asian/Pacific Islander, and Catholic. It may be the case that for these nurses, English is their second language and they required more time than they were willing to give to complete the questionnaire. It may also be that they felt uncomfortable being asked questions about their willingness to care for persons with HIV based on their religious preference.

It was noted that 4 out of 20 or one fifth of the nurses excluded from the study began filling out questionnaires, but were called back to their units to assist patients, thus interrupting their participation. This failure to complete the questionnaires was due to their work responsibilities. The fact they did not return later may have been due to the time involved with patients, other commitments after work, or perhaps their lack of interest in the study.
Description of Sample

Sample characteristics were categorized according to biographic, professional nursing characteristics, number of persons cared for with HIV and AIDS, and personal acquaintances with persons at risk for HIV.

Biographic Characteristics

The sample consisted primarily of white, married women with just over half having one or more children (see Table 1). Their mean age was 38.57 (SD = 8.59). The median age was comparable--38 years. Nearly 60% were classified, using the Hollingshead index, in the highest professional socioeconomic range (M = 54.28, SD = 5.51). Nearly 90% stated a religious preference with just over two fifths (40%) having identified themselves as Catholic and about one third (30%) Protestant. Not surprisingly, those who reported having a religious preference versus those who reported none placed greater importance on religion (r = .28, p < .001). Two thirds (66%) rated their religion highly to extremely important.

Professional Nursing Characteristics

With respect to nursing education, about half had a baccalaureate degree and nearly one third had an associate degree (see Table 2). Few had a graduate degree. Half worked in critical care and two fifths worked on medical-surgical units.

There were seven other variables measuring nursing experience. Frequency distributions for all, except average hours of direct patient care, were positively skewed and kurtotic. Square-root transformations were done in order to obtain a more accurate interpretation of the experience variables. The median, instead of the mean, therefore, is a better indicator of the sample’s experience (Tabachnik & Fidell, 1983). Therefore, square-root transformations of the following six variables were done to decrease skewness: (a) number of years of clinical experience, (b) number of hours of AIDS education, (c) number of persons with HIV cared for, (d) number of
Table 2

**Professional Characteristics of Sample: Frequencies and Percentages (N = 189)**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nursing Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>29</td>
<td>15.4</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>56</td>
<td>29.6</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
<td>93</td>
<td>49.2</td>
</tr>
<tr>
<td>Master's or Higher Degree</td>
<td>11</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Nursing Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Care</td>
<td>96</td>
<td>50.8</td>
</tr>
<tr>
<td>Medical-Surgical</td>
<td>75</td>
<td>39.7</td>
</tr>
<tr>
<td>Maternal-Child/Other</td>
<td>18</td>
<td>9.5</td>
</tr>
<tr>
<td><strong>No. of Years Clinical Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-9</td>
<td>72</td>
<td>38.1</td>
</tr>
<tr>
<td>10-19</td>
<td>73</td>
<td>38.6</td>
</tr>
<tr>
<td>20-29</td>
<td>32</td>
<td>16.9</td>
</tr>
<tr>
<td>30 and over</td>
<td>12</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>No. of Hours/Week Direct Patient Care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-20</td>
<td>30</td>
<td>15.9</td>
</tr>
<tr>
<td>21-40</td>
<td>144</td>
<td>76.2</td>
</tr>
<tr>
<td>41-60</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>60 and over</td>
<td>11</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>No. of Hours AIDS Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>10</td>
<td>5.3</td>
</tr>
<tr>
<td>1-5</td>
<td>48</td>
<td>25.4</td>
</tr>
<tr>
<td>6-10</td>
<td>48</td>
<td>6.8</td>
</tr>
<tr>
<td>11-15</td>
<td>14</td>
<td>14.3</td>
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<tr>
<td>16-20</td>
<td>27</td>
<td>22.8</td>
</tr>
<tr>
<td>20 and over</td>
<td>43</td>
<td>25.4</td>
</tr>
</tbody>
</table>
persons with HIV cared for in last 6 months, (e) number of persons with AIDS cared for, and (f) number of persons with AIDS cared for in last 6 months. Unless otherwise indicated, the descriptive statistics in this section refer to the raw data on these variables, whereas the statistical analysis described to answer the research questions was performed on the transformed variables.

Although there was a wide range (1-40) among the participants in their number of years of clinical experience, the mean and median of the raw data were fairly similar (M = 12.93, SD = 8.92 and Md = 12 years, respectively). Their average number of hours per week of direct patient care was 34.41 hours (SD = 13.64; Md = 36). Just over three quarters reported having 21 to 40 hours of direct patient care per week.

Ninety-five percent reported having one or more hours of AIDS education, and of these, 50% had between 1 and 10 hours. The median of the raw data was 10 hours and the mean was 16.62 (SD = 20.87). The difference between the median and mean was due to a few nurses who had between 130 and 150 hours of AIDS education.

**Number of Persons Cared for with HIV and AIDS**

Most nurses (90%) had cared for at least one or more persons with HIV and/or AIDS (see Table 3). The mean number of persons ever cared for with HIV (excluding AIDS) was 23.33 (SD = 38). However, the distribution was skewed. Thus the median of 10 is more typical of the number of persons cared for with HIV.

The mean number of persons ever cared for with AIDS (M = 24.18) was comparable to number of persons with HIV (M = 23.33); however, the standard deviations differed markedly (SD = 57.81 versus 38). The medians were quite similar (10 and 8, respectively). Only a few nurses reported caring for large numbers of persons with HIV or AIDS (i.e, 300 and 600 persons, respectively).
Table 3

Number of Persons Cared for With HIV and AIDS: Frequencies and Percentages (N = 189)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of persons ever cared for with HIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>17</td>
<td>9.0</td>
</tr>
<tr>
<td>1-5</td>
<td>54</td>
<td>28.6</td>
</tr>
<tr>
<td>6-10</td>
<td>32</td>
<td>16.9</td>
</tr>
<tr>
<td>11-15</td>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td>16-20</td>
<td>21</td>
<td>11.1</td>
</tr>
<tr>
<td>21 and over</td>
<td>50</td>
<td>26.5</td>
</tr>
<tr>
<td>No. of persons ever cared for with AIDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>14</td>
<td>7.4</td>
</tr>
<tr>
<td>1-5</td>
<td>65</td>
<td>34.4</td>
</tr>
<tr>
<td>6-10</td>
<td>31</td>
<td>16.4</td>
</tr>
<tr>
<td>11-15</td>
<td>18</td>
<td>9.5</td>
</tr>
<tr>
<td>16-20</td>
<td>22</td>
<td>11.7</td>
</tr>
<tr>
<td>21 and over</td>
<td>39</td>
<td>20.6</td>
</tr>
<tr>
<td>No. of persons cared for with HIV in last 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>56</td>
<td>29.6</td>
</tr>
<tr>
<td>1-5</td>
<td>90</td>
<td>47.6</td>
</tr>
<tr>
<td>6-10</td>
<td>25</td>
<td>13.2</td>
</tr>
<tr>
<td>11-15</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>16-20</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>21 and over</td>
<td>9</td>
<td>4.8</td>
</tr>
<tr>
<td>No. of persons cared for with AIDS in last 6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>82</td>
<td>43.4</td>
</tr>
<tr>
<td>1-5</td>
<td>71</td>
<td>37.6</td>
</tr>
<tr>
<td>6-10</td>
<td>17</td>
<td>9.0</td>
</tr>
<tr>
<td>11-15</td>
<td>7</td>
<td>3.6</td>
</tr>
<tr>
<td>16-20</td>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>21 and over</td>
<td>9</td>
<td>4.8</td>
</tr>
</tbody>
</table>
In the past 6 months, almost three quarters (70%) had cared for someone with HIV and nearly three fifths (57%) had cared for someone with AIDS. The mean number of persons cared for with HIV was 5 (SD = 11.18), whereas the mean number of persons cared for with AIDS was 6 (SD = 21.76). The medians were quite comparable, 2 and 1, respectively).

**Personal Acquaintances with Persons at Risk for HIV**

Nurses reported having a wide range (0-70) of acquaintances who were gay men (see Table 4). One sixth reported none. The mean number of acquaintances was 6 (SD = 9.14) and the median was 4. Approximately one third reported that they knew at least one to three gay men. This may be an indicator of most nurses being at least somewhat accepting of gay men. Further, there are many gay people who work in health care in San Diego. A Pearson correlation between number of acquaintances who are gay men and importance of religion revealed a significant, although weak, inverse relationship (r = -.20, p < .01). This implies that nurses who placed greater importance on their religious beliefs tended to have fewer personal acquaintances with gay men. Further analysis to examine this relationship was done using chi-square. Importance of religion was dichotomized into high (very, highly, or extremely important) and low (not at all and somewhat important) and the number of acquaintances of gay men into high (4 or more) and low (0 to 3). Results confirmed that nurses who placed a greater importance on religious beliefs tended to have fewer personal acquaintances with gay men ($X^2 [1, N = 189] = 4.83, p < .05$).

Very few nurses reported having personal acquaintances with injecting drug users. In fact, 85% reported having none. The mean number of nurses having acquaintances with injecting drug users was 0.33 (SD = 1.07).
Table 4

Personal Acquaintances with Persons at Risk for HIV: Frequencies and Percentages (N = 189)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of personal acquaintances with gay men</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>28</td>
<td>14.8</td>
</tr>
<tr>
<td>1-3</td>
<td>61</td>
<td>32.3</td>
</tr>
<tr>
<td>4-6</td>
<td>54</td>
<td>28.6</td>
</tr>
<tr>
<td>7 and over</td>
<td>46</td>
<td>24.3</td>
</tr>
<tr>
<td>No. of personal acquaintances with injecting drug users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>161</td>
<td>85.2</td>
</tr>
<tr>
<td>1-3</td>
<td>26</td>
<td>13.8</td>
</tr>
<tr>
<td>4-6</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>7 and over</td>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Pretest Results

Components of HIV-Related Attitudes

HIV-related attitude was conceptualized as consisting of three components (i.e., cognition, affect, and behavioral intention). Cognition was measured by scores on the AIDS Knowledge Survey (AKS), affect was measured by the Semantic Differential (Sem-D), and behavioral intention was measured by three scales: (a) nurse willingness to care for persons in general with HIV (NWS-Gen), (b) talking about death to persons in general with HIV (Talk-Gen), and (c) touching to provide physical or emotional care to persons in general with HIV (Touch-Gen).

Cognitive component--AIDS Knowledge Survey (AKS). The AKS scale was designed to measure HIV/AIDS knowledge of practicing nurses. It asked about signs and symptoms of HIV disease, co-factors of HIV infection, how HIV is transmitted, and major high-risk populations. Results revealed that nurses overall had fairly good knowledge of HIV/AIDS. The frequency distribution of scores was negatively skewed.
and kurtotic indicating that most of the sample had scores in the higher range. Scores ranged from 20 to 45 out of a possible range of 0 to 48. Interestingly, none of the nurses attained the highest possible score of 48. The mean was 38.08 (SD = 4.22); the median score was 34.

A positive, strong correlation between scores on the AKS and number of hours of AIDS education was expected. However, this was not found (r = .09, p = .21). This may have been due to having only “yes” or “no” answers which did not allow for various interpretations of the meanings of items. For example, two items asked if HIV could be transmitted by mouth-to-mouth resuscitation or prolonged skin contact with blood. The “correct” answer for these items was “yes.” However, many answered “no.” Several nurses inquired about the correct answer to these items after the data were collected. When told the answer, many of them indicated that the correct answer was based on the assumption that there was a break in the integrity of the mucous membranes of the oral cavity or skin. This reply suggests that these items were ambiguous.

Another explanation for the above finding may be that the AIDS education provided to these nurses did not adequately address all areas of the AIDS Knowledge Survey (AKS). For example, there were seven items asking about “co-factors,” a term which is relatively new in AIDS research and may have been unfamiliar to the respondents. Additionally, one item assessed beliefs about the accuracy of information provided by the Centers for Disease Control and Prevention (CDC). Although the correct answer was “yes” (i.e., the CDC does provide accurate information on AIDS), many nurses answered “no.” This may be due to the fact that information on AIDS is continuously changing or nurses may have been influenced by the television movie of “And the Band Played On” which was aired during the data collection period. Some nurses commented to the investigator that the movie...
influenced their "opinion" of the CDC and, therefore, they answered "no." This comment also suggests that the item measured beliefs rather than knowledge per se.

Based on these speculations, additional analyses were done by creating a second version of the AKS scale (called AKS-2) by removing the seven items on cofactors and the one item about the CDC. This revised scale had a total of 40 items and the frequency distribution of scores was similar to those on the original scale. The Pearson correlation between the original AKS and AKS-2 was very strong ($r = .96, p < .001$) indicating that removal of the items thought to be unfamiliar made little difference in assessing the nurses' knowledge. Therefore, the original AKS was used in the remaining analyses.

**Affective component--Semantic Differential (Sem-D).** The Semantic Differential (Sem-D) measured the affective or "feeling" component of attitude toward persons in general with HIV. Higher scores reflected more positive or favorable feelings. Scores on the Sem-D were normally distributed. They ranged from 14 to 56 out of a possible range of 8 to 56. The mean score was 34.53 ($SD = 6.85$) suggesting that nurses tended to be neutral or have a slightly positive affect toward persons in general with HIV.

**Behavioral component--Nurse Willingness Scale-General (NWS-Gen).** The NWS-Gen measured behavioral intention or willingness to care for persons in general with HIV. Nurses indicated how willing they were to perform basic nursing tasks, such as giving a bed bath or injecting a medication. Higher scores indicated greater willingness to care. The distribution of scores was negatively skewed and kurtotic indicating a "ceiling" effect (i.e., most nurses were willing to provide care). In fact, 48 (25.4%) of the nurses had the maximum score of 130 indicating complete willingness to care for persons with HIV. Scores ranged from 37 to 130 (out of a
possible 0 to 130) with a mean of 113.02 (SD = 20.72). The median score, 120, was slightly higher.

**Touching and Talking scales.** Additional indicators at pretest of nurse willingness to care for persons in general with HIV were assessed using two willingness to care scales: comfort in touching persons in general with HIV and comfort in talking about death and dying (Touch-Gen and Talk-Gen, respectively).

The scale, Touch-Gen, contained two items measuring the degree of comfort in touching persons to give physical and emotional care. Higher scores indicated greater comfort. Scores ranged from 0 to 20. The mean score was 17.21 (SD = 3.83). Eighty nurses (42.33%) had the highest score suggesting a "ceiling" effect. As expected, scores on the Touch-Gen scale were moderately correlated with those on the NWS-Gen ($r = .65, p < .001$). This finding provides additional construct validity for the NWS-Gen as both scales appear to measure nurses' willingness to provide care or comfort in providing care that involved touching.

The Talking scale (Talk-Gen) consists of five items assessing the degree of nurses' comfort in talking about death and dying to persons in general with HIV. Higher scores indicated greater comfort in talking. The distribution of scores was slightly negatively skewed and kurtotic indicating most nurses were comfortable in talking about death and dying to persons in general with HIV. Scores ranged from 6 to 50 out of a possible 0 to 50. The mean score was 33.23 (SD = 11.81). Only 10% of the nurses had the highest score. The Talk-Gen scale was slightly correlated with the NWS-Gen ($r = .27, p < .01$). Therefore, nurses who were comfortable in talking to patients tended to be willing to care for them.

As expected, the Talk-Gen and Touch-Gen scales were slightly correlated ($r = .26, p < .01$). Interestingly, by comparing the results of these two measures, it appears that although nurses were generally comfortable in touching patients and in
talking about death and dying with them, they were more comfortable touching them than talking to them.

**Correlations Between Components of Attitude**

Pearson correlation coefficients between the three components of attitude revealed that the affective component of attitude (Sem-D) was more strongly related to nurses' willingness to care (NWS-Gen) \( (r = .48, p < .001) \) than was the knowledge component--\( r = .08 \) (see Table 5). In other words, nurses who had more favorable feelings toward persons with HIV tended to be more willing to care for them. However, the relationship between the AKS scale and the NWS-Gen, and the AKS scale and Sem-D were not significant. This is an interesting finding since a major emphasis for changing nurse behaviors has usually been on increasing their AIDS knowledge (Armstrong-Esther & Hewitt, 1990; Goldenberg & Laschinger, 1991; Laschinger & Goldenberg, 1993; Young et al., 1989).

Table 5

**Pearson Correlations on Components of Attitude**

<table>
<thead>
<tr>
<th></th>
<th>AKS</th>
<th>Sem-D</th>
<th>NWS-Gen</th>
<th>Talk-Gen</th>
<th>Touch-Gen</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKS</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sem-D</td>
<td>-.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NWS-Gen</td>
<td>.08</td>
<td>.48*</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk-Gen</td>
<td>.05</td>
<td>.25*</td>
<td>.27*</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Touch-Gen</td>
<td>.08</td>
<td>.49*</td>
<td>.65*</td>
<td>.26*</td>
<td>1.0</td>
</tr>
</tbody>
</table>

\*\( p < .001 \).

**Note:** AKS = AIDS Knowledge Scale; Sem-D = Semantic Differential; NWS-Gen = Nurse Willingness Scale in General; Talk-Gen = Talking in General; Touch-Gen = Touching in General.
Contrary to expectation, there was no significant relationship between results on the AKS and the Talking and Touching scales. There was, however, a significant relationship between the Sem-D, a measure of affect, and both the Touch-Gen ($r = .49, p < .001$) and the Talk-Gen ($r = .25, p < .001$) scales. These results suggest that nurses who had more favorable feelings toward persons with HIV in general, also tended to be more comfortable in touching them to provide physical and emotional care, and more comfortable in talking to them about death and dying. This supports a relationship between one’s feeling (i.e., the affective component of attitude) and one’s willingness to care (i.e., the behavioral component of attitude).

**Predictors of Nurse Willingness to Care (NWS-Gen)**

Multiple regression analysis was done to determine the extent to which AIDS Knowledge scale scores and the Sem-D scores accounted for the variance in the pretest criterion measure of the Nurse Willingness Scale (NWS-Gen). Prior to the regression analysis, a correlation matrix of these predictor variables was constructed (see Table 5) and revealed that only the Sem-D was moderately correlated with the NWS-Gen ($r = .48, p < .001$). The AKS scale and Sem-D were entered simultaneously into the regression analysis. Not surprisingly, the results revealed that AIDS Knowledge (AKS) explained only 1% of the variance in willingness to care as measured by the NWS-Gen. With the effect of AKS held constant, the Sem-D or measure of affect accounted for 23% of the variance in willingness to care ($F[2,186] = 29.28, p < .001$).

**Assessment of Effectiveness of Randomization Across Mode of HIV Transmission**

To ensure that random assignment of subjects to mode of transmission was effective in distributing extraneous variables equally across groups, ANOVA and chi-square were done on the demographic, experience, and attitude variables. The
results revealed no significant differences on these variables across the three groups indicating that random assignment to mode of transmission was successful.

Comparison of Nurse Characteristics Across Sites

**Biographic characteristics.** Because the sample was drawn from three different hospitals, additional analyses using chi-square and ANOVA were done on all the nurse characteristics across sites. Of the biographic variables, there was a significant difference in age across hospital sites ($F [2,186] = 7.55, p < .001$). Post hoc comparisons using the Scheffé test ($p < .05$) indicated that the nurses at Hospital B were older ($M = 41.87, SD = 8.76$) than those at Hospital A ($M = 37.71, SD = 8.29$) and Hospital C ($M = 36.34, SD = 7.88$). Generally, it is not uncommon to find older nurses at Hospital B due to the type of benefit and retirement packages offered. There was no significant relationship between age and NWS-Gen.

**Professional nursing characteristics.** Of the professional nursing characteristics, there was a significant difference in nursing practice areas across sites. Practice areas were dichotomized into critical care and other. Chi-square indicated that 81% of the nurses at Hospital C worked in critical care compared to 25% and 44% at Hospital A and B, respectively ($X^2 [N = 2] = 41.61, p < .001$).

**Number of persons cared for with HIV and AIDS.** Of the number of persons cared for with HIV in the past 6 months, there was a significant difference across hospital sites ($F [188,2] = 4.97, p < .01$). Post hoc comparison using the Scheffé test ($p < .05$) indicated that the nurses at Hospital C reported caring for fewer ($M = 2.10, SD = 5.18$) persons with HIV in the past 6 months compared to nurses at Hospital A and B ($M = 5.16, SD = 7.80$; and $M = 8.21, SD = 16.78$, respectively). Not surprisingly, nurses at Hospital C also reported caring for fewer persons with AIDS in the past 6 months than did nurses at either Hospital A or B.
Personal acquaintances with persons at risk for HIV. Across hospital sites, there was no difference in the number of personal acquaintances reported by the nurses with persons at risk for HIV (i.e., gay men and injecting drug users).

Comparison of Components of Attitude Across Sites

One-way ANOVA revealed no other differences on the NWS-Gen, AKS, Sem-D, Talk-Gen, and Touch-Gen across sites. Therefore, for the remainder of analyses, the three groups of nurses were considered equivalent. Correlations were done between the variables of age, nursing practice areas, and number of persons cared for with HIV and AIDS and the outcome variables of NWS-Specific, Talk-Specific, and Touch-Specific and were not found to be statistically significant. Therefore, these variables were not treated as co-variates or predictor variables in the final analysis.

Effectiveness of Intervention: Perceived Mode of Transmission.

It was found that just under half (46.03%) of the nurses failed to recall at posttest the information about mode of transmission given prior to their watching the video. This was determined by examining fill-in-the-blank responses to the item in the posttest, “please state how Mark became infected by HIV.” As shown in Table 6, of the three groups assigned to mode of transmission, 6% to 12% misidentified mode, 12% to 23% stated “I don’t know,” and 17% to 24% had missing data. When all groups are combined, 9.5% misidentified mode, 18.4% stated “I don’t know,” and 20.1% had missing data. Of the three groups assigned to modes of transmission, 51% of the gay sex and injecting drug group and 59% of the blood transfusion group read and correctly retained the information given on mode of transmission.

ANOVA results on the three groups and two categories of “I don’t know” and “missing data” revealed that there were no significant differences in NWS-Specific across perceived modes of transmission. The F-max test revealed that the
distribution violated the assumption of homogeneity of variance. Chi-square results confirmed that there were no significant differences in high or low nurse willingness across the three modes of transmission groups and the two categories. This finding suggests that the nurses were generally willing to care for patients with HIV regardless of the mode of transmission. In addition, chi-square was done and revealed there were no significant differences in nurse willingness (both NWS-Gen and NWS-Specific) across hospital sites.

Table 6

Frequencies and Percentages of Assigned Versus Perceived Mode of Transmission

<table>
<thead>
<tr>
<th>Perceived Mode of HIV Transmission</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood transfusion</td>
<td>35</td>
<td>59.3</td>
</tr>
<tr>
<td>I don't know</td>
<td>7</td>
<td>11.9</td>
</tr>
<tr>
<td>No response</td>
<td>10</td>
<td>16.9</td>
</tr>
<tr>
<td>Answered drug use or gay sex</td>
<td>7</td>
<td>11.9</td>
</tr>
<tr>
<td>Total number in group</td>
<td>59</td>
<td>100.0</td>
</tr>
<tr>
<td>Injecting drug use</td>
<td>34</td>
<td>51.5</td>
</tr>
<tr>
<td>I don't know</td>
<td>9</td>
<td>13.6</td>
</tr>
<tr>
<td>No response</td>
<td>16</td>
<td>24.3</td>
</tr>
<tr>
<td>Answered blood transfusion or gay sex</td>
<td>7</td>
<td>10.6</td>
</tr>
<tr>
<td>Total number in group</td>
<td>66</td>
<td>100.0</td>
</tr>
<tr>
<td>Gay sexual activity</td>
<td>33</td>
<td>51.6</td>
</tr>
<tr>
<td>I don't know</td>
<td>15</td>
<td>23.4</td>
</tr>
<tr>
<td>No response</td>
<td>12</td>
<td>18.7</td>
</tr>
<tr>
<td>Answered blood transfusion or drug use</td>
<td>4</td>
<td>6.3</td>
</tr>
<tr>
<td>Total number in group</td>
<td>64</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Posttest Results

Nurses' Judgments Toward a Specific Person with HIV

Two judgments were examined. They were defined as the nurses' evaluative judgment of the specific patient (i.e., patients varied according to how each one
acquired HIV—blood transfusion, injecting drugs, or gay sex) in the video and the nurses' predictive judgment of occupational risk of acquiring HIV infection (i.e., Risk of Contagion).

**Nurses' evaluative judgment of the patient.** The Evaluative Judgment scale included items about the patient's responsibility for his illness, the extent to which he could be "blamed" for it, and his worthiness to receive sympathy, understanding, and health care. The distribution of scores was slightly positively skewed and kurtotic. The scale's values could range from 18 to 126 with higher scores indicating harsher judgments. The mean score was 39.17 (SD = 12.35) which was well below the scale's midpoint of 54; the median was 39. These results indicate that, on average, nurses tended to make less harsh judgments toward the specific person with HIV in the video.

A one-way ANOVA to examine the influence of three modes of HIV transmission on Evaluative Judgment scale showed significant differences ($F_{[187,2]} = 18.12, p < .001$). Post hoc comparison using the Scheffé test revealed that nurses made kinder judgments toward persons who acquired HIV from a blood transfusion ($p < .001$). An additional one-way ANOVA was done using the three modes of HIV transmission plus the categories of "I don't know" and missing data. Results indicated significant differences ($F_{[187,4]} = 20.06, p < .001$). Post hoc comparison using the Scheffé test revealed that nurses made kinder judgments about persons who acquired HIV from blood transfusions than those who acquired HIV through gay sexual activity or injecting drug use ($p < .001$). These findings have been supported from previous research (Forrester & Murphy, 1992; Kelly et al., 1988; Strasser & Damrosch, 1992).

**Nurses' predictive judgment of occupational risk of infection.** The Risk of Contagion scale included items measuring the degree of perceived risk for
contracting HIV from a specific patient while using universal blood and body fluid precautions. The scale's distribution was slightly positively skewed and kurtotic. A slight “floor” effect was observed with 29 (15.34%) nurses indicating they felt little or no risk of contagion in caring for the specific person in the video. The mean score was 10.84 (SD = 5.52). Scores ranged from 4 to 25 (out of a possible range of 4 to 28). This finding suggests that nurses, overall, tended to report less risk of contagion while using precautions. A one-way ANOVA to examine risk of contagion across mode of transmission revealed no significant differences between groups.

Evaluative Judgment and Risk of Contagion were positively correlated (r = .35, p < .001). This finding is interpreted to mean that nurses who reported less fear of contagion also made kinder judgments about persons with AIDS, a finding supported in previous studies (Goldenberg & Laschinger, 1991; Jemmott, Freleicher et al., 1992; Jemmott, Jemmott et al., 1992; Wallack, 1989). There was also a significant moderately strong inverse relationship between Risk of Contagion and NWS-Specific (r = -.56, p < .001) suggesting that nurses who had less fear of contracting HIV were more willing to care for a specific person with HIV. There was also a significant inverse relationship between Evaluative Judgment and NWS-Specific (r = -.41, p < .001) suggesting that nurses who made kinder judgments about a specific person with HIV were more willing to care for him.

Willingness to Care for a Specific Person with HIV as a Function of How He Acquired HIV

Nurses' Willingness to Care-Specific. Higher scores on the NWS-Specific scale indicated a greater willingness to care. Scores ranged from 35 to 130 out of a possible 0 to 130. The mean score was 113.77 (SD = 19.62). The median score
was somewhat higher—119. Approximately one quarter (23.81%) reported they were completely willing to care for the person in the video. This result suggests a moderate "ceiling" effect.

Talking and touching. Talking and Touching scales in the posttest were directed toward the person in the video and, therefore, are referred to as Talk-Specific and Touch-Specific. Higher scores indicated greater comfort in talking and in touching. Scores on Touch-Specific ranged from 2 to 20. The distribution of scores was skewed. The Touch-Specific mean score was 17.24 (SD = 3.63). Seventy-six (40.21%) of the subjects reported feeling completely comfortable in touching Mark, the specific person, to provide physical and emotional comfort. This result reflects a "ceiling" effect.

The distribution of Talk-Specific scores indicated that the nurses were generally comfortable talking about death and dying. Scores ranged from 0 to 50; the mean score was 32.06 (SD = 11.95). Scores on the Talk-Specific were slightly correlated with the dependent variable of NWS-Specific (r = .26, p < .001), whereas scores on Touch-Specific were moderately correlated with the NWS-Specific (r = .64, p < .001). As expected, these results indicate that nurses who were willing to care (i.e., perform nursing care such as giving a bed bath or an injection) for the specific person in the video, also reported feeling more comfortable in touching that person to provide physical or emotional comfort and somewhat comfortable in talking about death and dying.

A one-way ANOVA was done to determine the influence of mode of HIV transmission on both the Touch-Specific and Talk-Specific scales. No significant differences were found.
Pre- and Post-test Comparisons of Nurse Willingness, Talking and Touching: t Tests and Correlations

To compare the pre- and post-test scores on the Talking, Touching, and Nurse Willingness measures, paired t tests were done (see Table 7). Results revealed there were no significant differences in pre- and post-test scores. Pearson correlations were done and, not unexpectedly, revealed that pre- and post-test scores were highly correlated ranging from $r = .63$ to $r = .88$, $p < .001$.

Pre- and Post-test Difference Scores Across Mode of HIV Transmission

Differences in pretest and posttest scores of the Nurse Willingness scales and the Talking and Touching scales were examined using one-way ANOVA across the three modes of transmission. There were no significant differences in the pre- and post-test difference scores. Another ANOVA was done using the three modes plus categories of "I don't know" and missing data and again, the results revealed no significant differences.

Table 7

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest</th>
<th>Paired t test</th>
<th>Pearson r</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Touching Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.21</td>
<td>17.25</td>
<td>t(188) = -0.23</td>
<td>$r = .72$</td>
</tr>
<tr>
<td>SD</td>
<td>3.83</td>
<td>3.63</td>
<td>$p = .82$</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td><strong>Talking Scale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>33.23</td>
<td>32.06</td>
<td>t(188) = 1.64</td>
<td>$r = .66$</td>
</tr>
<tr>
<td>SD</td>
<td>11.81</td>
<td>11.95</td>
<td>$p = .10$</td>
<td>$p = .10$</td>
</tr>
<tr>
<td><strong>Nurse Willingness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>113.02</td>
<td>113.77</td>
<td>t(188) = -1.03</td>
<td>$r = .88$</td>
</tr>
<tr>
<td>SD</td>
<td>20.76</td>
<td>19.62</td>
<td>$p = .03$</td>
<td>$p &lt; .001$</td>
</tr>
</tbody>
</table>
Comparison of Posttest Measures Across Hospital Sites

Comparison of posttest measures across hospital sites was done using one-way ANOVAs. There were no differences in the Evaluative Judgment, Risk of Contagion, NWS-Specific, or Touch-Specific scores across sites. However, a significant difference was found in the scale Talk-Specific ($F_{[2,186]} = 8.17, p < .001$) (see Table 8). Post hoc comparison using the Scheffé test ($p < .05$) indicated that nurses at Hospital A had lower scores with a mean of 27.64 (SD = 12.22) than the nurses at the other two hospitals with a mean of 36.03 (SD = 11.08) and 32.48 (SD = 11.24) at Hospital B and C, respectively. These scores indicated that nurses at Hospital A were less comfortable in talking about death and dying to Mark than the nurses at the other two hospitals.

Assumptions

The research questions were answered using ANOVA and Multiple Regression analysis. The assumptions for ANOVA include normality, homogeneity of variance, and independence of observations. Frequency distributions were checked for normality. The majority of variables were highly skewed and kurtotic and, therefore, violated the assumptions of normality. For example, the results on the NWS-Specific were highly negatively skewed and kurtotic. Data transformation was considered; however, it was clear that there was a "ceiling" effect with 45 (23.81%) nurses reporting they were completely willing to care for the specific person in the video. This "ceiling" effect could not be eliminated by any commonly used data transformations. Consequently, it was decided to dichotomize NWS-Specific at the median of 119 into "high" and "low" willingness to care. Research questions were answered by examining the raw data and then those results were confirmed using the dichotomized data.
Table 8

Comparisons of Means and Standard Deviations of Talking and Touching Scales Across Hospital Sites (N= 189)

<table>
<thead>
<tr>
<th></th>
<th>Hospital A (n = 61)</th>
<th>Hospital B (n = 61)</th>
<th>Hospital C (n = 67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talking-Gen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>31.07</td>
<td>35.10</td>
<td>33.51</td>
</tr>
<tr>
<td>SD</td>
<td>11.83</td>
<td>12.56</td>
<td>10.91</td>
</tr>
<tr>
<td>Touching-Gen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.13</td>
<td>16.93</td>
<td>17.52</td>
</tr>
<tr>
<td>SD</td>
<td>3.57</td>
<td>4.14</td>
<td>4.14</td>
</tr>
<tr>
<td>Talking-Specific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>27.64*</td>
<td>36.03</td>
<td>32.48</td>
</tr>
<tr>
<td>SD</td>
<td>12.22</td>
<td>11.08</td>
<td>11.24</td>
</tr>
<tr>
<td>Touching-Specific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.13</td>
<td>17.20</td>
<td>17.42</td>
</tr>
<tr>
<td>SD</td>
<td>3.17</td>
<td>3.73</td>
<td>3.97</td>
</tr>
</tbody>
</table>

*p < .001.

Note: Higher scores indicate greater comfort in Talking and Touching. There was a significant difference in means using one-way ANOVA (F [2,186] = 8.17, p < .001) and the Scheffé test (p < .05).
The F-max test was used to determine homogeneity of variance. It was also found that the results on the NWS-Specific scale violated this assumption. An effort was made to ensure independence of observations by requesting subjects not to discuss the contents of the questionnaire until all data were collected. The additional assumptions for Multiple Regression analysis include homoscedasticity and linearity. No violations of these assumptions were found. Computation of Cook's D (Cook & Weisberb, 1982) was done to identify multivariate outliers. No outliers were found.

Findings Related to Research Questions

In this section, results of the data analysis related to the research questions are presented. The first research question was: "Is there a statistically significant difference in nurses' willingness to care for persons with HIV based on mode of transmission?" Although the distribution of scores on the dependent variable, NWS-Specific, violated the assumption of normality, a one-way ANOVA using mode of transmission as the independent variable and NWS-Specific as the dependent variable was done using raw data. No significant differences in willingness to care for a specific person by mode of HIV transmission were found ($F_{[2,186]} = 1.81, p = .17$).

Using the F-max test, the distribution of scores was found to violate the assumption of homogeneity of variance. There was greater variability in willingness in the group assigned to gay sexual activity. The range for blood transfusion was 65-130 ($SD = 14.53$); for injecting drug use 57-130 ($SD = 15.78$); and for gay sex 35-130 ($SD = 25.98$). This indicates that nurses in the latter group had the lowest willingness scores.

Because the assumptions of normality and homogeneity of variance were both violated, chi-square was also done to confirm these results. The NWS-Specific variable was dichotomized at the median into high and low willingness and
compared across mode of HIV transmission. The analysis confirmed there were no differences in frequencies of willingness across mode of transmission ($X^2[2, N = 189] = .012, p = .99$).

A one-way ANOVA was done to determine the influence of mode of HIV transmission on both the Touch-Specific and Talk-Specific scales. No significant differences were found. This finding was not unexpected since each scale was either slightly or moderately correlated with the NWS-Specific. Multivariate Analysis of Variance (MANOVA) was not done due to the overlap in the three dependent measures of willingness to care.

The second research question was: “To what extent does nurses' willingness to care for a person with HIV vary as a function of how he acquired HIV, above and beyond the variance accounted for by nurse characteristics and attitude?” The three modes of HIV transmission examined were (a) blood transfusion, (b) injecting drug use, or (c) gay sexual activity.

This research question was answered using hierarchical Multiple Regression beginning with biographic data. Biographic variables that were highly skewed such as number of children and importance of religion were dichotomized at the median into high and low before being entered into the equation. Variables such as marital status, ethnicity, religion, nursing education, and sexual preference were dichotomized into two groups (i.e., married and non-married, white and non-white, Catholic and non-Catholic, diploma/ADN and BSN and higher, and heterosexual and non-heterosexual, respectively). Two analyses were done.

In the first regression equation, all biographic variables were entered simultaneously using the Hollingshead Four-Factor Index which combines into one value (i.e., index) occupation, education, gender, and marital status. It was found that biographic variables (i.e., age, Hollingshead Index, sexual preference, number of
children, ethnicity, religion and importance of religion) accounted for a nonsignificant 3.1% of the variance in NWS-Specific \( (F[7, 178] = .82, p = .57) \). In the second regression equation, the Hollingshead Index was not used and instead the four individual items were entered along with the other biographic variables. It was again found that the biographic variables accounted for a nonsignificant 3.3% of the variance \( (F[11, 176] = .68, p = .73) \). Examination of the beta weights revealed that none of the biographic variables was a significant predictor of NWS-Specific and therefore, they were eliminated from further analysis.

In the next regression equation, the HIV-related nursing experience and personal acquaintance variables were entered simultaneously as predictors of NWS-Specific. Average hours of direct patient care per week was entered as raw data whereas the following were entered as transformed data: number of years of clinical experience, nursing practice area (dummy code 0-1), number of hours of AIDS education, number of persons cared for with HIV, number of persons cared for with HIV in past 6 months, number of persons cared for with AIDS, and number of persons cared for with AIDS in past 6 months. Number of acquaintances with gay men was dichotomized at the median. Together these nine variables accounted for a nonsignificant 1.8% of the variance in NWS-Specific \( (F[10, 178] = .33, p = .97) \). Examination of the beta weights showed that none of the experience variables was a significant predictor of NWS-Specific and, therefore, they were not retained for further analysis.

Multiple regression analysis was also done using nurse attitude as measured by the scales of AIDS Knowledge (AKS), the Semantic Differential (Sem-D) and NWS-Gen. It was found that together they accounted for a significant amount of the variance (78.6%) in NWS-Specific \( (F[3, 185] = 226.83, p < .001) \). Of these variables, the beta weights revealed that the Sem-D and NWS-Gen accounted for the greatest
amount of variance. In examining the univariate relationships, it was found that the NWS-Gen was highly correlated with the NWS-Specific ($r = .88, p < .001$). Looking at the squared partial correlations, NWS-Gen contributed a unique variance of 49% ($R^2 = .78$), whereas Semantic Differential contributed 15% and the AKS contributed 1.6% of the variance in willingness to care for Mark. Because the NWS-Gen had such high overlap with the outcome measure NWS-Specific, it was decided to eliminate NWS-Gen from the equation in order to examine the contribution of the other predictors.

Therefore, a second multiple regression analysis was done using only the AKS and Sem-D as predictors of NWS-Specific and both emerged as significant predictors (see Table 9). Together they accounted for 29.4% of the variance ($F [2,186] = 38, p < .001$). Both AKS and Sem-D contributed unique variance: the Sem-D contributed 28.4% and the AKS contributed 1.6% of the variance. This finding suggests that the affective component of attitude is a better predictor and explains more variance in nurse willingness to provide care than knowledge. It was decided to retain both of these variables in subsequent analysis.

Table 9

<table>
<thead>
<tr>
<th>Multiple Regression Analysis Results of AKS, Semantic Differential, and Mode of Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>R² End of Step One</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>AKS &amp; Sem. Diff.</td>
</tr>
<tr>
<td>Mode of Trans.</td>
</tr>
</tbody>
</table>

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In the final regression equation, AKS and Sem-D were entered on step one, followed by mode of transmission to determine if it would account for any additional variance in nurse willingness to care. The three modes of transmission were dummy coded prior to entry in the multiple regression equation. Two of the three dummy variables were entered simultaneously and as shown in Table 9, results indicated that mode of transmission accounted for an additional nonsignificant 0.92% of the variance in NWS-Specific.

The last research question was: “To what extent do nurses' evaluative judgment of the patient and predictive judgment of risk of contracting HIV, taken singly and in combination, account for the variance in nurses' willingness to care for a person with HIV infection, above and beyond the variance accounted for by nurse characteristics, attitude, and mode of transmission?”

Hierarchical multiple regression analysis was done to determine the extent to which evaluative judgment and predictive judgment accounted for the variance in nurse willingness to care for a person with HIV infection. As can be seen in Table 10, the AKS and Sem-D, which were significant predictors of NWS-Specific, and mode of transmission accounted for 30.3% (p < .001) in the variance in NWS-Specific. They were, therefore, retained in the regression equation. Evaluative Judgment scores were then entered. They accounted for an additional 7.4% (p < .001) of the variance. Evaluative Judgment was removed and Predictive Judgment (i.e., Risk of Contagion) was entered next. It accounted for an additional 15.3% (p < .001) of the variance in NWS-Specific. To determine the combined effect of both evaluative and predictive judgment on willingness to provide care, they were added simultaneously to the already existing predictors of AKS, Sem-D, and mode of transmission. Together, Evaluative and Predictive Judgment accounted for an additional 18.5% of the variance. This result suggests that Evaluative Judgment and
Predictive Judgment were both predictors of nurse willingness above and beyond that of the knowledge and affect components of attitude. Predictive Judgment (i.e., Risk of Contagion) was found to be a better predictor than evaluative judgment based on examination of beta weights (Risk of Contagion = -0.38; Evaluative Judgment = -0.22).

Table 10
Hierarchical Regression Results of Nurse Attitude (AIDS Knowledge [AKS] and Semantic Differential), Mode of Transmission, and Judgment (Risk of Contagion and Evaluative Judgment) on Nurse Willingness-Mark (NWS-Specific)

<table>
<thead>
<tr>
<th></th>
<th>R² End of Step One</th>
<th>R² Change from Previous Step</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKS Sem. Differential</td>
<td>.3034</td>
<td>.3034</td>
<td>26.84</td>
<td>.001</td>
</tr>
<tr>
<td>Mode of Transmission</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluative Judgment</td>
<td>.3774</td>
<td>.0740</td>
<td>26.20</td>
<td>.001</td>
</tr>
<tr>
<td>Risk of Contagion</td>
<td>.4564</td>
<td>.1530</td>
<td>54.16</td>
<td>.001</td>
</tr>
<tr>
<td>(without Evaluative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Judgment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluative Judgment and</td>
<td>.4885</td>
<td>.1851</td>
<td>32.76</td>
<td>.001</td>
</tr>
<tr>
<td>Risk of Contagion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(together)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary of Results

Descriptive statistics to examine the biographic and experience characteristics of the sample revealed little diversity in the sample across hospital sites. There were only three exceptions—age, area of nursing practice, and number of persons cared for with HIV and AIDS in the past 6 months. Nurses in Hospital C worked primarily
in critical care and reported having significantly less experience caring for persons with HIV and AIDS in the past 6 months. Nurses in Hospital B were significantly older than nurses in the other two hospitals. However, Pearson correlations between these biographic variables and the dependent measures of nurse willingness (i.e., NWS-Specific, Talk-Specific, and Touch-Specific) were not significant. Therefore, they were not used as covariates.

Nurses tended to have neutral to positive attitudes toward persons in general with HIV as indicated by fairly good knowledge of HIV/AIDS, by neutral to slightly positive feelings toward persons with HIV, and by their strong willingness to care as indicated by the three measures of willingness in the pretest (i.e., NWS-Gen, Talk-Gen, Touch-Gen). Relationships between the measures of attitude (AKS, Sem-D, NWS-Gen, Talk-Gen, Touch-Gen) were examined using Pearson r correlations. Results indicated that the scores on the Sem-D were more strongly related to the scores on the three nurse willingness measures than the scores on the AIDS Knowledge Scale. Multiple regression analysis also indicated that the Sem-D or nurses' affect toward persons with HIV was a better predictor of nurses' willingness to care than their knowledge of HIV/AIDS.

One-way ANOVA and chi-square were done to determine that the randomization of mode of transmission across groups was effective. There were no differences in nurse characteristics, attitudes, or willingness across mode of transmission.

Posttest results indicated that overall, nurses generally held kind judgments toward the person in the video. One-way ANOVA indicated, however, that they made significantly kinder judgments toward persons who acquired HIV from a blood transfusion than from injecting drug use or gay sex.
Nurses overall also reported less risk of contagion using precautions. There were no differences in perceived risk of contagion across mode of transmission groups. Using Pearson correlations, it was found that nurses who made less kind judgments and perceived greater risk of contagion were less willing to care for the person in the video.

There were differences across hospital sites in nurses feeling comfortable talking about death and dying to a person with HIV. Using one-way ANOVA followed by post-hoc comparison with the Scheffé test, it was found that the nurses at Hospital A reported less comfort in talking about death and dying than the nurses in Hospitals B and C.

The first research question inquired whether there was a significant difference in nurses' willingness to care based on mode of HIV transmission. Using one-way ANOVA, no statistically significant difference in nurses' willingness to care for persons with HIV based on mode of transmission was found. Because the distribution of scores on the NWS-Specific violated the assumptions of ANOVA, the scores were dichotomized at the median and chi-square was done. Results confirmed that there were no differences in frequencies of willingness to care across HIV mode of transmission groups. There were also no differences in nurses' comfortableness in talking to or touching patients across mode of HIV transmission groups.

The second research question focused on the variance in nurse willingness to care accounted for by nurse characteristics and attitude beyond that of HIV mode of transmission. Using hierarchical multiple regression, it was found that mode of transmission did not contribute significantly to the variance in nurse willingness above and beyond that of nurse characteristics and attitude. In the first equation, the biographic variables accounted for a nonsignificant 3.3% of the variance in nurse willingness to care. In the next equation, variables measuring HIV-related
experience accounted for a nonsignificant 1.8% of the variance. In the third equation, the nurses' knowledge of AIDS accounted for 1.6% of the variance in willingness to care and their feelings (i.e., affect) toward a person with HIV accounted for an additional 28.4% of the variance. Holding these variables constant, mode of HIV transmission was entered into the equation; it accounted for only 0.92% of the variance in nurse willingness to care.

The third research question, to determine the extent to which evaluative and predictive judgment accounted for the variance in nurse willingness, was answered using hierarchical multiple regression. In the first equation, AIDS knowledge, affect, and mode of transmission accounted for 30% of the variance in nurse willingness to care. Then evaluative judgment was entered separately; it accounted for an additional 7.4% of the variance. Predictive judgment was entered separately and it accounted for 15.3% of the variance. The combined effect of evaluative judgment and predictive judgment accounted for 18.5% of the variance indicating that together they predicted nurse willingness to care above and beyond AIDS knowledge and nurses' feelings about persons in general with HIV. Predictive judgment compared to evaluative judgment was found to be the better predictor based on the beta weights.

In summary, the most significant predictors of nurses' willingness to care for a person with HIV were perceived risk of contagion, nurses' feelings toward persons in general with HIV, and nurses' evaluative judgment of the person with HIV. Mode of HIV transmission alone was not a significant predictor of willingness to care. Mode of transmission was related to evaluative judgment, which was a significant predictor, and, therefore, mode was indirectly related to willingness to care.
CHAPTER V

DISCUSSION

In this chapter a discussion of the salient findings of the study is presented. It is organized according to an overview of the research strategy, interpretation of the findings for the research questions, implications of the results with respect to King's Model–Reformulated, limitations of the study, and implications of the findings for future research, nursing education and practice.

Overview of the Research Strategy

The purpose of this study was to examine the influence that information on mode of HIV transmission had on nurses' willingness to care for persons with HIV (PWHs). The research was designed using a reformulation of King's Model of Human Interactions. Nurses were randomly assigned to one of three intervention groups based on HIV mode of transmission (i.e., blood transfusion, injecting drug use, or gay sex) followed by viewing a 3-minute video of a person with HIV. Respondents were given pencil and paper questionnaires prior to this intervention to measure their biographic, professional characteristics, and HIV-related attitudes including three measures of nurse willingness to provide care. Following the intervention, their evaluative and predictive judgments were measured, and three measures of willingness to care for the patient in the video were obtained.

This study was unique because (a) it was theoretically guided by the researcher's reformulation of King's Model of Human Interactions; (b) three instruments were used to measure nurse willingness to provide "bedside" care; (c) attitude was conceptualized as consisting of three components—cognition, affect, and behavioral intention; (d) a video-tape of a simulated patient rather than a written vignette to describe a patient was used in order to make the patient more realistic;
(e) a quasi-experimental design wherein subjects were randomly assigned to the
treatment condition (i.e., written information on HIV mode of transmission) was used;
and (f) a sample of nurses from three hospitals was obtained to increase the
generalizability of findings.

Nurses' Willingness to Care for Persons with HIV Disease

Effect of Mode of HIV Transmission on Nurses' Willingness to Care

The majority of nurses were willing to care for persons in general with HIV
and for the patient in the video regardless of mode of transmission. Results
indicated strong "ceiling effects" on all the nurse willingness measures, including
touching and talking. Mode of HIV transmission was not related to nurse willingness
to care.

It was noted that there was a greater variability in the responses of willing­
ness to care in the group of nurses who were assigned to the gay sex mode of
transmission condition. Nurses assigned to this condition had a wider range of
scores on willingness, including lower scores (or less willingness). One explanation
for this may be related to nurses being homophobic. Studies have shown that some
nurses are reluctant to care for persons who are gay (Barrick, 1988; Douglas et al.,
1985; Kelly et al., 1988; Strasser & Damrosch, 1992; van Servellen et al., 1988;
Wallack, 1989; Young, 1988).

Effect of Mode of HIV Transmission on Talking and Touching

There were no significant differences in nurses' comfort in talking about death
and dying and touching patients with HIV across mode of transmission. As with the
nurse willingness scale, these measures had "ceiling effects" indicating that most
nurses were comfortable in talking and touching persons in general with HIV and the
specific person with HIV in the video. There are several possible explanations for
these findings.
One explanation is that willingness to provide care is influenced by factors other than mode of HIV transmission. This finding was supported in a study recently reported by Cole and Slocumb (1994) who used a similar research design to isolate the effect of mode of transmission on willingness to provide care using several written vignettes. Their results support the findings of this study that there were no statistically significant differences in nurses' intentions to care for persons with HIV based on how they acquired HIV. Cole and Slocumb (1994) studied intentions to care for both males and females and included heterosexual transmission as well as gay sex, injecting drug use, and blood transfusion. They found that comfort in performing the behavior was the only predictor of nurses' intentions to care.

**Self-selection.** Nurses who participated in the study, compared to those who did not, may have been more willing to care for persons with HIV regardless of how they acquired HIV. This explanation would account for the "ceiling" effect observed at pretest on willingness to care, talking, and touching, as well as the lack of a significant difference between groups at posttest after the independent variable, mode of HIV transmission, had been manipulated.

Their willingness may be explained by the ethical standard of care outlined by the American Nurses' Association in the *Code for Nurses with Interpretive Statements* (1985). The first statement of this code asserts that it is the nurse's professional responsibility to provide care to all clients regardless of their uniqueness and "unrestricted by considerations of social or economic status, personal attributes, or the nature of health problems" (ANA, 1985, p. 1). Nurses in the study may have responded according to their ethical commitment to care for all patients.

Earlier studies have indicated that nurses were reluctant or refused to care for persons who had AIDS (Blumenfield et al., 1987; Forrester & Murphy, 1992; Kelly et al., 1988; Strasser & Damrosch, 1992). Some of this reluctance was attributed to
the fact that HIV was found primarily in gay and bisexual men and injecting drug
users. The widespread prevalence of HIV disease and its increased incidence in
women, children, adolescents, and persons of color may explain a greater willing­
ness to care.

**Experiential effect.** This explanation is related to the former. Here the focus
is on the finding that 90% of the nurses had cared for at least one person who had
HIV or AIDS. The median number of persons cared for with HIV was 10 and the
median number of those with AIDS was 8. It may be the case that because the
nurses overall had at least some experience in caring for persons with HIV disease,
they were willing to provide care to others. It is recommended that these explana­
tions be translated into hypotheses and tested in future research using a probability
sample of nurses from a population of nurses which covers the continuum ranging
from nurses who have not knowingly cared for persons with HIV to those who have
cared for a substantial number of persons with HIV/AIDS.

Another explanation may be related to the prevalence of persons with HIV
disease in San Diego County. In the year 1994 alone, there were 639 newly
diagnosed cases of AIDS and 78 deaths from AIDS reported by the San Diego
County Department of Health Services (1994). From 1981 to 1994, there has been
a total of 6,364 reported cases of AIDS and 3,979 deaths in San Diego County, and
it is estimated that 1 out of 100 people in San Diego County are infected with HIV.
The prevalence of HIV and AIDS may have influenced more health care providers,
including nurses, in the San Diego area to be more accepting of persons with HIV
disease.

**Instrumentation effect.** This explanation refers to the possibility that the Nurse
Willingness, Talking, and Touching scales were not sufficiently sensitive to
discriminate between degrees of willingness to provide care. One explanation for
the lack of sensitivity to discriminate degrees of willingness is that the original Nurse Willingness Questionnaire was tested using a written vignette that described a patient with AIDS who was very sick and required demanding nursing care (Dubbert et al., 1994). He was diagnosed with pneumocystis pneumonia and had an elevated temperature, pronounced respirations, and heavy perspiration. He had an intravenous drip, external condom catheter, and was vomiting and incontinent of stool. He was confused and was restrained in a posey belt. Preliminary studies to determine the scale's content validity, convergent and discriminant validity, test-retest reliability, and internal consistency were done on this written vignette.

For the study reported here, the person in the video was intentionally portrayed as having HIV rather than an “AIDS” diagnosis and he appeared relatively healthy. He was being hospitalized for injuries from a motor vehicle accident rather than for AIDS-related complications. This was done in order to clarify the role that mode of HIV transmission might have had in influencing nurses' willingness to provide care in contrast to other influences such as the severity of patient symptoms. As a result, this instrument may not have been sensitive in discriminating degrees of willingness to care. It is suggested that additional methodological studies be done to further assess the psychometric properties of this scale when less extreme vignettes are used.

Weakness of the intervention. This explanation centers on the weakness of the intervention. Asking respondents to read information (about mode of transmission) was a message not clearly perceived. Perhaps respondents were not accustomed to receiving written information simultaneously with audio-visual material, despite the fact that nurses were told emphatically to read the instructions carefully. Thus, the treatment conditions were not very stark and between group differences on willingness to care may not have been given a “fair test” to emerge, if
they were present. Evidence supporting this explanation is found on the posttest where approximately 9.5% of the respondents misidentified mode of transmission and 16.4% reported they “did not know” the mode of the group to which they had been randomly assigned.

Social desirability. Another explanation for the high degree of willingness may be related to social desirability. When the Nurse Willingness Questionnaire was developed, it was found to have a negative and nonsignificant correlation with the Marlowe-Crown Social Desirability Scale in a pilot study of 20 nurse volunteers (Dubbert et al., 1994). It is possible that nurses in this study may have felt it was more desirable to say they were willing to care when perhaps in a real situation, they would prefer not to. This explanation cannot be ruled out as no separate measure of social desirability was administered.

Relationship Between Nurse Characteristics and Nurses’ Willingness to Care

Biographic and professional experience, including number of persons cared for with HIV and AIDS, were not related to nurse willingness to care. There are several explanations for these findings.

One explanation is that there are no consistent relationships between biographic characteristics and willingness to care. Previous studies have produced mixed findings in regard to influences on willingness such as age (Armstrong-Esther & Hewitt, 1990; Goldenberg & Laschinger, 1991; Forrester & Murphy, 1992; Jemmott et al., 1992), religious beliefs (Morgan & Treadway, 1989; Goldenberg & Laschinger, 1991), ethnicity (Wallack, 1989), or number of small children (Blumenfield et al., 1987). It is possible that these results may be influenced by Type I error.

Another explanation is that HIV education and experience do not consistently influence willingness (Currey et al., 1990). On the one hand, Kemppainen et al. (1992) found that nurses who had more education and more experience in caring for
persons with AIDS tended to be less willing to care. This has been attributed to nurse burnout and fatigue ("Nurses' Fears," 1989). On the other hand, several studies suggest that HIV education and experience have a positive influence on nurses' willingness to care (Armstrong-Esther & Hewitt, 1990; Cassells & Redman, 1989; Jemmot et al., 1992; Laschinger & Goldenberg, 1993). These conflicting results suggest that the influence of education and experience on willingness to care require further study.

Still another explanation is that the ceiling effects on the willingness measures created a restricted range which adversely affected the correlations. It is likely that any variability in nurse willingness related to biographic or experience variables would not be detected under these constraints. In addition, most of the experience variables were positively skewed, again restricting the range in these distributions as well.

Influence of Three Components of Attitude on Nurses' Willingness to Care

Nurses' HIV-related attitude was conceptualized as consisting of cognition as measured by the AIDS Knowledge scale, affect as measured by the Semantic Differential (Sem-D), and behavioral intention as measured by Nurse Willingness Scale-General (NWS-Gen), Talk-General, and Touch-General. Findings related to these components are summarized below.

AIDS knowledge component. AIDS knowledge was not related to nurse willingness, talking, or touching. There are several explanations for this finding. For example, there were eight ambiguous items on the the AIDS Knowledge Scale. As a consequence, the scale may not have been a reliable (i.e., accurate) measure of nurses' knowledge about AIDS. It was also surprising that none of the nurses received a perfect score on the scale, even after the ambiguous items were removed.
in subsequent analysis. As a result of this finding, it is recommended that this scale be assessed further for its reliability before being used in future research.

Another explanation is that the majority of nurses in the study had similar amounts of AIDS knowledge. This homogeneity may be due to the fact that most hospital inservice education programs require instruction on universal blood and body fluid precautions and information on infectious diseases including HIV disease, transmission, and nursing care. As knowledge of HIV/AIDS changes, most hospital educational programs are updated to include the most recent findings affecting health care. Due to the disproportionate number of high scores on the AIDS Knowledge scale, there was little variability in scores to detect an effect.

Affective component. Nurses generally held neutral to positive feelings toward persons in general with HIV based on the Sem-D scores. This affective component of attitude was more strongly related to nurses' willingness to care for persons with HIV in general or specific than was their knowledge of AIDS. The affective component of attitude was the strongest predictor of nurse willingness to care for the person in the video.

One explanation for this finding has been addressed by Flaskerud (1991) and Young (1988) who have emphasized the necessity of addressing nurses' feelings, not only knowledge, in order to influence positive behaviors and change negative attitudes toward persons with HIV. Young (1988) demonstrated that nurses' attitudes toward caring for patients with HIV disease were influenced in the positive direction by small group discussions wherein nurses shared their feelings toward persons with HIV.

Behavioral intention component. As discussed previously, the nurses in this study were willing overall to care for persons in general with HIV. Not surprisingly, nurse willingness to care for persons in general with HIV was highly related to nurse
willingness to care for the person in the video (i.e., regardless of how he acquired HIV). One explanation for this finding may be related to the use of the same items of the scale in the pre- and post-test. Only the stem or object of the items was altered.

Another explanation is that nurses who expressed a strong behavioral intention to care for persons with HIV disease were not influenced by mode of transmission. Their willingness to care remained constant despite individual differences in how one acquired HIV.

Nurses' judgments: Evaluative and predictive. Nurses' evaluative judgment of the patient in the video and predictive judgment of occupational risk of contagion were significant predictors of willingness to care for a specific person with HIV. Risk of contagion was a better predictor than evaluative judgment although each contributed unique variance. There are several explanations for these findings. Judgments about homosexuality and injecting drug use have been linked to a belief in the irresponsible behaviors of persons who acquired HIV through these modes. Such patients are then viewed as less deserving of care (Barrick, 1988; Forrester & Murphy, 1992; Kelly et al., 1988; Morgan & Treadway, 1989; Strasser & Damrosch, 1992; Wallack, 1989; Young, 1988). Issues of morality and the influence of religious beliefs have been related to such judgments (Morgan & Treadway, 1989; Wallack, 1989).

Risk of contagion has also been reported as a major contributor to the refusal of nurses to care for persons with HIV (Blumenfield et al., 1987; Jemmot et al., 1992; Jemmot III et al., 1992; van Servellan et al., 1988; Wallack, 1989). Despite the use of universal blood and body fluid precautions, the perceived risk of contagion in the workplace may continue to influence nurses' willingness to care. Findings from this study also indicated that nurses who perceived themselves to be at greater risk of
contagion and who had less kind judgments were less willing to provide care to persons with HIV disease.

**Talking about death and dying.** There were differences across hospital sites in nurses feeling comfortable talking about death and dying to a person with HIV. Nurses at Hospital A, which has a religious affiliation, reported less comfort in talking about death and dying than nurses in Hospitals B and C. There are several possible explanations for this finding. Nurses at Hospital A may have been sensitive to the patient's needs by noticing he did not talk about death and dying. They, therefore, felt it inappropriate to initiate the topic. This explanation is based on the nursing goal of allowing the patient to have as much control as possible, and by not “bringing up the topic” of death and dying, the nurse is allowing the patient to initiate discussion of the topic when ready. Alternatively, these nurses may have felt less comfortable talking about death and dying because of their own discomfort.

Another explanation is that Hospital A is affiliated with a religious organization. Therefore, the nurses may have felt it was not their role to address issues of death and dying due to the availability of hospital chaplains.

**Construct Validity of Talking and Touching Scales**

The moderate correlation between the Touching scale and the NWS-Specific indicated that these instruments were probably measuring the same construct of nurse willingness to provide care. However, the Talking scale had a significant, but slightly weaker correlation with the NWS-Specific which may suggest that the Talking scale measured a different aspect of willingness or an entirely different construct. It seems likely that these two measures (i.e., talking about death and dying and touching to provide emotional or physical comfort) differ in face validity but both are measuring the construct of willingness to care.
King's Model of Human Interactions—Reformulated

King's Model of Human Interactions—Reformulated was utilized as a guiding theoretical framework for this study. Findings from this study suggest that this model offers clarity that is beneficial in determining factors related to nurse willingness to care. One interesting finding is the amount of error associated with “telling” nurses the mode of HIV transmission and the percent of those who either did not remember the stimulus or misidentified it. King's Model emphasizes that perceptual accuracy, spoken and unspoken, is related to the effectiveness of nurse-client interactions. One might argue that nurses should be willing to care for persons with HIV regardless of how they acquired HIV, and also that mode of transmission is or has potential relevance to quality nursing care. For example, a woman who had no risk behaviors but who was infected by her sexual partner might have different needs in some respects from a woman who injected drugs. Thus, perceptual accuracy of information is important for nursing care, but not for willingness to provide care.

Findings from this study support the model in that both evaluative and predictive judgment have some influence on nurses' willingness to care and perception has an indirect influence. The affective and behavioral component of attitude also had an influence on nurses' willingness. There may be other factors that influence nurses' willingness to care that are not accounted for by King's Model.

King's Model—Reformulated suggests that nurses' perceptions influence their judgments and ultimately their willingness to provide care. This study supports King's Model—Reformulated by demonstrating that nurses' perceptions did influence their judgments—nurses held kinder judgments toward patients who acquired HIV from a blood transfusion than patients who acquired HIV from injecting drug use or gay sex—and these judgments were significant predictors of nurse willingness.
Nurses' perceptions alone did not directly influence their willingness to care for persons with HIV disease.

**Limitations of the Study**

There are several limitations of this study. They are discussed below.

**Self-Selection**

Although the independent variable was randomly assigned to nurses at three hospitals, nurses who participated in the study were self-selected. Those who responded may have had more positive views about persons with HIV to begin with. It was found that approximately 90% of the nurses had cared for at least one person with HIV or AIDS.

**Use of Paper and Pencil Questionnaires**

Another limitation was the use of paper and pencil questionnaires and a videotaped patient to assess nurses' intentions to care. Nurses did not respond to a real-life situation of caring for a person with HIV and, therefore, their answers do not guarantee what they would do in a real situation. Although nurses indicated they were willing to care for persons with HIV disease, it is not known whether the quality of the care provided would be comparable across mode of transmission groups. This question is of interest because nurses had significantly kinder judgments toward persons who acquired HIV from blood transfusion compared to the other modes of HIV transmission. It is possible, therefore, that the quality of their care might differ by how a person acquired HIV.

**Limited Generalizability of Findings**

Another limitation is that the results obtained in response to the person in the videotape may not be generalized to all persons with HIV. The videotaped patient was a white, middle-aged man and, therefore, does not represent women, children, adolescents, or persons of other ethnic and cultural backgrounds. Additional
research is needed on willingness to care for persons who vary on these characteristics.

The fact that only 54% of the sample correctly identified the assigned mode suggests a weak intervention or faulty methodology. Using written material along with a videotape was not the most effective way to manipulate the independent variable, mode of transmission, and therefore limits generalizability.

Participants were nurses in hospital settings and, therefore, results cannot be generalized to other settings. The sample was also taken from one geographic area in southern California and, therefore, results cannot be generalized to nurses in other localities.

Videotaped Simulation

The use of a videotaped simulation of a patient is not a substitute for an actual patient. Therefore, the results cannot be generalized to patients in a real clinical setting. Additional research is needed to examine actual care behaviors (e.g., both willingness to provide care and quality of care provided) of nurses in a variety of clinical settings.

Implications of the Study

Future Research

This study was limited to only three modes of HIV transmission (i.e., blood transfusion, injecting drug use, and gay sex). Additional research could also address heterosexual contact and perinatal transmission. AIDS is no longer found primarily in gay men or injecting drug users, but is rapidly spreading to women, children, adolescents, and persons of diverse ethnic/racial backgrounds. Therefore, responses to these groups could be studied using similar videotaping techniques. If a replication of this research were done, however, it is recommended that information about mode of transmission be included in the audio-visual presentation
rather than by written information. Various videotapes could be randomly assigned to groups of nurses to collect data on their willingness to provide care. This would strengthen the methodology.

Another recommendation is to use qualitative methods to assess nurses' willingness to care for persons with HIV. Questions about nurses' feelings and responses to persons with HIV may add additional and valuable information on this topic. Identifying those variables that influence willingness to care for persons with HIV disease could assist nurse educators in preparing nurses to care for patients in the future.

This research also suggests that a measure of social desirability response-set bias should be included along with measures of willingness to care, where the latter is used. Other AIDS knowledge scales need to be developed and their psychometric properties assessed. As knowledge of HIV disease increases, there may be a need to have AIDS knowledge scales which measure not only general knowledge but specialized knowledge correspondent to nursing practice specialties (e.g., obstetrics, pediatrics, home care, etc.).

A study could be done on nurses prior to and following their caring for persons with HIV, where their experience in caring is guided and supervised by faculty or nurse preceptors with HIV nursing expertise. Variables which could be measured at pre- and post-test include fear of contagion, comfort in giving care, and measures of other HIV-related attitudes among others.

**Nursing Education**

Results of this study could be used to enhance nursing education regarding care for persons with HIV disease. Findings indicate that nurses' feelings toward persons with HIV, their evaluative judgment of their responsibility for having acquired HIV, and their perceived risk of contagion were the major predictors of nurse
willingness to care for persons with HIV disease. Nursing educators should incorporate strategies to enhance the affective component of nurse attitudes toward persons with HIV using small groups to facilitate discussion of fears and feelings. Also, educators can highlight and try to increase nurses' and students' awareness of their judgments related to responsibility for illness and fear of contagion. A continued emphasis on universal blood and body fluid precautions can help to reduce fear of contagion. Educators should incorporate the National League for Nursing (NLN) guidelines on nursing education (Ficarrotto, Freeman, & Baj, 1990).

Nursing Practice

Nurses who are caring for patients may also need inservice education on the influence of affect and judgments toward persons with HIV disease. Hospitals and health care agencies can hold inservice education programs and facilitate small group discussions to increase nurses' self-awareness of feelings and judgments toward persons with HIV in order to help them develop more positive attitudes and behaviors toward persons with HIV.

Nurse administrators might also consider assigning nurses within their own setting to nurse preceptors who give care to PWHs as a way of transferring knowledge, shaping attitudes, decreasing fear of contagion, and gaining experience in caring for PWHs. If there are few opportunities within the setting for this experience, arrangements could be made for nurses to have such learning opportunities in other nearby agencies/institutions.

Conclusion

AIDS is now the leading cause of death among all Americans aged 25 to 44, surpassing accidents, cancer, and cardiovascular disease. It is the leading cause of death in men and women in 79 of 169 American cities with populations over 100,000. The need to understand the influences on willingness to care is essential
in order to prepare adequate numbers of nurses and other health care providers to care for these persons.
When you finish these questions, please sit quietly until all others have finished.

In a few moments, you will all watch a 3-minute videotape of a person named Mark who acquired HIV from a blood transfusion.

Following the video, please read the instructions carefully and answer all the remaining questions in regard to Mark.
When you finish with these questions, please sit quietly until all others have finished.

In a few moments, you will all watch a 3-minute videotape of a person named Mark who acquired HIV from injecting drugs.

Following the video, please read the instructions carefully and answer all the remaining questions in regard to Mark.
When you finish with these questions, please sit quietly until all others have finished.

in a few moments, you will all
watch a 3-minute videotape
of a person named Mark who
acquired HIV from gay sexual activity.

Following the video, please read the instructions carefully and answer all the remaining questions in regard to Mark.
APPENDIX B

VIDEO SCRIPT
“I've got a headache; it's about to drive me crazy, too. This HIV thing is really weird; it's really shitty. I don't know what to think one day to the next. It's always on my mind. I haven't told anybody, so I hope nobody sees this that I know. . . but, it doesn't feel safe to tell anyone. So it's kinda scary about this. I mean, you don't know how the hell it'll hit you. I hear some people go real quick and some people don't get sick for a long time. Not knowing . . . I get really frustrated and angry not knowing. I think it would be better to tell somebody sometimes, but . . . just to get the anger out. It just doesn't feel safe to talk about.”
Part A.

This part asks about your background and experience. For each of the following, fill in the blank or put a check next to the response that applies to you in the space provided. Check only one answer.

1. What is your age?
   _____ Years

2. What is your gender?
   _____ Male
   _____ Female

3. What is your sexual preference?
   _____ Heterosexual
   _____ Homosexual
   _____ Bisexual
   _____ Celibate
   _____ Not willing to disclose

4. What is your marital status?
   _____ Single, never married
   _____ Married
   _____ Divorced
   _____ Widowed
   _____ Separated
   _____ Cohabitating

5. What is your spouse's/partner's education?
   _____ Not married or cohabitating
   _____ Less than seventh grade
   _____ Junior high school (through 9th grade)
   _____ Partial high school (10 or 11th grade)
   _____ High school graduate
   _____ Partial college (at least 1 year) or specialized training
   _____ Standard college or university graduation
   _____ Graduate professional training (graduate degree)

6. What is your spouse's/partner's occupation?   ________________________________

7. What is your highest level of nursing education?
   _____ Diploma
   _____ Associate Degree or
   _____ Baccalaureate Degree
   _____ Master's Degree or higher
8. What is your highest level of education (other than nursing)?
   - Not applicable
   - Associate Degree
   - Baccalaureate Degree
   - Master's Degree or higher

9. How many children do you have?
   - None
   - One (1) How old? _____
   - Two (2) List their ages __________
   - Three (3) List their ages __________
   - Four (4) List their ages __________
   - Insert number if more than 4. List their ages __________

10. How do you describe yourself?
    - Caucasian/Anglo
    - Black, African-American
    - Hispanic (Chicano, Cuban, Latino, Mexican, Puerto Rican)
    - Asian or Pacific Islander
    - American Indian or Alaskan Native
    - Other (specify) _____________________

11. What is your religious affiliation?
    - Catholic
    - Jewish
    - Protestant (specify denomination) ____________________
    - Other (specify) _________________________
    - None

12. How important are your religious beliefs to you, personally?
    - Not at all important
    - Somewhat important
    - Very important
    - Highly important
    - Extremely important

Part B.
This section asks about your experience. Please make the best estimate you can, and fill in every blank.

13. What is your area of nursing specialization?
    - Medical
    - Surgical
    - Critical Care
    - Other (specify) ________________________________
14. How many years of clinical nursing experience have you had?
   ___ Years

15. What is the average number of hours per week that you spend giving direct patient care?
   ___ Hours

16. Estimate how many total hours of HIV/AIDS education/training you have had.
   ___ Hours

17. How many persons who are known to be HIV positive (asymptomatic for AIDS) have you cared for?
   ___ Number

18. How many persons who are known to be HIV positive (asymptomatic for AIDS) have you cared for in the last 6 months?
   ___ Number

19. How many persons with AIDS have you cared for?
   ___ Number

20. How many persons with AIDS have you cared for in the last 6 months?
   ___ Number

21. How many personal acquaintances (not patients) do you know who are gay men?
   ___ Number

22. How many personal acquaintances (not patients) do you know who are injecting drug users or recovering injecting drug users?
   ___ Number
APPENDIX D
HIV/AIDS KNOWLEDGE SURVEY
Section II
AIDS Knowledge Survey

Please indicate your agreement or disagreement with the following statements by placing a check mark on the line under the appropriate response category (i.e., YES or NO) for each item.

1. In the general population, HIV is commonly spread through:
   a. sexual transmission YES NO
   b. transmission by food handlers
   c. perinatal transmission
   d. airborne transmission
   e. transmission in the water supply
   f. intravenous transmission

2. The groups defined by the Centers for Disease Control and Prevention as major transmission categories are:
   a. homosexual or bisexual males YES NO
   b. donors of blood or blood products
   c. injecting drug users
   d. hemophiliacs
   e. infants born to mothers infected with the virus
   f. lesbians

3. AIDS is more common in the African American and Latino heterosexual population than in the white heterosexual population. YES NO

4. Co-factors which increase the risk of HIV infection include:
   a. coincident infection with sexually transmitted diseases YES NO
   b. sharing marijuana
   c. anal-receptive intercourse
   d. over-use of antibiotics for infectious diseases
   e. repeated sexual or IV exposure to infected persons
   f. malnutrition
   g. coincident infection with Hepatitis B virus
5. The following could be signs or symptoms of HIV infection or AIDS: 
   a. loss of memory and concentration ___ YES ___ NO 
   b. tremor ___ YES ___ NO 
   c. weight loss ___ YES ___ NO 
   d. diarrhea ___ YES ___ NO 
   e. cough ___ YES ___ NO 
   f. difficulty breathing ___ YES ___ NO 
   g. swollen glands ___ YES ___ NO 
   h. fevers ___ YES ___ NO 
   i. blurred vision ___ YES ___ NO 
   j. cholelithiasis ___ YES ___ NO 
   k. depression ___ YES ___ NO 
   l. chronic fatigue ___ YES ___ NO 

6. When taking a sexual history, it is important to ask about: 
   a. number of sexual partners ___ YES ___ NO 
   b. gender of sexual partners ___ YES ___ NO 
   c. current frequency of sexual activity ___ YES ___ NO 
   d. type of sexual activity (oral/anal/other) ___ YES ___ NO 
   e. number of anonymous sexual partners ever ___ YES ___ NO 
   f. number of sexual partners in the last year ___ YES ___ NO 
   g. history of sexually transmitted diseases ___ YES ___ NO 
   h. use of birth control pills ___ YES ___ NO 

7. Transmission of HIV infection in the workplace can occur through: 
   a. needle-stick injuries ___ YES ___ NO 
   b. prolonged skin contact with blood ___ YES ___ NO 
   c. skin-to-skin contact ___ YES ___ NO 
   d. sneezing or coughing ___ YES ___ NO 
   e. mouth-to-mouth resuscitation ___ YES ___ NO 
   f. caring for a homosexual patient ___ YES ___ NO 

8. There is an effective vaccine for HIV that is currently being tested. ___ YES ___ NO 

9. The Public Health Service and the Centers for Disease Control and Prevention give the public accurate information about the transmission of HIV. ___ YES ___ NO
APPENDIX E

SEMANTIC DIFFERENTIAL
Section III

DIRECTIONS: The purpose of this section is to find out how you feel about caring for persons who are HIV positive. You are asked to make judgments on a series of descriptive scales.

Here is how you use the scales. If you feel that caring for persons who are HIV-positive is very closely related to one end of the scale (for instance, very hopeless) place an X at that end of the scale:

hopeless \(\textbf{X}\) : _____ : _____ : _____ : _____ : _____ : _____ hopeful

If you feel that caring for persons who are HIV-positive is only slightly related to one of the adjectives, place your mark as follows:

fair _____ : _____ : _____ : _____ : _____ : \(\textbf{X}\) : _____ unfair

If you consider caring for persons who are HIV-positive to be neutral and both sides are equally associated or the scale is completely irrelevant and unrelated, then place your mark in the middle space.

Do not spend too much time on any one item, and try to give your first impression and work as quickly as possible.

**Caring for Persons Who Are HIV Positive**


sour _____ : _____ : _____ : _____ : _____ : _____ : _____ sweet

APPENDIX F

NURSE WILLINGNESS SCALE-GENERAL, TOUCHING-GENERAL, TALKING-GENERAL

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Nurse Willingness Questionnaire (HIV in general)

The following questions are about persons who are HIV positive.

CIRCLE the first response that comes to mind and best represents your beliefs and willingness to care.

<table>
<thead>
<tr>
<th></th>
<th>not willing at all</th>
<th>uncertain</th>
<th>extremely willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How willing would you be to give a bed bath to a person who is HIV positive?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How willing would you be to clean up stool or emesis, using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Would you bring a meal tray into the room?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Would you change bed linen?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Would you take vital signs?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Would you be willing to change dressings using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Would you be willing to clean supplies, using gloves, after the doctor completes a diagnostic procedure?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Would you feed dinner to persons with HIV?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Would you complete catheter care, using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Would you be willing to shave a man with HIV?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Would you empty the urinary bag, using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12. Would you start IV fluids, using gloves?

Circle the first response that comes to mind and most represents your comfort level caring for persons with HIV.

<table>
<thead>
<tr>
<th>not willing at all</th>
<th>uncertain</th>
<th>extremely willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Would you administer a blood transfusion, using gloves?

| 0 1 2 3 4 5 6 7 8 9 10 |

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

<table>
<thead>
<tr>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. I would avoid discussing death with persons with HIV.

4. I would avoid using words like "dying" and "death" when I talk to persons with HIV.

5. I would find it hard to discuss the actual dying process with persons with HIV.

6. I would feel unsure how to discuss issues related to the dying process with persons with HIV.

7. I would find it hard talking to families of persons with HIV.
APPENDIX G

NURSE WILLINGNESS SCALE-SPECIFIC, TOUCHING-SPECIFIC, TALKING-SPECIFIC
The following are questions to be answered specifically in relation to the patient Mark (in the video).

Please state how Mark became infected with HIV:  

(fill in blank)

CIRCLE the first response that comes to mind and most represents your beliefs and willingness about caring for Mark:

<table>
<thead>
<tr>
<th>Question</th>
<th>not willing at all</th>
<th>uncertain</th>
<th>extremely willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How willing would you be to give Mark a bed bath?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How willing would you be to clean up stool or emesis, using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Would you bring a meal tray into Mark's room?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Would you change Mark's bed linen?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Would you take Mark's vital signs?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Would you be willing to change Mark's dressings using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Would you be willing to clean supplies, using gloves, after the doctor completes a diagnostic procedure?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Would you feed dinner to Mark?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Would you complete catheter care, using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Would you be willing to shave Mark?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Would you empty Mark's urinary bag, using gloves?</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12. Would you start IV fluids, using gloves?  
Circle the first response that comes to mind and most represents your comfort level caring Mark.

<table>
<thead>
<tr>
<th>not willing at all</th>
<th>uncertain</th>
<th>extremely willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

13. Would you administer a blood transfusion, using gloves?  

<table>
<thead>
<tr>
<th>not willing at all</th>
<th>uncertain</th>
<th>extremely willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>disagree</th>
<th>uncertain</th>
<th>agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

3. I would avoid discussing death with Mark.  

4. I would avoid using words like "dying" and "death" when I talk to Mark.

5. I would find it hard to discuss the actual dying process with Mark.  

6. I would feel unsure how to discuss issues related to the dying process with Mark.

7. I would find it hard talking to Mark's family.
APPENDIX H
EVALUATIVE JUDGMENT SCALE
### Evaluative Judgment Scale

**CIRCLE** the response that best indicates to what extent you agree or disagree with each statement.

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mark is responsible for his illness.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. Mark deserves sympathy and understanding.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. Mark deserves what has happened to him.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. Mark could not have prevented his illness.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. Mark should be punished for getting sick.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>6. Mark is dangerous to other people.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>7. Mark deserves the best medical care possible.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>8. Mark deserves to die.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>9. The world would be better off without Mark.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>10. Suicide might be the best solution for Mark.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>11. Mark should be quarantined so he doesn't expose others.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>12. Mark deserves to lose his job.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>13. Mark is not to blame for his illness.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>14.</td>
<td>Mark deserves to be treated with the same respect as any patient.</td>
<td>1</td>
</tr>
<tr>
<td>15.</td>
<td>Mark should be prosecuted for his illness.</td>
<td>1</td>
</tr>
<tr>
<td>16.</td>
<td>Mark is not worthy of expert medical care.</td>
<td>1</td>
</tr>
<tr>
<td>17.</td>
<td>Mark deserves to be isolated from the public.</td>
<td>1</td>
</tr>
<tr>
<td>18.</td>
<td>Mark should have taken better care of his health.</td>
<td>1</td>
</tr>
</tbody>
</table>
Risk of Contagion

CIRCLE the response that indicates to what extent you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HIV can be transmitted to hospital personnel because of contact with Mark, despite precautions.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. HIV is likely to be transmitted to hospital personnel because of contact with Mark’s clinical specimens, despite precautions.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. I am at high risk of getting HIV because of my job caring for Mark.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. Persons with HIV such as Mark are a threat to my own health.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
My name is Jill Bormann. I am a Registered Nurse and doctoral student at Wayne State University, College of Nursing, Detroit, Michigan. I am asking for your help in a study on nurses’ perceptions in caring for patients with HIV. This study is my doctoral dissertation. Your participation is voluntary and your responses will be anonymous.

The information resulting from this study may help nurse educators to better understand how to prepare nursing students in caring for persons with HIV and AIDS. I would appreciate your taking time to fill out a questionnaire asking about your age, gender, marital status and the like plus some questions about your views concerning HIV/AIDS. You will then watch a three-minute video, and complete a second questionnaire in response to the video. Your participation is essential for me to successfully complete the study. It will take about 20 to 30 minutes of your time. Filling out these forms and turning them in means that you consent to participate in this research.

Please read the instructions carefully at the top of each page. When you are finished, you may hand in the packets and help yourself to refreshments. Please do not talk until everyone has finished. I also ask that you not talk about the study to other nurses who might participate. If you have questions about the study, I can be reached at [blank]. A summary of the results will be made available to the hospital when it is completed.

Please read the instructions carefully and answer as honestly and completely as you can. If you have a question or if there is something you don’t understand, just do the best you can.
REFERENCES


Bormann, J. (1992). Nursing students' attitudes toward caring for dying patients with and without AIDS. Unpublished field study, Wayne State University, Detroit.


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ABSTRACT

INFLUENCE OF HIV MODE OF TRANSMISSION
ON NURSES' WILLINGNESS TO CARE

by

JILL E. BORMANN
December 1995

Adviser: Dr. Fredericka Shea
Major: Nursing
Degree: Doctor of Philosophy

This quasi-experimental study was designed to determine the extent to which nurses' willingness to care is influenced by mode of HIV transmission. A reformulation of King's Model of Human Interactions was used to theoretically guide the research. The study examined the willingness to provide care of 189 staff nurses from three hospitals. They were randomly assigned to one of three intervention groups identified by mode of HIV transmission (i.e., blood transfusion, injecting drugs, or gay sex) and were shown a 3-minute video of a male patient with HIV. Demographic, HIV-related experience and attitudes including willingness, comfort in touching and talking about death and dying were measured before the intervention; evaluative judgment of the patient, perceived occupational risk of contagion, willingness to care, comfort in touching, and talking about death and dying were measured after the intervention.

Descriptive statistics, Analysis of Variance (ANOVA) and chi-square were done to compare the nurse characteristics and attitude variables across hospital sites. Hospital groups were found to be equivalent except that nurses at Hospital A reported less comfort in talking about death and dying. One-way ANOVA and hierarchial multiple regression were used to determine the influence of nurse
characteristics, HIV-related attitude (i.e., AIDS knowledge, affect, and willingness), and mode of transmission on nurses' willingness to care. No statistically significant differences in nurses' willingness were found as a function of how the patient acquired HIV. However, nurses held significantly harsher judgments toward persons who acquired HIV from injecting drug use or gay sex. Significant predictors of willingness included: (a) nurses' positive feelings toward the patient, (b) kinder judgments, and (c) lower perceived risk of contagion for acquiring HIV.

Recommendations for King's model and future nursing research are provided. Suggestions for nursing education and practice are given.
AUTOBIOGRAPHICAL STATEMENT

Jill Bormann RN, MSN, CS
San Diego, CA
Telephone: Home
Ans. Service:
San Diego, CA
RN Ca. License No. S 372423
Psych/Mental Health Nurse #P-0220

I. EDUCATIONAL BACKGROUND
1995 PhD candidate in Nursing, Wayne State University
1988 Gestalt Therapist Certificate, Gestalt Training Program, LaJolla, CA
1986 Certification as Clinical Nurse Specialist in Adult Psychiatric
Mental Health Nursing by American Nurses' Association (ANA)
1982 MSN Master of Science in Nursing
University of Texas at Austin
Major: Psychiatric/Mental Health Nursing
Minor: Curriculum and Instruction
1976 BSN Bachelor of Science in Nursing
Augustana College, Sioux Falls, South Dakota

II. AWARDS AND HONORS
Recipient of the Wayne State University Graduate Professional Scholarship for
Fall/Winter, 1994-95 semesters.
Recipient of the Sigma Theta Tau Graduate Scholarship Award, Gamma
Gamma Chapter, San Diego, 1993.
Recipient of Shirley C. Titus Scholarship from California Nurses Association,
Recipient of the Sigma Theta Tau Graduate Scholarship Award, Gamma
Selected by the Society of Nursing Professionals in Who's Who in American
Nursing, 1988-93.

III. PUBLICATIONS/RESEARCH
Bormann, J. E., Brent, S. B., & Mood, D. W. (accepted for publication Nov.-
Dec. 1995). The effects of an AIDS diagnosis on undergraduate nursing
students' attitudes toward the care of dying patients. Nurse Educator.
Bormann, J. (1992, July). Nursing students' attitudes toward dying patients
with and without AIDS. Unpublished manuscript, Wayne State University,
Detroit, Michigan.
News, California Nurses Association Newsletter, Region 2, pp. 5-6.

IV. WORKSHOPS/SEMINARS PRESENTED
"RISE Program" for AIDS Foundation, Orientation and 8-week class, San
Diego, CA, Spring, 1995.
"Ethnic Diversity in the Workplace" for San Diego County Council of Activity
"Stigma and Blame," for conference entitled "When a Friend Has AIDS."
Continuing Education Seminar at Mercy Hospital, San Diego, CA,