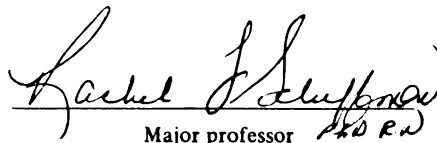This is to certify that the

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CERVICAL CANCER SCREENING PRACTICES OF
OF WOMEN 50 YEARS AND OLDER

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HEALTH BELIEFS AND CERVICAL CANCER SCREENING PRACTICES OF
WOMEN AGED 50 YEARS AND OLDER

By

Judith Fleishman

A THESIS

Submitted to
Michigan State University
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ABSTRACT

HEALTH BELIEFS AND CERVICAL CANCER SCREENING PRACTICES OF
WOMEN AGED 50 YEARS AND OLDER

By

Judith Fleishman

The purpose of this study was to explore the relationship between health beliefs
and cervical cancer screening practices in a group of older women. The Health Belief
Model adapted by Given et al. (1989) was used as a conceptual framework. The
correlational study utilized a non-probability convenience sample (N = 109) of women
50 years of age and older. Six health belief variables were measured using a fixed
alternative format questionnaire. Perceived barriers to cervical cancer screening and
the intention to be screened for cervical cancer in the future were found to significantly
correlate with screening practices. The results of this study provide useful information
for the clinical nurse specialist to utilize in counseling and educating older women
about Pap smear screening issues in the primary health care setting.

To Thomas Henry Parker

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Special thanks to Barbara Given for permission to adapt and use her questionnaire and to Chiung Ying Cheng for assistance with data analysis.

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Introduction

One of the central goals of the Clinical Nurse Specialist in the primary health care setting is the promotion of optimal client health by routinely screening for diseases for which no prevention methods exist. Preventive screening has been defined as improving the health outcomes of individuals by the early detection of disease in order to identify potentially serious conditions prior to the onset of any significant symptom development (Stoeckle, 1987).

Currently no method of preventing cervical cancer exists and therefore it is an appropriate disease for screening in the primary health care setting. Cervical cancer meets the criteria delineated by Shields, Daunter, and Wright (1987) for large scale population screening: it poses a significant health threat to adult women, has a natural history which is long enough to allow for successful early detection and therefore optimal treatment, and the screening method, the Papanicolaou (Pap) smear, is a reliable and cost effective procedure.

The natural history of cervical cancer enables successful screening to occur because it is a slow growing disease with a lengthy natural growth period, commonly taking anywhere from eight to twenty years to fully develop (Peters, Duncan, Skultin, & Henderson, 1988). This type of cancer often exhibits no apparent signs and symptoms for an extended period of time and first manifests clinically as cervical intraepithelial

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neoplasia (CIN). CIN is a condition in which a woman's normal cervical epithelial cells, the cells lining the outer layer of the cervix, are found to have been gradually replaced by atypical cells (Gray & Heuther, 1990). Unlike normal cells, atypical cells are poorly differentiated, proliferate more rapidly than normal cells, and have the potential to become increasingly malignant as they multiply (Rubin & Lauver, 1990).

CIN progresses along a continuum and is classified according to three categories: CIN I, CIN II, and CIN III. These classifications provide a method for describing the degree to which atypical cellular growth has occurred. The first phases of the continuum, CIN I and CIN II, precede any cancerous conditions whereas the last phase, CIN III, signifies the beginning of microscopic malignant changes.

CIN I, or mild dysplasia, is characterized by the appearance of a few cervical cells exhibiting atypical changes. CIN II, or moderate dysplasia, occurs when approximately half the endocervical cells show abnormal changes. CIN III encompasses severe dysplasia and carcinoma in-situ. When CIN III develops the majority of cells exhibit atypical changes. Carcinoma in-situ occurs once the majority of the atypical cervical epithelial cells have become malignant on a microscopic level but have not yet penetrated the deeper cell layers of the cervix (Gray & Heuther, 1990; Rubin & Lauver, 1990).

If cervical cancer is detected during the CIN III phase, prior to the deeper layers of cervical tissue being invaded by malignant cells, the chances of surviving this disease are excellent, close to 100 percent (Mandelblatt, 1989). However, after the carcinoma in-situ stage the chances of surviving cervical cancer for five years or more

substantially decreases. When the malignant cells have invaded the deeper tissue of the cervix and the upper portion of the vagina the long term survival rate drops to approximately 80 percent. These chances are further reduced, to roughly 30 percent, if the cancer spreads as far as the lower vagina or pelvic wall. If the cancer metastasizes to the bladder, kidneys, or rectum, and also perhaps to other distant organs, the chances of survival over a five year period are as low as 15 percent (Gray & Heuther, 1990; Mandelblatt, 1989).

Major risk factors for cervical cancer include early menarche, multiple sexual partners, smoking, antepartal exposure to diethylstilbestrol, advancing age, and presence of human papillomavirus (HPV) (Eddy, 1990; Mandleblatt, 1989; Rubin & Lauver, 1990). HPV significantly increases the risk of cervical cancer because it has been found that the virus accelerates the atypical cellular growth pattern along the CIN continuum, thereby shortening the usual lengthy natural history of this disease (Rubin & Lauver, 1990).

Over the last several decades there has been a steady decrease in the morbidity and mortality due to cervical cancer, largely because of the widespread use of the Pap smear screening technique with its ability to detect cervical cancer in its earliest stages (Eddy, 1990). The Pap smear, first developed by Dr. George Papanicolaou in the 1930's, involves obtaining a sample of superficial ectocervical and endocervical cells from the squamocolumnar junction of the cervix in order to examine these cells for possible abnormalities along the CIN continuum (Eddy, 1990).

Considering that cervical cancer is nearly 100 percent curable if successfully detected

early with the Pap smear, the morbidity and mortality rates from this disease remain high. It is estimated in 1991 as many as 13,000 American women were diagnosed with invasive cancer of the cervix and up to 4,500 died as a result of complications of this disease (American Cancer Society (ACS), 1991).

Many factors affect the extent to which women receive routine Pap smear screening. The following categories have been identified in the recent literature: (1) demographic factors such as advancing age, being Black or of Hispanic origin, having a low income and lack of a high school education; (2) health care system factors such as type of health care setting, health care provider characteristics, degree of contact with the health care system, and differing screening recommendations; and (3) psychosocial factors or health beliefs, that is, the perceptions, attitudes, and behaviors of the women themselves toward Pap smear screening (Celentano, 1988; Celentano, Klassen, Weisman, & Rosenshein, 1988; Elkind, Haran, Eardley, & Spencer, 1988; Harlan, Bernstein, & Kessler, 1991; Peters, Bear, & Duncan, 1989; Teitelbaum, Weisman, Klassen, & Celentano, 1988).

Cervical cancer is not preventable and currently regular screening with the Pap smear remains the most effective way of eliminating morbidity and reducing the mortality of this disease. Therefore, if the prevalence of this disease is to be reduced it is of the upmost importance to target those women who do not receive regular Pap smear screening.

Statement of the Problem

Advancing age is considered a risk factor for many types of cancers and cervical cancer is no exception. Women of advancing age do not receive Pap smears as frequently as do younger women and therefore constitute a high risk group for cervical cancer due to both advancing age and under–screening. (Celentano, 1988; Hayward, Shapiro, Freeman, & Corey, 1988). It has been found that, as a result of less frequent screening, older women are typically diagnosed with cervical cancer at a more advanced stage of disease, usually already invasive, making successful long-term recovery less likely (Blesch & Prohaska, 1991). In contrast, when younger women are diagnosed with cervical cancer, because they are screened more regularly, their disease is more likely to be still localized, in the in–situ stage, a condition associated with complete recovery (Gusberg & Runowicz, 1991).

Because it appears that older women are at increased risk for cervical cancer due to both increasing age and consistent under–screening, and because it has been hypothesized that psychosocial factors exert a primary influence over health behavior (Janz & Becker, 1984), it is of interest to closely examine how the health beliefs of older women affect their cervical cancer screening practices. Therefore, the purpose of this study is to determine, using a descriptive survey, what health beliefs significantly influence the cervical cancer screening practices of older women.

Research Question

The following research question will be asked: What is the relationship between health beliefs and cervical cancer screening practices in a group of women aged 50 years and older?

Study Relevance

The results of this investigation have the potential to contribute to the nursing profession in two ways. First, information from this study will expand theoretical knowledge on preventive health behavior. Second, it will aid the Clinical Nurse Specialist in developing specific clinical management strategies to promote appropriate Pap smear screening schedules in older women. These strategies can be based on what the study reveals about their perceptions, attitudes and knowledge of screening. Future research on cervical cancer screening can be conducted to evaluate the effectiveness of these clinical management strategies.

Theoretical Framework

The variables used to study the psychosocial aspects of Pap smear screening in women of advancing age were derived from the Health Belief Model (HBM). The HBM is a theoretical framework that was developed in response to the needs of researchers to explain and predict why and how individuals engage, or do not engage, in certain types of health behaviors (Janz & Becker, 1984). The model, whose central assumption is

that cognitive, perceptual and psychosocial factors strongly influence health behavior, hypothesizes that health behavior is dependent on the occurrence of the following three circumstances: (1) the existence of sufficient motivation, or health concern, on the part of the individual to make health issues salient or relevant; (2) the perceived threat, or belief, that one is susceptible to a serious health problem or illness; and, (3) the belief that following through on a particular health recommendation would be beneficial in reducing the perceived threat of an illness or condition (Rosenstock, Strecher, & Becker, 1988).

Health Belief Model

The HBM is composed of several interrelated concepts designed to measure subjective beliefs. When first introduced the model contained four concepts: perceived susceptibility, perceived seriousness, perceived benefits and perceived barriers. Extensive research examining health behavior demonstrated that other factors accounted for the variation in health behavior and three additional concepts were added to the model: health motivation, self–efficacy and social influence.

The HBM divides these seven concepts into three categories: individual perceptions, modifying factors and the likelihood of action. The first category, individual perceptions, contains the concepts perceived susceptibility and perceived seriousness. Perceived susceptibility is a person's subjective view of the likelihood of experiencing a potentially harmful condition or illness and perceived seriousness is how threatening a particular illness or condition is to that person (Champion, 1984; Janz & Becker, 1984).

The second category, modifying factors, contains the concept of social influence. This concept is defined as the influence that one's support system or social network, that is, one's family, friends, or physician, have on an individual's health behaviors (Champion, 1991; Zapka, Harris, Stoddard, & Costanza, 1991).

The remaining four concepts, perceived benefits, perceived barriers, health motivation, and self–efficacy make up the third category, the likelihood of action. Perceived benefits are defined as an individual's view of how effective a specific behavior or action would be in reducing a particular threat or condition (Champion, 1984; Janz & Becker, 1984). Perceived barriers are defined as the potential negative effect— pain, cost, unpleasantness—that undertaking a recommended behavior would cause (Champion, 1984; Janz & Becker, 1984). Health motivation represents the individual's generalized state of intent which results in engaging in behaviors that maintain or improve health (Champion, 1984). Self-efficacy is the degree of self-confidence or conviction that an individual possesses in order to successfully perform or execute a given behavior required to produce a desired health outcome (Rosenstock et al., 1988).

The HBM has been particularly successful in predicting sick–role behaviors, the actions taken after diagnosis of a medical problem in order to restore good health or to prevent further disease process, and preventive health behaviors, the actions taken to avoid illness or injury. (Janz & Becker, 1984; Nemcek, 1990).

The HBM has been adapted by Given, Given, and Dimitrov (1989) to specifically reflect preventive health behavior pertaining to breast cancer screening. The Given

model (Given et al., 1989) has been revised for use in this study on cervical cancer screening. Since many cancer related issues are similar it is felt that this model provides an appropriate conceptual framework to measure the perceptions of older women toward cervical cancer screening.

Given's HBM (Given et al., 1989) combines the concepts of perceived severity and perceived susceptibility into a single variable: perceived susceptibility. Given et al. (1989) use the concept efficacy instead of self–efficacy, defining it as the confidence that the individual has in a particular intervention as opposed to the degree of self-confidence an individual has in performing a particular health related activity. Given et al. (1989) utilize the term intentions instead of health motivation but define the concept very similarly. The Given HBM combines the two concepts perceived barriers and perceived benefits into one variable: perceived barriers and facilitators. The Given HBM (Given et al., 1989) is therefore comprised of six variables: perceived susceptibility, knowledge, social influence, perceived barriers and facilitators, perceived efficacy, and intentions.

For the purposes of this study Given's six variables will be considered the independent variables and will be correlated separately with the dependent variable, the number of Pap smears the respondent has had in the last 10 years. It is possible to define the variables in this manner because the Given HBM (Given et al., 1989) proposes that the extent to which an individual participates in preventive health behaviors is dependent on health beliefs. For the purposes of this study health beliefs are defined as the cognitive, perceptual and psychosocial factors that influence an

individual's preventive health behaviors. The next section provides conceptual definitions of the Given HBM variables (Given et al., 1989) and their application to this study.

Conceptual Definition of Study Variables

As illustrated by the model in Figure 1, the first variable, perceived susceptibility, is considered part of an older woman's individual perceptions toward cervical cancer. Perceived susceptibility to an illness or, potentially harmful condition, is defined as a person's subjective view of the likelihood of experiencing that potentially harmful condition or illness (Champion, 1984). Perceived susceptibility to cervical cancer reflects a woman's feelings about the chances of developing cervical cancer herself sometime in her lifetime and her perceptions about how serious a threat cervical cancer is.

The second and third variables in the model, knowledge and social influence, are classified as modifying factors. Knowledge is determined by the amount of information an individual has about a particular disease; this is in part dependent on prior contact one has had with the disease (Pender, 1987). Knowledge of Pap smears includes being aware of the cervical cancer screening schedule, understanding the role that the Pap smear plays in the early detection of cervical cancer, and understanding the particular nature of the cervical cancer disease process. Prior contact with cervical cancer would influence awareness of the screening schedule, disease process, and treatment.

Social influence is the influence that the external environment has on an individual

INDIVIDUAL PERCEPTIONS   MODIFYING FACTORS   LIKELIHOOD OF ACTION

```
                        ┌─────────────────────┐
                        │   #2 KNOWLEDGE      │
                        │   of Pap Smears     │
                        └─────────────────────┘
                                  │
                                  ▼
┌─────────────────────┐ ┌─────────────────────┐ ┌─────────────────────┐
│  #1 SUSCEPTIBILITY  │→│  Perceived Threat   │→│    #4 BARRIERS      │
│  to cervical cancer │ │   of cervical cancer│ │    to screening     │
└─────────────────────┘ └─────────────────────┘ └─────────────────────┘
                                  ▲                        │
                                  │                        ▼
                        ┌─────────────────────┐ ┌─────────────────────┐
                        │   #3 INFLUENCE      │ │    #5 EFFICACY      │
                        │   of important others│ │   of the Pap smear  │
                        │ concerning Pap smears│ └─────────────────────┘
                        └─────────────────────┘            │
                                                           ▼
                                                 ┌─────────────────────┐
                                                 │#6 SCREENING INTENTIONS│
                                                 └─────────────────────┘
                                                           │
                                                           ▼
                                                 ┌─────────────────────┐
                                                 │    Pap smear        │
                                                 │    SCREENING        │
                                                 │    FREQUENCY        │
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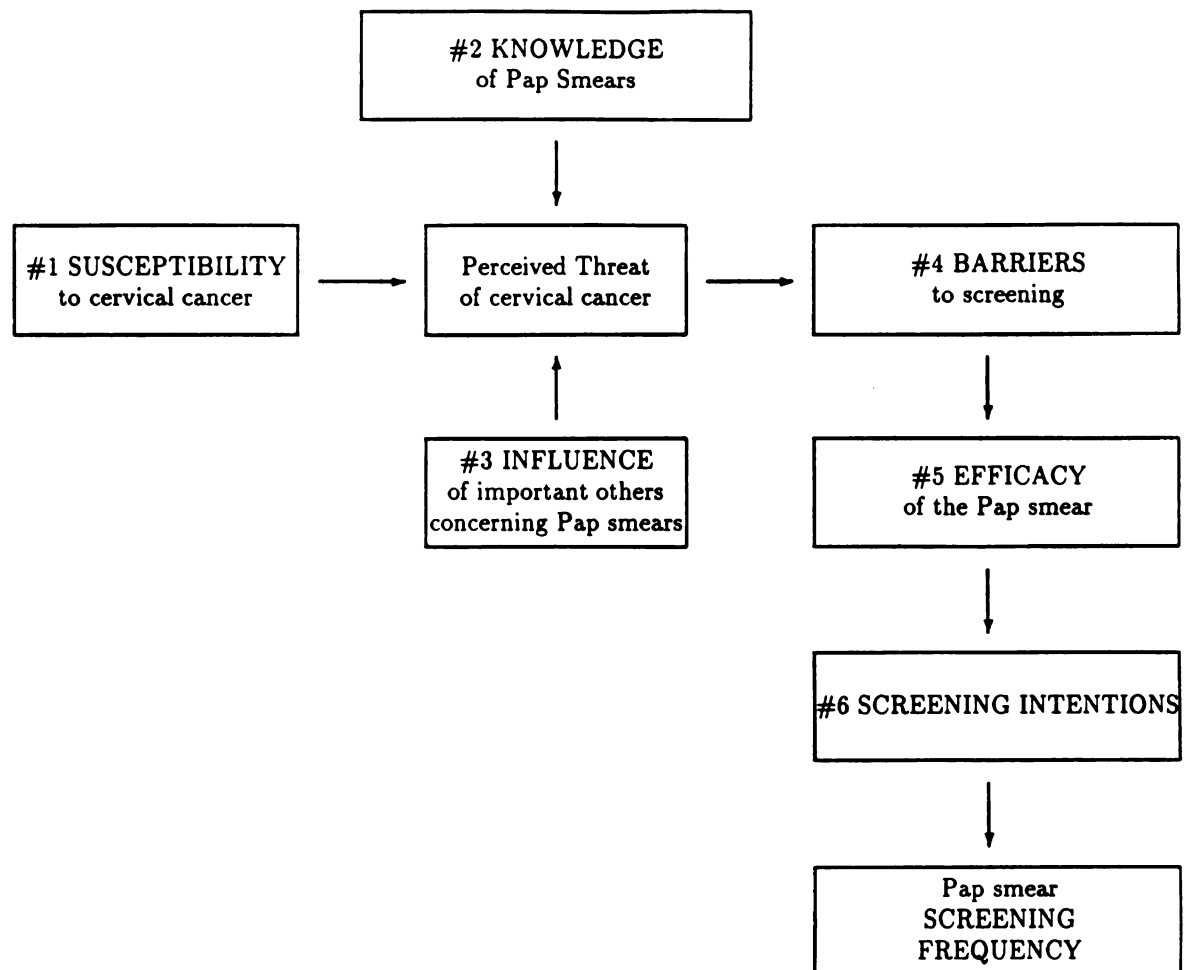
Figure 1: **HEALTH BELIEFS OF OLDER WOMEN REGARDING**

PAP SMEARS

(Adapted from the Breast Cancer Screening Health Belief Model (Given et al., 1989))

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in regard to their health behaviors. The external environment is defined as one's social support network: family, friends, or physician, as well as mass media such as newspapers and billboards (Champion, 1991; Pender, 1987). Influence in the context of Pap smear screening of older women refers to any advice or discouragement that an older woman receives from a member of her social network about screening, or any discussion about screening that an older woman holds with a member of her social network. Social influence also depends on the degree to which a woman perceives the opinions about Pap smear screening of members of her social network to be important.

As illustrated by the direction of the arrows in Figure 1, the combination of the first three variables perceived susceptibility, knowledge, and social influence, account for an older woman's generalized perception of threat toward cervical cancer. The perceived threat of cervical cancer is visually depicted in the model in order to illustrate the relationship that the first three variables have to each other but does not represent a specific HBM variable. The extent to which a woman feels a threat of cervical cancer influences the action that she is likely to take in order to prevent cervical cancer from occurring.

The fourth, fifth, and sixth variables shown in Figure I, perceived barriers and facilitators to Pap smear screening, perceived efficacy of the Pap smear, and screening intentions, measure factors that influence the likelihood of action. In the context of Pap smear screening, the likelihood that a woman will participate in screening for cervical cancer on a routine basis depends on what she believes the facilitators and the barriers of the Pap smear screening process to be, whether or not she believes

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that the actual Pap smear screening procedure is efficacious, and what her intentions are to have Pap smears in the future.

Perceived barriers and facilitators are the factors that either promote or deter participation in preventive health screening behaviors. For the purposes of this study participation in preventive health screening will be measured by only the factors that deter screening. Therefore, this concept will be defined as perceived barriers to Pap smear screening. Perceived barriers to Pap smear screening are defined as feelings of fear, physical discomfort, embarrassment, or anxiety caused by the Pap smear procedure that may discourage a woman from participating in routine screening. Barriers to screening also include practical considerations such as lack of time, money, or transportation. If few factors deter the individual from receiving routine Pap smears then the lack of barriers is then viewed as a facilitator of the screening process. However, in this study facilitators to cervical cancer screening will not be measured.

As illustrated by the direction of the arrow in the model (Figure 1), perceptions of efficacy of the screening process are formed by the individual once barriers to the screening process have been established. Perceived efficacy refers the individual's confidence in the ability of a given clinical intervention or health recommendation to successfully accomplish a desired health outcome (Given et al., 1989). Perceived efficacy of the Pap smear is defined as the confidence a woman has that the Pap smear screening procedure will be able to detect cervical abnormalities.

Screening intentions or, health motivation are defined as an individual's general-ized state of intent, toward engaging in behaviors that maintain or improve health.

This concept assumes that the individual feels a given health action is relevant and important and is therefore motivated to participate in it (Champion, 1984). An individual's screening intentions for cervical cancer are defined as the likelihood of a woman receiving a Pap smear within the next year and the extent to which receiving a Pap smear on a regular basis is a priority for her.

The six previously described health belief variables all interact to influence the degree to which a woman will participate in routine screening for cervical cancer. The extent of this influence is represented by the dependent variable screening frequency, which is defined by the number of times an older woman has participated in Pap smear screening in the last 10 years.

One would like to compare Pap smear screening frequency observed in this study with previously established guidelines for routine screening. However, the most recent guidelines of three national organizations that set screening standards, the American College of Obstetricians and Gynecologists, the American Cancer Society, and the National Cancer Institute, do not explicitly recommend a specific time frame for screening. These three organizations jointly recommend that asymptomatic women who are 18 years or over or, who have been sexually active, have three consecutive annual Pap tests and pelvic examinations. After three or more consecutive normal examinations, the Pap test may be performed less frequently at the discretion of the physician (American College of Obstetricians and Gynecologists (ACOG), 1989; Fink, 1991; National Cancer Institute (NCI), 1990). Therefore, for the purposes of this study, the definition of routine Pap smear screening was derived from selected

current research investigations on Pap smear frequency which have included a specific time frame and will be defined as a Pap smear every three years (Celentano, 1988; Harlan et al., 1991; Hayward et al. 1988).

Role of the Clinical Nurse Specialist

In the clinical setting the CNS is in an ideal position to have a direct influence the screening behaviors of older women. It is likely that Pap smear screening frequencies in older women differ. Differing frequencies will therefore require different management strategies. By incorporating health belief concepts into an organizing framework for planning nursing care all the aspects of a woman's screening behavior, individual perceptions, modifying factors, and likelihood of action, can be assessed. With this information the CNS is then able to plan counseling and educational interventions for her clients accordingly. The role of the Clinical Nurse Specialist (CNS) in relationship to Pap smear screening frequency of older women will be discussed in a later section.

Critique of the Health Belief Model

As discussed earlier, health belief concepts have proven to be successful in explaining a variation of health behaviors. However, Janz and Becker (1984) have identified two important conceptual limitations of the HBM. First, the HBM is based on the assumption that the individual perceives health as a highly valued state; consequently, the model may be limited to measuring only those individuals who view their health in this manner. Second, the HBM is primarily a psychosocial model and is, therefore,

mostly limited to accounting for the variance in individual health–related behaviors as can be explained by attitudes and beliefs.

The HBM is a dynamic theoretical framework, that is, the variables occur in sequence with each concept relating to the following one, creating movement in one direction as illustrated by the arrows in the model. Multivariate statistical techniques are often employed when analyzing this model in order to accurately reflect the overall direction and close conceptual relationship that these variables have to each other. However, for the purposes of this study the variables will be analyzed separately and will not be examined in relationship to each other. Therefore the dynamic quality of the model and the relationship that the variables have to each other will not be accounted for.

Review of Literature

In recent years extensive research examining the factors that influence the frequency of Pap smear screening has been conducted. There appear to be three major perspectives on the subject: (1) those that primarily deal with epidemiological factors such as incidence of cervical cancer in the population and the extent to which Pap smear screening occurs; (2) those that address the psychosocial issues surrounding the screening and disease process such as subjective perceptions, cognition, and attitudes of women toward screening and cancer; and (3) those that investigate health care system variations including type of doctor, type of health insurance, and degree

of contact with the health care system.

These differing perspectives provide a broad view of the issues that are relevant to Pap smear screening and contribute much valuable information that is relevant to this study. However, comparison of these investigations of differing perspectives and different study purposes is difficult because consistent terminology and definition of variables and concepts under study are lacking.

For example, several studies (Elkind et al., 1988; Harlan et al., 1991; Peters et al., 1989) utilize HBM concepts such as attitude, beliefs, and cognition, to discuss factors that deter or enhance the Pap smear screening process. But because the main intent of these investigations is not exploring health beliefs these variables are not clearly defined, placed into a conceptual framework or, strongly emphasized as health belief constructs. Only two recent studies (Hill, Gardner, & Rassaby, 1985; Hennig & Knowles, 1990) utilize the HBM as a conceptual framework and define their variables clearly in these terms.

The goal of this literature review, therefore will be to review and synthesize the various types of investigations on Pap smear screening and cervical cancer in order to identify research findings that are relevant to this study. The following types of investigations on cervical cancer and Pap smear screening will be discussed: those that discuss the relationship between advancing age and cervical cancer screening frequency, those that use the HBM as a conceptual framework a basis for study, those which have simultaneously addressed a broad combination of factors that affect Pap smear frequency such as demographic, structural and psychosocial variables, and

those which address how the health care needs of women of advancing age affect the frequency of Pap smear screening.

Age in Relationship to Screening Frequency

The relationship between age and cervical cancer screening frequency has been found to be significant. In a large telephone survey of 1200 middle aged and elderly women (Celentano, 1988) that investigated the relationship between age and frequency of Pap smear screening, a direct negative linear relationship between advancing age and obtaining a routine Pap smear was found. Routine Pap smear was defined as a Pap within the last three years. Results from this survey revealed that as many as 90 percent of the women aged 45–54 years reported having at least one Pap smear in the last five years. These figures dropped to 72 percent in women aged 55–64 and to 56 percent in women 65 and older.

In another national telephone survey of 4629 women that also examined age in relationship to cervical cancer screening, Hayward et al. (1988) obtained results similar to those of the Celentano study (1988). The proportion of women who had received routine Pap smears decreased significantly with advancing age. The survey indicated that, in the 20–39 age group, 91 percent of women had received a routine Pap smear. Whereas by the time women were 65 and older this figure dropped to as low as 59 percent. Hayward et al. (1988) defined routine screening as a Pap smear within the last three years for women up to age 65 and within the last five years for women over the age of 65.

Psychosocial Aspects of Cervical Cancer Screening

Psychosocial factors have been found to have an influence on the frequency of Pap smear screening. There are only two recent investigations which focus entirely on the psychosocial aspects of Pap smear screening. These investigations, both Australian, were conducted by the social scientists Hill, Gardner, and Rassaby (1985) and Hennig and Knowles (1990). The Hennig and Knowles study (1990) is a partial replication of the Hill et al. study (1985). Both studies utilized the HBM as a conceptual framework, utilized the same questionnaire and stated that the purpose of the study was investigate health behavior in order to plan more effective health education programs.

Hill et al. (1985) had a sample of 123 women over the age of 18 with a median age of 34. The independent variables derived from the HBM included the following: social influence of important others, attitude toward Pap smears, perceived barriers to screening, perceived benefits to screening, perceived seriousness of cervical cancer, perceived susceptibility to cervical cancer, and health motivation, the degree to which women thought they would be screened for cervical cancer in the future. Hill et al. (1985) correlated their independent variables with the dependent variable future Pap smear behavior. Future Pap smear behavior was defined as the intention of having a Pap smear in the next two years and was measured using the scores from two Likert scale items. The Hennig and Knowles study (1990) had a slightly older aged sample which included 144 women whose mean age was 54. Hennig and Knowles (1990) correlated the same independent and dependent variables as in the Hill et al. study (1985).

The two studies obtained similar results for four of the six health belief variables. Both investigations reported that attitude toward cervical cancer, perceived barriers to screening, perceived susceptibility, and health motivation significantly accounted for the intention to have a Pap smear in the future.

In addition, Hill et al. (1985) found social influence was able to significantly predict the intention to be screened for cervical cancer in the future, whereas in the Hennig and Knowles study (1990) the concept of social influence was not found to significantly affect future Pap smear behavior. Two explanations given by Hennig and Knowles (1991) for the lack of significance of social influence were that, in general, older women have less social contact than younger women, and that older women are less apt to discuss their personal concerns with others.

The Hennig and Knowles study (1991) described past cervical cancer screening practices of their sample according to age, whereas the Hill et al. study (1985) did not. Hennig and Knowles (1991) divided their sample into three age groups (40–49, 50–59, 60–82). The 40–49 age group reported having had significantly more Pap smears in the last 10 years than either of the other two age groups. This was the only reported analysis in either study done according to age group. All other statistical analyses in both studies were done on the samples as a whole. Neither study defined the term routine Pap smear.

Multivariate Studies

Two recent studies exist which have investigated a combination of factors that affect the frequency of Pap smear screening (Harlan et al., 1991; Peters et al., 1989).

Even though there is no consistent conceptual definition of the variables under study and methods differ substantially in each investigation, these studies both found similar psychosocial, demographic, and health care system factors to exert a significant influence in the frequency of Pap smear screening.

Peters et al. (1989) investigated a group of Caucasian and Hispanic women up to age 76 in order to determine the barriers to participating in cervical cancer screening. The sample (N = 400) was divided into five groups according to Pap smear screening frequency in the last five years. Barriers to screening were grouped into six categories: (1) cognitive barriers, (2) emotional barriers (fear), (3) emotional barriers (hate), (4) economic barriers, (5) logistic barriers, and (6) social barriers. Demographic, health history, and health care system variables were also analyzed. Peters et al. (1989) found that cognitive and emotional (fear) barriers were significantly more apparent in the group of women who had been screened the least in the last five years. Cognitive barriers were defined as statements from subjects indicating a lack of understanding of the screening nature of the Pap smear and not knowing when or why a Pap smear was necessary. Emotional (fear) barriers were defined as fear of pelvic exams, doctors, and abnormal findings.

Other factors differed between the five frequency–based screening groups. The group of most frequently screened women had significantly greater incomes, were more highly educated, had resided in the United States for longer periods of time, had a regular doctor, had a health insurance policy, and were familiar with the appropriate Pap smear screening interval. Whereas women in the group who had received little

to no screening were mainly of Latin descent and were significantly older than those women who received the most frequent screening. Peters et al. (1989) did not do any specific analyses according to age, nor did they define the term routine Pap smear screening or report the use any type of conceptual framework to guide their study. However, many of the variables used in the Peters et al. study (1989) are very similar to those that have been defined in the context of the HBM.

Harlan et al. (1991) examined a sample of 12,686 African-American, Caucasian, and Hispanic women aged 18 years and older to discover the variables that affect compliance to routine Pap smear screening. Compliance to routine screening was defined as having had a Pap smear in the last three years. Attitudinal, demographic, and health care system variables were examined.

Attitudinal reasons for noncompliance were categorized into seven groups: (1) thinking that the Pap smear was unnecessary; (2) having had a hysterectomy; (3) cost of the Pap smear as a consequence of not having health insurance; (4) not having a physician; (5) not having had a Pap smear recommended by physician; (6) embarrassment or fear; and (7) other or unknown reasons. The two groups which had significantly decreased screening compliance were those that thought that the Pap smear was unnecessary and those that had not had a Pap smear recommended by a physician.

Demographic variables examined were: ethnicity, education, income, and age. It was found that Latina women had had significantly fewer Pap smears than either Caucasian or African-American women in the last three years, and were less likely to

have ever heard about the Pap smear technique. This was especially apparent in the Latina population whose primary spoken language was Spanish. In addition, having less than a high school education, being of low income status, and being of older age all correlated with decreased screening compliance.

When examining health care system variables, Harlan et al. (1991) discovered that a factor that significantly affected screening compliance was the type of health care setting. Harlan et al. (1991) found that women who belonged to prepaid health plans or health maintenance organizations were more likely to have been screened in the last three years than women who received care from a private doctor's office. While the authors do not state why this is so perhaps it is because of the emphasis prepaid health plans put on the early detection and the prevention of disease.

Factors that correlated with reduced Pap smear screening frequency which were common to both the Harlan et al. study (1991) and the Peters et al. study (1989) were: lack of knowledge about the necessity of routine Pap smears, low income status, low level of education, Hispanic origin, and advancing age.

A third study (Elkind et al., 1988) examined several factors that influence Pap frequency. This was a qualitative study conducted in Britain that interviewed 56 women, the majority under the age of 50, which was designed to explore reasons for low attendance at government–run cervical cancer screening programs. Elkind et al. (1988) classified reasons for not attending screening programs into three categories: organizational barriers, logistical barriers, and subject characteristics. Although comparing most of these variables to the variables in the two previous studies is difficult

because of different health care systems, it is of interest that subjective beliefs of the women interviewed and the barriers that prevent their routine screening are similar to those found in the two previous studies discussed.

Subject characteristics which were found to account for low screening attendance were grouped into two categories: attitudinal barriers and invalid beliefs. Attitudinal barriers were defined as embarrassment due to having an internal exam, having a male doctor, fear about test results, previous unpleasant experiences with screening, and fatalism (described as preferring not to know or think about Pap tests or their results). Invalid beliefs were defined as thinking that the test was inappropriate, being unaware of the preventive nature of the Pap smear, or not believing that the test was needed. Elkind et al. (1988) did not define the term routine Pap smear. Because of the small number of older women in the study Elkind et al. (1988) were unable to determine whether or not older women were less likely to be screened because of their attitudes and beliefs.

Health Needs of Older Women

The health care needs of women of advancing age have an impact on the frequency of Pap smear screening (Blesch & Prohaska, 1991; Teitelbaum et al., 1988; Warren & Pohl, 1990). In a discussion about cervical cancer screening in older women Blesch and Prohaska (1991) describe Pap smear screening as an incidental procedure done primarily in the larger context of reproductive health care. Reproductive health care centers around birth control and childbearing issues. When women no longer require this type of health care they tend to drop out of the pool of women receiving

reproductive health care and therefore receive fewer Pap smears.

Differing health care needs of older women affect the type of health care provider they receive care from. Warren and Pohl (1990) investigated cancer screening practices of nurse practitioners and state that middle–aged and older adults often receive their health care from specialists due to chronic medical conditions such as diabetes and hypertension. As a consequence, primary health care issues such as Pap smear screening for early detection of cervical cancer and other health promotion issues are often not the main concern of a specialty practice and therefore not addressed at these types of visits.

A study by Teitelbaum et al. (1988) examined two aspects of Pap smear screening: women's reported Pap screening practices in relationship to type of physician from whom they received care, and the recommendations of 400 health care providers (obstetrician–gynecologists, family practitioners and internists) regarding cervical cancer screening for middle aged and older women. Teitelbaum et al. (1988) found that while the majority of providers in all specialties recommended annual screening, Obstetrician/Gynecologists were consistently more likely to recommend annual Paps to their clients than the other two specialties surveyed. However, older women were more likely to receive their health care from internists or family practice physicians, thus decreasing their opportunity to be screened.

Rationale for Proposed Study

Literature relevant to cervical cancer and Pap smear screening has been reviewed with an attempt to explain the numerous factors that influence the frequency of Pap

smear screening in older women. The studies have revealed that several factors are required for cervical cancer screening to take place on a regular basis. Optimal cervical cancer screening is promoted if: (1) psychosocial barriers such as embarrassment, fear, discomfort or lack of understanding are minimized; (2) a woman is well educated, of high income status and is English speaking, and (3) a woman has regular contact with the health care system and adequate health insurance.

Few studies have specifically examined the relationship between health beliefs and cervical cancer screening practices of older women and therefore one area of inquiry which is significantly lacking in the literature on cervical cancer is a detailed description of how psychosocial factors affect the Pap smear screening practices of older women. The two recent studies that have exclusively examined the relationship between health beliefs and Pap smear screening (Hill et al., 1985; Hennig & Knowles, 1990) have included a broad age range of women in their samples and have not reported the data according to age. Consequently, these study results can only be applied to women in a general context and cannot be used to draw conclusions specifically about how health beliefs affect cervical cancer screening practices of older women.

Women of advancing age have health care priorities and needs that differ from those of younger women. Perceptions on cervical cancer and Pap smear screening may therefore also differ. Those aspects of preventive health behavior described in the HBM, individual perceptions, attitudes and level of knowledge, clearly have an important impact on cervical cancer screening practices. Therefore, a study that

examines how health beliefs influence the cervical cancer screening practice of older women is needed.

Methods

The methods utilized in this study are presented in this section. Study questions, sample procedures, instrumentation, scoring, data collection and data analyses are outlined. This is followed by a discussion on study limitations and the protection of human subjects.

Study Questions

The aim of this study was to determine, utilizing a correlational design, what health beliefs were significantly related to the cervical cancer screening practices in a group of women 50 years old and older. Six study questions were asked:

(1) Is there a significant relationship between knowledge about Pap smear screening and frequency of Pap smear screening?

(2) Is there a significant relationship between perceived susceptibility to cervical cancer and frequency of Pap smear screening?

(3) Is there a significant relationship between social influence and frequency of Pap smear screening?

(4) Is there a significant relationship between perceived barriers to Pap smear screening and frequency of Pap smear screening?

(5) Is there a significant relationship between perceived efficacy of the Pap smear as a screening procedure and frequency of Pap smear screening?

(6) Is there a significant relationship between the intention to be screened for cervical cancer and frequency of Pap smear screening?

Sample Procedures

This investigation utilized a non–probability convenience sampling method. The target population was the membership of the Clerical–Technical Union (CTU) of Michigan State University (MSU). Permission from the union board was obtained to contact all women in the union who were 50 years of age or older (see appendix E). This included actively employed female members of the CTU as well as 29 female retirees. These women were identified by their birth year according to Human Resource records at MSU. Returned questionnaires were subject to the following eligibility criteria: returning the questionnaire in the designated period of time and not having had a hysterectomy.

As illustrated in Table 1, a total of 361 women 50 years old or older were identified and sent questionnaires. Out of a total of 361 questionnaires sent, 175 were returned prior to the cutoff date of September 10th, 1992 (a response rate of 48%). Out of these 175 returned questionnaires, 66 subjects reported having had a hysterectomy and were subsequently excluded from the study. The remaining 109 subjects reported that they had not had a hysterectomy and were therefore eligible for the study. The final sample consisted of 109 subjects.

Table 1

Sample

Questionnaires	n	%
Questionnaires Sent	361	100
Questionnaires Not Returned	186	52
Questionnaires Returned:		
Questionnaires returned but subjects ineligible	66	18
Valid questionnaires	109	30

Operational Definition of Variables

The variables were operationalized by the self–report of each subject completing

the questionnaire (see appendix B). The independent variables were operationalized

as follows:

Knowledge of Pap smear screening—(Questions 11, 12, 13, 28, 30, 31). This vari-

able measures the knowledge subjects have about Pap smear screening and cervical

cancer. Included are questions that assess understanding about the preventive nature

of the Pap smear, when one needs a Pap smear, and whether one can have cervical

cancer without exhibiting signs and symptoms of the disease.

Perceived susceptibility to cervical cancer—(Questions 23, 24, 25, 26, 27). This

variable measures concerns women have about getting cervical cancer. Included are

questions about the likelihood of developing cervical cancer, the seriousness of the

disease, and the possibility that one could have cervical cancer without being aware of it.

Social influence—(Questions 18, 19, 20, 21, 22). This variable measures the influence that "important others" such as health professional, friends, and family, have on a woman's decision to get a Pap smear. Included are questions measuring the reported advice, discussion, or discouragement on the practice of cervical cancer screening from "important others". The perceived importance of the opinions of "important others" about Pap smear screening is also included.

Perceived barriers to Pap smear screening—(Question 34: a 16 item subscale). This variable measures what subjects perceive as the barriers to Pap smear screening. Included are questions assessing both the emotional and physical discomfort of the subject during procedure, the perceived importance of having a Pap smear, the perceived efficacy of the Pap smear procedure, the Pap smear in relationship to control of one's health, and cost and time issues.

Efficacy of the Pap smear screening process—(Questions 10, 14, 15, 16, 17, 29). This variable measures the degree to which subjects feel that the Pap smear is a worthwhile procedure. The questions measure perceptions about whether Pap smears are effective in detecting cervical cancer and improving chances of survival.

Intentions to be screened for cervical cancer—(Questions 32, 33). This variable measures the extent to which cervical cancer screening is a priority for the subject and the likelihood of participating in immediate and long-term screening.

The dependent variable was operationalized as follows:

The number of Pap smears the subject received in the last 10 years—(Question 8). Measurement of this variable was done using one question which asked the respondent to check the number of times she had had a Pap smear in the last 10 years.

Instrumentation

The instrument for this study consisted of an adapted version of the questionnaire, "Breast Cancer Screening Practices" developed by Given et al. (1989). (The original questionnaire was developed for use in "Assessment of Barriers and Facilitators to Screening for Breast Cancer: A Worksite Approach" (Given et al., 1989). This was an investigation (N=1632) funded by the Michigan Department of Public Health whose purpose was to explore the barriers and facilitators to breast cancer screening in the workplace.) The adapted instrument "Cervical Cancer Screening Practices Questionnaire" (see appendix B) contained a total of 42 questions; 24 measuring health beliefs and the remaining 18 items asking about the subject's background and health history. The background and health history questions provided information on the similarities and differences in demographic characteristics, preexisting medical conditions, and current health practices.

The majority of items in the "Cervical Cancer Screening Practices Questionnaire" were arranged in a fixed alternative format, the remainder required a yes/no response. The fixed alternative items required the respondent to pick the most appropriate answer out of a choice of three to five alternatives. Each alternative was assigned a numerical value for purposes of analysis. Several background and health history

items requested that the respondent pick as many items in the questions that were applicable. The adapted instrument was pilot tested by three female volunteers, all over the age of 50, in order to judge for clarity and completion time. Revisions were then made based on their comments.

Modifications to the Breast Cancer questionnaire (Given et al., 1989) were necessary in order to more accurately reflect health beliefs pertaining to cervical cancer screening practices. The breast cancer screening process has three dimensions: mammography, breast self exam (BSE), and clinical breast exam (CBE). In contrast, the cervical cancer screening process only has one dimension: the Pap smear. Therefore, only one set of questions, those that measured CBE, were adapted for use in this study. The CBE dimension was chosen because this procedure is most similar to the Pap smear in that both are performed in the office setting and both require direct client/provider interaction. Because breast cancer and cervical cancer differ in terms of incidence and significance of known risk factors questions pertaining to these categories were omitted in the adapted questionnaire.

Given et al. (1989) reported Cronbach's alpha coefficient of reliability for the barriers scale. The barriers scale was factor analyzed and four subscales and their alpha coefficients were reported: perceived importance of the CBE procedure (.86), perceived efficacy of the CBE (.87) procedure, perceived discomfort of the CBE procedure (.88), perceived control of health (.75). Each subscale yielded a high alpha correlation indicating a high degree of internal consistency for the barriers scale. The present study did not use the subscales of barriers to report alpha coefficients.

The "Cervical Cancer Screening Practices Questionnaire" was a newly adapted instrument and therefore no information on the validity and reliability was available prior to questionnaire administration. Reliability studies were performed after the data collection was complete. These results will now be reported.

The reliability of each of the six scales on the adapted instrument "Cervical Cancer Screening Practices Questionnaire" was tested using the Cronbach's alpha correlational analysis of internal consistency. Internal consistency determines the extent to which all items on a particular scale consistently contribute to the overall measurement of a concept by correlating the individual items on a scale with each other and with the overall score (Brink & Wood, 1988).

Table 2 reports the mean inter–item correlations and the alpha coefficients. As illustrated, four out of the six health belief scales, influence, barriers, efficacy, and intentions had correlations of .70 or higher. This is considered an acceptable correlation for this type of analysis (Polit & Hungler, 1987) and indicates that the items contained in these four scales were consistently measuring the same concepts.

Three items on the barriers scale (see question #34, items j, o, and s, appendix B) were omitted after the initial reliability analysis was performed because they decreased the alpha correlation coefficient. Once these items were eliminated the alpha correlation coefficient rose from .70 to .79 indicating that these three items were not effectively contributing to the ability of the overall scale to consistently measure the concept.

Table 2

Reliability of "Cervical Cancer Screening Practices Questionnaire"

Variable	Mean Inter-Item Correlation	Alpha
Knowledge	.06	.27
Susceptibility	.15	.44
Influence	.19	.73
Barriers	.20	.79
Efficacy	.40	.79
Intentions	.70	.82

The knowledge and susceptibility scales both had considerably lower alpha correlations, $r = .27$ and $r = .43$ respectively, indicating that the responses from individual subjects to these questions showed considerable variation and therefore the items within these scales were not consistently measuring the concepts.

Extensive analyses to determine the validity of the "Cervical Cancer Screening Practices" instrument were not performed in this study. However, the instrument was reviewed by four nurses in advanced practice who specialize in the area of women's health and cancer screening. Further validity studies would have helped to determine the degree to which the scales were accurately representing the abstract concepts under investigation but were beyond the scope of this study.

<u>Scoring Procedures</u>

The dependent variable (the number of Pap smears that the subject has received in the last 10 years) was measured using a range that consisted of 11 possible alternatives, assigned a numerical value, from "can't remember how many Pap smears in the last 10 years" to "more than 10 Pap smears in the last 10 years". The respondent chose one alternative.

Fixed alternative scales were used to measure the items representing the independent variables. All items had a range of three to five responses. Each possible response was assigned a numerical value. Scoring on five of the six scales (knowledge, susceptibility, influence, efficacy, and intentions) was arranged so that significant positive correlations would reveal a positive relationship between health beliefs and Pap smear frequency. That is, an increase in the scores on any of the five scales was expected to be accompanied by an increase in the number of Pap smears that the individual had had in the last 10 years.

The knowledge scale contained six fixed alternative three or five–point items. The highest possible score for the scale was a total of 26 points on a range of 6–26 points. High scores on the scale reflected that respondents were knowledgeable about the nature of cervical cancer and Pap smear screening recommendations, low scores reflected less knowledge.

The susceptibility scale contained five fixed alternative four or five–point items. The highest possible score was 24 points on a range of 5–24 points. High scores reflected that subjects perceived themselves to be susceptible to cervical cancer, whereas

low scores indicated a low degree of susceptibility.

The influence scale contained four items. Three items had a total of 27 yes/ no alternatives. The fourth item was a scale with eleven four–point items. The highest possible score was 62 points on a range of 0–62 points. Subjects who reported that their Pap smear practices were influenced by "important others" obtained high scores, whereas subjects not influenced by "important others" obtained the low scores.

The efficacy scale contained six fixed alternative five–point items. The highest possible score for the scale was 30 points on a range of 6–30 points. Those who scored high on the scale reported that they perceived the Pap smear to be an efficacious procedure whereas those with lower scores felt the Pap smear to be less efficacious.

The intentions scale contained two fixed alternative four or five–point items. The highest possible score for the scale was nine points on a range of 2–9 points. Those for whom getting a Pap smear in the future was a high priority received high scores as opposed to those who felt that getting a Pap smear in the future was less of a priority.

Scoring on the barriers scale was arranged so that significant negative correlations would reveal that a negative relationship exists between past Pap smear practices health beliefs. That is, an increase in the scores on the barrier scales was expected to be accompanied by a decrease in the number of Pap smears in the last 10 years.

The barriers scale contained nineteen four–point items (this was reduced to sixteen after the reliability analysis). The highest possible score was 64 points on a range of 16–64 points. High scores on the scale reflected that the subject perceived many

barriers to cervical cancer screening, low scores reflected few perceived barriers.

Data Collection Procedure

Data was collected between August 13, 1992 and September 10, 1992. With the permission from the CTU the names and addresses of potential participants were made available from the Human Resources department at MSU. The questionnaire with an accompanying cover letter (see appendix A) and return envelope were mailed to the 361 subjects who met the age criterion on August 13, 1992. Two weeks after the initial mailing of the questionnaire a follow–up thank–you/reminder postcard (see appendix C) was sent to all recipients of the questionnaire regardless of whether or they had returned the questionnaire.

Data Analysis

Data analysis was done with the SPSS/PC+ computer program. Demographic and health history characteristics were categorized using descriptive statistics: percents, frequency distributions, and measures of central tendency. Pearson's correlational analysis was utilized to determine the relationship of the six independent variables to the dependent variable. For the purposes of statistical analysis and application of the study results to nursing practice, the six independent health belief variables derived from Given's HBM (Given et al., 1989) (knowledge, susceptibility, social influence, barriers, efficacy, and intentions) were correlated separately with the dependent variable (the number of Pap smears the respondent has had in the last ten years) as reflected by the six study questions posed.

Study Limitations

There are three limitations to this study. First, although only minor alterations to the Given questionnaire (Given et al., 1989) were made, this is a newly adapted instrument and the reliability was not established prior to data collection, nor were any validity issues explored. Second, this was a correlational study and it would have been preferable to use a random sampling method. Because a convenience method was utilized the sample did not accurately represent the larger population. Therefore, results could only be discussed in terms of this study. Finally, data collection was self-reported by participants. No attempt was made to verify information through other sources.

Protection of Human Subjects

The rights of the individuals who participated in this study were protected according to the guidelines developed by the University Committee on Research Involving Human Subjects (UCRIHS) at Michigan State University. Approval to conduct this survey was received from UCRIHS prior to data collection (see appendix D).

The identity of all study participants remained confidential. The list of participants names and addresses was used for mailing purposes only and no further records were kept after mailing. The responses of all study participants remained anonymous. The questionnaires were not coded in any way to identify participants nor were questionnaire responses reported in such a way as to link them to individual subjects. All study results are reported in aggregate form.

Findings

The results described in this section are compiled from the self-reported question-
naires returned by 109 subjects who were eligible for this study. Included are tables
showing the sociodemographic, health, and Pap smear screening characteristics of the
sample; and tables giving results of the data analyses.

Sociodemographic Characteristics

The 109 subjects in the sample were between the ages of 50 and 71 years; their
mean age was 56.2 years. As illustrated in Table 3, the majority were white (93.5 %),
employed full-time (80.7%), and married (68.5%). Over half the sample, 61 subjects
(56%), reported that they had gone to college for one year or more. At least 56
subjects (45.5%), reported a combined household income of $41,000 or above. All
subjects reported having health insurance.

Health Characteristics

As reported in Table 4 the majority of the sample, 90 subjects (84.1%), had
reached menopause and approximately one quarter of the sample, 27 subjects (24.8%),
reported that they were on hormonal replacement therapy. The most frequently
reported chronic medical conditions were hypertension (28.4%) and arthritis (19.3%).

Screening Characteristics

As can be seen in Table 5 the entire sample (100%) reported having had at least one
Pap smear in the past 10 years. The mean number of Pap smears in the last 10 years

Table 3

Sociodemographic characteristics of sample

Characteristic	n	%
Age		
50–54 years	42	38.1
55–59 years	33	30.2
60–64 years	27	24.5
65–69 years	5	5.4
70 years and above	2	1.8
Race		
White	101	93.5
Hispanic	4	3.7
Chinese	1	0.9
Other	3	2.8
Employment Status		
Fulltime	88	80.7
Part-time	12	11.0
Retired	9	8.3
Marital Status		
Married	74	68.5
Divorced	27	25.0
Widowed	4	3.7
Never married	2	1.9
Missing	2	1.9
Highest grade Completed		
8 - 11th grade	3	2.8
High school graduate	28	25.9
Post high school	14	13.0
1 - 3 years of college	43	39.8
College graduate	14	13.0
Graduate school	6	5.5

Table 3 continued

	n	%
Combined Household Income		
<$10,000	1	0.9
$10,000 - $20,000	9	8.6
$21,000 - $30,000	29	26.8
$31,000 - $40,000	14	12.1
$41,000 - $50,000	24	22.3
> $50,000	32	29.6
Health insurance		
Yes	109	100

Table 4

Health characteristics of sample

Characteristic	n	%
Menopause		
Yes	90	82.6
No	13	11.9
Don't Know	4	3.7
Missing	2	1.8
Hormonal replacement		
Yes	27	24.8
No	50	45.9
Missing	32	29.4
Co-morbidity [a]		
Hypertension	31	28.4
Heart disease	3	12.8
Diabetes	7	6.4
Arthritis	21	19.3
Cancer	10	9.2
Other	11	10.1

[a] Respondents were asked to check all answers that applied.

for the sample was 8.83. When asked how many Pap smears they had had in the last 10 years as many as 70 subjects (74.3%) reported that they had at least nine Pap smears in the last 10 years. When asked what prompted their most recent Pap smear 102 subjects (93.6%) reported that their most recent Pap smear was part of a routine check-up. A total of 26 subjects (23%), reported that they had had an abnormal Pap smear in the past and 2 subjects (1.8%), reported these abnormal results were positive for cervical cancer. When asked who usually performs their Pap smear, 62 subjects (56.9%) reported that they had had their routine Pap smears done by a family practice physician and 64 subjects (62.1%) reported that the procedure was usually performed by a male provider.

Description of the Variables

Several characteristics of the sample are apparent from the statistics reported in Table 6. The knowledge and intentions scales, and to a lesser extent the efficacy scale, have means near the top of their range and relatively low standard deviations. This indicates that most subjects in this study were quite knowledgeable about Paps smears, intended to get regular Pap smears in the future and felt the Pap smear procedure was efficacious. The statistics for the Pap smear frequency scale clearly indicate that most woman in this study had received yearly Pap smears for the last decade, reflecting the fact that the sample was drawn from a homogeneous population which had health insurance and readily accessible health care. The possible reasons for the sample characteristics and their implications for the study will be discussed in the next section.

Table 5

Screening characteristics of sample

Characteristic	n	%
Number of Pap smears in last 10 yrs		
about 1	3	2.8
about 2	2	1.9
about 3	2	1.9
about 4	7	6.5
about 5	6	5.6
about 6	6	5.6
about 7	5	4.6
about 8	6	5.6
about 9	44	40.7
10 or more	26	24.1
Reason for last Pap smear [a]		
Due to a previous problem	7	6.4
Part of routine check-up	102	93.6
Recommended by provider	5	4.6
Recommended by friend	2	1.8
Abnormal Pap		
Yes	26	23.9
No	81	74.3
Missing	21	1.8
Results of abnormal Pap		
Positive for cancer	2	8.0
Negative for cancer	19	72.0
Positive for other disease	2	8.0
Don't know results	3	12.0
Pap smear usually performed by [a]		
Family practice doctor	62	56.9
Internist	18	16.7
Obstetrician/Gynecologist	36	33.0
Nurse practitioner	10	9.2
Physician's assistant	2	1.9
Gender of provider who usually performs Pap [a]		
Male	64	62.1
Female	39	37.9

[a] Respondents were asked to check all answers that applied.

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Table 6

Range, mean and standard deviation of the variables

Variable	Possible Range	Observed Range	Mean	S.D.	n
Knowledge	6 - 26	17 - 25	21.8	2.0	105
Susceptibility	5 - 24	8 - 19	13.1	2.2	104
Influence	0 - 62	24 - 51	36.9	4.7	65
Barriers	16 - 64	16 - 42	29.7	3.9	95
Efficacy	6 - 30	9 - 29	23.4	3.5	108
Intentions	2 - 9	3 - 9	8.4	1.0	108
Pap frequency	1 - >10	1 - >10	8.8	2.5	109

Analysis of Research Questions

The six research questions described earlier were analyzed using Pearson's correlation coefficient. As shown in Table 7, two out of the six variables: perceived barriers to cervical cancer screening and intentions to be screened for cervical cancer in the future yielded significant correlations at the .001 level. The remaining four variables: knowledge about cervical cancer, perceived susceptibility to cervical cancer, perceived efficacy of the Pap smear, and intentions to be screened for cervical cancer in the future did not yield significant correlations.

Table 7

Correlations between Pap smear frequency and health beliefs

Variable	Correlation	n
Knowledge	.05	105
Susceptibility	.21	104
Influence	.05	65
Barriers	−.31*	95
Efficacy	.19	108
Intentions	.60*	108

* $p \leq .001$.

The Effects of Age and Hormonal Replacement Therapy on Pap Smear Frequency

After the initial descriptive analysis of demographic and health history variables a two way analysis of variance (ANOVA) was performed in order to examine the effects of hormonal replacement therapy (HRT) and age on Pap smear frequency. HRT was chosen because approximately one fourth of the sample (24%) reported that they had taken HRT. Age was chosen to observe whether or not screening frequency declined with advancing age as had been documented in the literature.

The sample was first divided into three age groups (Group 1 = 50–55 years, Group 2 = 55–59 years, Group 3 = 60 years and over). As illustrated in Table 8, age did not significantly affect Pap smear frequency, that is, in the last 10 years there

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was no significant difference in the mean screening frequency between the three age groups (Group 1: $\overline{X}$= 8.58 , Group 2: $\overline{X}$= 8.71, Group 3: $\overline{X}$= 8.06). However, HRT did significantly affect Pap smear frequency, that is, those who reported taking HRT had received significantly more Pap smears in the last 10 years than those who were not taking HRT (HRT yes : $\overline{X}$=9.52, HRT no: $\overline{X}$=7.96).

There was no significant interaction between variables when HRT and Pap smear frequency were examined simultaneously. That is, the overall variation in Pap smear frequency for the sample could not be accounted for when the combined effects age and HRT were examined.

Table 8

Two way ANOVA: The effects of age and hormonal replacement therapy on Pap smear frequency

Source of Variation	S.S.	D.F.	M.S.	F.	Sig. of F.
Age	3.01	2	1.5	.23	.793
HRT	40.99	1	41.0	6.33	.014*
Age x HRT	18.06	2	9.0	1.39	.254
Explained	63.66	5	12.7	1.96	.094
Residual	459.58	71	6.5	–	–
Total	523.24	76	6.9	–	–

* $p \leq .05$.

Discussion

Study findings are interpreted in this section. First, an overview of findings is given; this is followed by a discussion of the results of the six research questions and the effects of age and hormonal replacement therapy on screening frequency. Second, implications of study findings in terms of the HBM and the CNS's roles in the primary health care setting are presented. Finally, topics for future research are suggested.

This study utilized a convenience, or non-probability, sampling method. As often occurs with this sampling technique, the resulting sample was fairly homogeneous. Sociodemographic characteristics of the subjects in this sample were very similar: the majority were white (93.5%), married (68.5%), and employed full-time (80.7%). At least 45 percent reported a combined household income of $41,000 or more. All reported having health insurance.

Because this was a correlational study it would have been preferable to use a probability, or random, sampling method. Random sampling assures that each member of a chosen study population has an equal chance of being included in the study. This increases the likelihood that the sample will be diverse and will, as accurately as possible, represent the natural variability that exists in the overall population (Brink & Wood 1988).

The more variability in a sample the easier it is to detect correlations that may exist. In this study four out of the six correlations between the health belief variables and Pap smear frequency were not significant. This is perhaps due to the homogeneity

of the sample. Therefore, the convenience sampling procedure used in this study is a study limitation.

Nearly all the women in the sample (95.3%) had had routine Pap smear screening, which in this study was defined as a Pap smear every three years. In fact, 70 subjects (74.3%) reported having at least nine Pap smears in the last 10 years ($\overline{X} = 8.8$, S.D. = 2.5). Thus, many of these woman seem to be receiving Pap smear screening annually and it is felt that perhaps these women were screened more often than is necessary. Current recommendations do not explicitly advocate annual screening (Fink, 1991; NCI, 1990; ACOG, 1989). Furthermore, there is no scientific data to suggest that asymptomatic women who are screened annually are at significantly lower risk for developing invasive cervical cancer than those who are screened every three to five years (Fisher & Eckhart, 1989).

Often screening schedules are based on a woman's personal risk factors for cervical cancer and at the discretion of the health care provider, and in individual cases there may be sound medical reasons for more frequent Pap smear screening. Questions dealing with these issues would have had to be asked before drawing the conclusion that screening was being done too often.

Research Questions

The six research questions posed in this investigation were based on the the Health Belief Model adapted by Given el al. (1989). Two out of six variables, barriers and intentions, yielded significant correlations with the dependent variable the number of Pap smears in the last 10 years. The remaining four variables: susceptibility,

knowledge, influence, and efficacy did not yield significant correlations.

Alpha correlation coefficients provided information about the internal consistency of the scales used to measure the variables. Four scales had relatively high degree of internal consistency, (influence: alpha =.73, barriers: alpha =.79, efficacy: alpha = .78, and intentions: alpha =.82), indicating a high probability that the results derived from the scales were accurate. However, the knowledge and susceptibility scales both had considerably lower alphas, alpha = .27 and alpha = .43, respectively. With the low degree of internal consistency of these two scales, the confidence that the significant results, had they been found, were accurate would be low.

Question #1. Is there a significant relationship between knowledge about Pap smear screening and frequency of Pap smear screening in the last 10 years?

This study did not find that knowledge about Pap smear screening influences Pap smear frequency. This is in contrast to the findings of other investigations (Peters et al. 1989; Harlan et al. 1991; Elkind et al. 1988) who all found that lower levels of knowledge about Pap smear screening were associated with decreased screening frequency.

In this study the correlation between knowledge and Pap smear frequency was not significant ($r = .05$). Therefore, the study failed to show that knowledge influenced Pap smear frequency. The failure to get a significant correlation was most likely the result of the homogeneity of the sample: the subjects nearly all had a high level of knowledge and a high level of screening frequency. In order to yield a significant correlation, if one in fact existed, and conclude that knowledge did indeed influence

screening frequency, would require a sample that also included subjects with low levels of knowledge and low levels of screening frequency.

A majority of 69 subjects (62.3%) scored 22 points or above out of a possible 26 points ($\overline{X}$ = 21.8, S.D. = 2.0). These scores reflected that subjects were generally knowledgeable about Pap smear screening; they understood the preventive nature of the Pap smear, its ability to detect cancer early and the asymptomatic nature of the disease.

The low reliability of the knowledge scale (alpha = .27) revealed that this was not an effective measure. This was possibly because the questions assessing knowledge were broad. They dealt with a wide range of issues: the symptoms of cervical cancer, the medical effectiveness of the Pap smear technique, and the recommended screening frequency. Furthermore, they were phrased using general terms such as "a woman" and " a person" and did not specifically address or account for the personal health situation of the individual.

Question #2. Is there a significant relationship between perceived susceptibility to cervical cancer and frequency of Pap smear screening in the last 10 years?

The correlation between the susceptibility scale and Pap smear frequency was not significant (r = .21) and therefore the study failed to show that perceived susceptibility to cervical cancer influenced Pap smear screening. Again, the failure to get a significant correlation was most likely the result of the homogeneity of the sample: the subjects nearly all had low levels of perceived susceptibility toward cervical cancer and high levels of Pap smear screening frequency.

About two thirds of the subjects (68.6%) scored 14 points or below out of a possible 24 points ($\overline{X}$ = 13.1, S.D. = 2.2). The consistently low scores reflected that most respondents did not believe they were at high risk for developing cervical cancer and did not believe that being over 50 years old affected the likelihood of their developing cervical cancer. Neither did they think it likely that they would develop cancer sometime in their lifetime.

The low reliability of the perceived susceptibility scale (alpha = .27) revealed that this was not an effective measure. Similar to the questions measuring knowledge most of the questions on the susceptibility scale were general; they assessed global susceptibility issues rather than relating susceptibility specifically to the individual.

A high level of perceived susceptibility to disease or illness is usually associated with a high level of participation in preventive health behavior (Janz & Becker, 1984; Nemcek, 1990). It is of interest to observe that in this study different results were found. The subjects had a consistently low level of perceived susceptibility to cervical cancer but a consistently high frequency of screening. The low level of perceived susceptibility toward cervical cancer of subjects in this sample may be the net result of their high level of knowledge about screening issues, their high confidence that the Pap smear is able to detect cervical cancer if present, and their history of frequent screening over a long period of time. In addition, it would appear that Pap smear screening is considered a regular part of the health care of these subjects regardless of their particular concerns about cervical cancer.

Question #3. Is there a significant relationship between social influence and frequency of Pap smear screening in the last 10 years?

The correlation between the social influence scale and Pap smear frequency was not significant ($r = .05$) and therefore the study failed to show that social influence affected Pap smear screening frequency. Again, the weak correlation can be attributed to the lack of variability in the sample. The total possible score on the social influence scale was 62 points and the results showed scores rather tightly concentrated around the mean ($\overline{X} = 36.9$, S.D. $= 4.7$).

The subjects had similar feelings about the advice or opinions of important others concerning screening. Nearly all the subjects felt that the opinions and advice of their doctor was most important, followed by the opinions and advice of their nurse or a family member. Most sampled women felt that opinions and advice of friends, co-workers and the media were only somewhat important. Virtually no one in the sample reported having been discouraged from obtaining a Pap smear.

The questions on the influence scale had a high reliability (alpha $= .73$), showing that this scale was consistently measuring the influence concept. However, only about half of the sample completed the questions on this scale (n $= 65$). It is felt that this happened because either the items on this scale lacked sufficient alternatives for respondents to choose from, or the format was not appealing to respondents.

Social influence is a complex concept to measure. To examine its full dimensions, one must measure not only negative and positive influence, but also the absence of influence. The questionnaire used in this study did not provide any alternatives that

clearly signified the absence of influence. Having this choice would have allowed fuller measurement of the concept.

Although social influence did not significantly affect Pap smear screening in this study it should be considered an important component of the HBM. Other studies have found that social influence significantly influences health behavior, including Pap smear practices. Hill et al. (1985) found that the influence of a physician, mother, sister, or close friend correlated significantly with the intention to have a Pap smear in the future. In a study that examined breast cancer screening behavior Champion (1989) found a significant relationship between social influence and performance of breast self–exam (BSE). Specifically, Champion found that women who were taught BSE by their physicians scored higher on proficiency scales, performed the exam more frequently, and had higher intentions of performing it in the future than those who had not been taught by their physicians.

Question #4. Is there a significant relationship between perceived barriers to Pap smear screening and frequency of Pap smear screening in the last 10 years?

A significant negative correlation ($r = -.31$) was found between perceived barriers and frequency of Pap smear screening in the last 10 years. Therefore in this study perceived barriers to cervical cancer screening did influence Pap smear screening frequency. However, only 9.6% of the variance in Pap smear screening could be explained by barriers.

The influence was in the direction one would expect; subjects who perceived the fewest barriers to the Pap smear screening process, as reflected by lower scores on

the barriers scale, had received significantly more screening in the last 10 years. In contrast, those subjects who perceived more barriers to the screening process, as reflected by higher scores on the barriers scale, had received significantly fewer Pap smears in the last 10 years. The reliability of the barriers scale was high (alpha = .79) showing that this scale was an effective measure.

The total score possible on the barriers scale was 64 points ($\overline{X}$ = 29.7, S.D. = 3.9). About a third of the items on the barriers scale had a high rate of variability in the scoring; such variability in data generally makes the detection of significant correlations easier. These items distinguishing the women who perceived a high level of barriers to screening from those who didn't. Items with a high rate of variability were: forgetting to arrange a Pap smear, feeling that the Pap smear was an embarrassing and unpleasant procedure, feeling physical and emotional discomfort when having a Pap smear, and anxiety and fear about abnormal Pap smear results.

The remainder of the items on the barriers scale showed little variability in the scoring and were not considered barriers by most women in the sample. The majority of women felt that they knew when they needed a Pap smear and knew how to ask for one, felt that the Pap smear was convenient to arrange, was worth the effort, and would improve their chances of detecting cancer early. In addition, the majority of women did not feel that arranging a Pap smear was a hardship due to cost, lack of time, or too many other worries.

These results are in agreement with other investigations which have also found that barriers to screening influenced Pap smear practices. Hill et al. (1985) and

Hennig and Knowles (1991) correlated perceived barriers to Pap smear screening with intentions to be screened for cervical cancer in the future and found that women who perceived more barriers to the screening process reported that they were significantly less likely to participate in Pap smear screening in the future. Both investigations found that embarrassment, indignity of the exam, discomfort, fear of abnormal results, and not having the procedure recommended by a physician were the items that correlated most significantly with Pap smear screening frequency.

Question #5. Is there a significant relationship between perceived efficacy of the Pap smear as a screening procedure and frequency of Pap smear screening in the last 10 years?

The correlation coefficient between efficacy and Pap smear frequency was not significant ($r = .19$). Therefore, perceived efficacy of the Pap smear did not influence Pap smear frequency in this study. Again, the weak correlation was due to the lack of variability in the sample. Approximately two thirds of the subjects (67.9%) scored 23 points and above out of a possible 30 points ($\overline{X} = 23.4$, S.D. $= 3.5$). Most believed that the Pap smear was an efficacious procedure and were confident that the Pap smear could detect abnormalities likely to be cervical cancer. In addition, the majority agreed that if cervical cancer was found early with the Pap smear the chances of complete recovery were improved.

The reliability of the perceived efficacy scale in this study (alpha $= .79$) revealed that this was an effective measure and that the questions on this scale were consistently able to measure the efficacy concept. However, it may have been more

appropriate in this study to more closely measure the concept of self–efficacy in relationship to cervical cancer screening practices (see page 9).

The questions on the efficacy scale dealt only with the effectiveness of the Pap smear as a cancer detection procedure. Whereas the the self–efficacy concept also deals with subjective feelings such as self–mastery and personal ability to carry out certain health related behaviors which both strongly pertain to personal perceptions about Pap smears. To measure the self–efficacy concept the questionnaire could have included questions asking more specifically about perceived degree of control over health attained by getting the Pap smear, the ability to arrange a Pap smear, and the confidence that one's health care practices provide adequate protection from, or warning about, the possibility of cervical cancer. Items measuring self–efficacy as well as efficacy of the Pap smear would have provided a broader interpretation of the concept and may have yielded more significant results in the context of the HBM.

Question #6 Is there a significant relationship between the intention to be screened for cervical cancer and frequency of Pap smear screening in the last 10 years?

The correlation between intentions and Pap smear frequency was significant ($r =$ .60). Therefore, in this study future intentions to be screened for cervical cancer did influence Pap smear screening frequency. The variance in Pap smear frequency that could be explained by intentions was 36%.

The influence of intentions on Pap smear frequency was in the expected direction. Subjects who strongly agreed that having a Pap smear in the next two years was a high priority and those who felt that it was highly likely that they would be having a

Pap smear in the next year had received significantly more Pap smears in the last 10 years than those who thought that it was less of a priority and less likely. The total number of points possible on the intentions scale was 9 points ($\overline{X}$ = 8.4, S.D. = 1.0). The reliability of the intentions scale was was high (alpha =.82), although there were only two questions measuring this concept.

Although the standard deviation for the intentions scale was relatively low, the data for this scale was not homogeneous. As shown in Table 6, the mean for the intentions scale was at the very top of the range ($\overline{X}$ = 8.4 on a 2-9 range). This indicates a highly skewed distribution, with most scores near the top of the range. However, there were a significant number of scores lower in the range. These scores lower in the range made the data inhomogeneous. Therefore, a significant correlation with Pap smear frequency was found because the women with low levels of intention generally had received fewer Pap smears.

The Effects of Age and Hormonal Replacement Therapy on Pap Smear Frequency

An ANOVA was performed to examine the effects of age and use of HRT on Pap smear frequency. While advancing age had no significant effect, the use of HRT was found to significantly affect Pap smear screening frequency. Results revealed that women who reported taking HRT (regardless of age) had received significantly more Pap smears in the last 10 years than women who did not take HRT.

The health history collected on HRT practices was not sufficient to explain this finding. However, it is presumed that taking hormones increases the need of women to contact their health care providers, and therefore increases the likelihood of their

receiving regular Pap smears. Furthermore, some sources have recommended that women on HRT have annual Pap smears (Gambrell, 1992). These recommendations appear to be precautionary because, while HRT is a known risk factor for endometrial cancer and a possible risk factor for breast cancer, it has not been shown to affect cervical cancer rates (Gambrell, 1992). Nevertheless, these recommendations (and possibly other considerations) could be prompting health care providers to advise their HRT patients to have annual Pap smears.

Implications For Advanced Nursing Practice

Cervical cancer screening is an integral part of advanced clinical practice and in the primary health care setting the CNS manages all aspects of screening care. This requires the expertise of the CNS as clinician, counselor, and advocate. As clinician, the CNS judges the necessity of screening, performs the Pap test, interprets lab results, and plans follow-up care on a long term basis. As counselor, the CNS advises clients about the importance of regular Pap smear screening as an ongoing health promotion behavior and works with the client to achieve this as a lifetime goal. As advocate, the CNS is accountable for being aware of current screening schedules and cervical cancer research issues and relaying this information to clients in an objective manner so that they may make informed decisions about their care. The HBM provides a framework to implement these roles and to plan cervical cancer screening strategies for older women in the primary health care setting.

The results of this study identify, in the context of the HBM, two areas where the CNS can have a significant impact on the cervical cancer screening practices of older

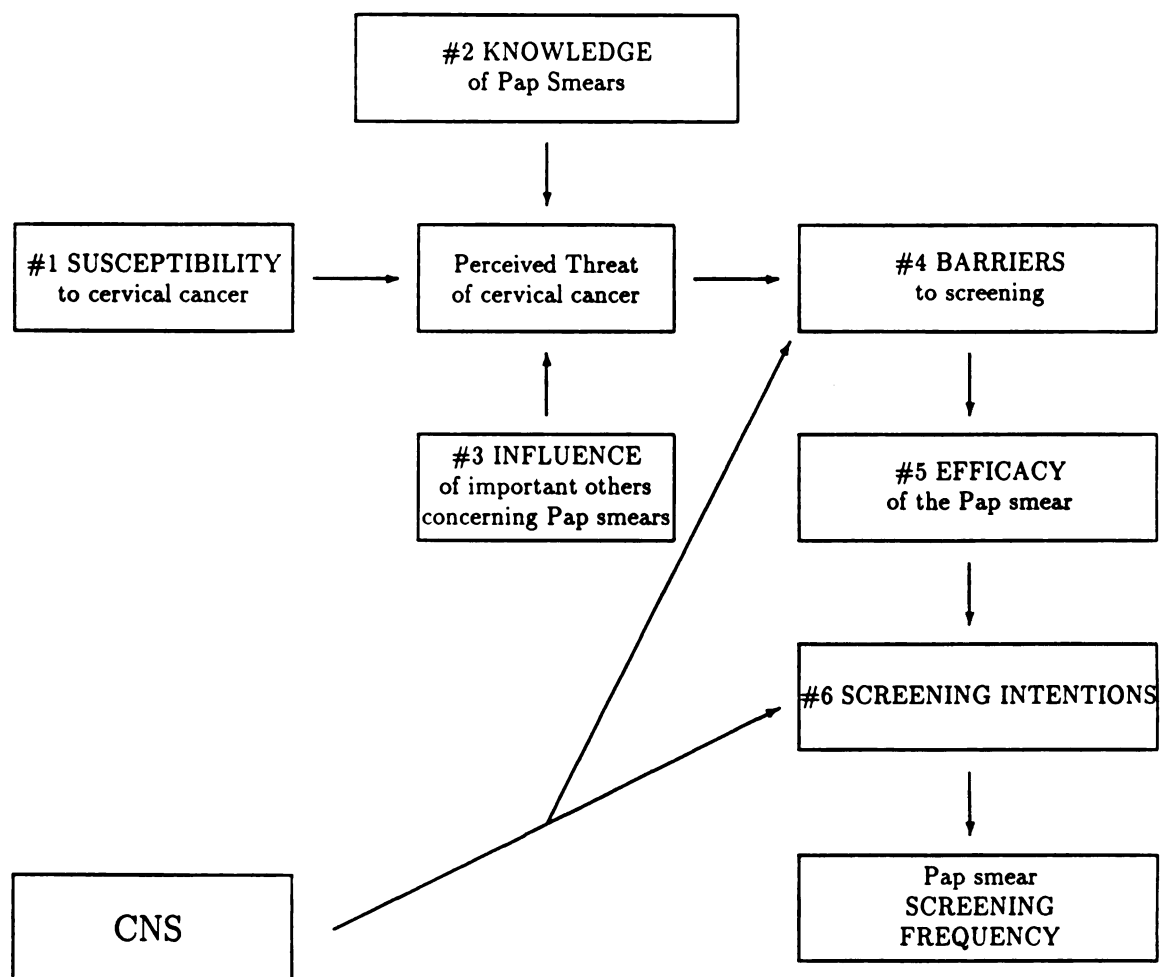INDIVIDUAL PERCEPTIONS   MODIFYING FACTORS   LIKELIHOOD OF ACTION

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                        ┌─────────────────────┐
                        │    #2 KNOWLEDGE     │
                        │    of Pap Smears    │
                        └─────────────────────┘
                                  │
                                  ▼
┌──────────────────────┐  ┌──────────────────┐      ┌──────────────────────┐
│  #1 SUSCEPTIBILITY   │─▶│ Perceived Threat │─────▶│    #4 BARRIERS       │
│  to cervical cancer  │  │ of cervical cancer│      │    to screening      │
└──────────────────────┘  └──────────────────┘      └──────────────────────┘
                                  ▲                            │
                                  │                            ▼
                        ┌──────────────────┐        ┌──────────────────────┐
                        │   #3 INFLUENCE   │        │    #5 EFFICACY       │
                        │ of important others│       │   of the Pap smear   │
                        │concerning Pap smears│      └──────────────────────┘
                        └──────────────────┘                  │
                                                              ▼
                                              ┌──────────────────────────────┐
                                              │#6 SCREENING INTENTIONS       │
                                              └──────────────────────────────┘
┌──────────────────────┐                                     │
│                      │                                     ▼
│        CNS           │                          ┌──────────────────────┐
│                      │                          │     Pap smear        │
└──────────────────────┘                          │    SCREENING         │
                                                   │    FREQUENCY         │
                                                   └──────────────────────┘
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Figure 2: **HEALTH BELIEFS OF OLDER WOMEN REGARDING**
PAP SMEARS (Revised)

(Adapted from the Breast Cancer Screening Health Belief Model (Given et al., 1989))

women. These are shown in Figure 2.

The CNS can play a vital role in influencing what women perceive as barriers to screening. Study findings indicate that the fewer barriers women perceived to the screening process the more frequently they had been screened for cervical cancer in the past. For the most part women in this study were well informed about Pap smear issues and did not perceive a high level of barriers to screening. However, the emotional aspects of having the procedure: embarrassment, fear, anxiety, forgetting to schedule the test, and the physical and emotional discomfort of the test itself revealed high rates of variability. Nursing interventions to decrease these types of barriers should be aimed at making the procedure as physically and emotionally comfortable as possible. This can be accomplished by acknowledging the fear, anxiety and embarrassment that older women may experience when having a Pap smear and by ensuring that client privacy will be provided.

Giving straight forward information can also decrease perceived barriers. By clarifying any misconceptions about cervical cancer and Pap smears that may exist for the older client, anxiety, fear and embarrassment can very possibly be diminished. Information can include discussing the factual aspects of the disease such as its natural history, the ability of the Pap smear to detect abnormalities, and the wide success of treatment for the early stages of cervical cancer.

In different populations of women perceived barriers to screening may be quite different. For instance, women of low socioeconomic status, of ethnic origins other than Caucasian, with little or no health insurance may also perceive financial, time

and transport issues as major barriers to screening. Nursing interventions for these women would need to be directed at locating facilities that perform these services at reduced costs and assisting the client with time management and transportation strategies.

Study findings indicate that women who had participated more frequently in Pap smear screening in the past had significantly higher intentions of being screened for cervical cancer in the future. It is likely that this finding is most relevant to this study and therefore, it is particularly important that initial client assessment focuses on motivation to participate in future screening. This data will provide the CNS with information about the degree to which the client perceives future Pap smear screening as a priority and will provide a general framework for planning future care.

Again, in a different population women may not consider Pap smear screening a high priority and therefore will not intend to participate in future Pap smear screening. In this case nursing interventions would have to be directed at motivating clients to participate in screening by emphasizing the value of routine lifetime screening.

It is possible that an interrelationship between barriers and intentions exists but was not uncovered because a univariate technique was used to analyze the data. For example, it is possible that women who perceive fewer barriers to screening are significantly more likely to be motivated to participate in screening in the future. There is also the issue of the relative strength of the barriers and intentions variables. It is possible that only one of these variables, intentions for example, accounts for a significant amount of variation in screening frequency when all variables are considered

at once. Both of these issues would have been clarified by performing a multivariate analysis of the data.

The efficacy concept did not yield significant results in this study. However, the overall efficacy/self–efficacy concept provides a valuable framework for planning and implementing nursing interventions pertaining to Pap smear screening. Nursing interventions enhancing self–efficacy can be used as a method to bring about a long term change in Pap smear screening behavior. Such interventions should be designed to affect behavioral change through personal mastery, self–motivation and increasing of knowledge.

For clients who have not been previously motivated to participate in routine screening nursing interventions should be directed at educating clients about Pap smear issues and setting mutually acceptable and achievable goals concerning screening schedules. The CNS can increase the likelihood that future client appointments will be made and kept by coordinating the scheduling of follow–up exams and the calling or sending out of reminder postcards when appointments are due.

For clients who are motivated and well educated about Pap smear screening issues nursing interventions should be directed at reinforcement of present behaviors. Women who realize that routine Pap smears are necessary throughout the lifespan will need ongoing support, encouragement and reinforcement to maintain their present practices.

Study findings did not indicate that social influence significantly affected screening frequency. However, complete assessment of how this concept influences client

perceptions of Pap smear screening still constitutes an important component of nursing care. The practicing CNS should ascertain the type and degree of social influences affecting each client. Nursing interventions assessing the extent of social influence would include exploring client perceptions about the opinions of significant others about Pap smear screening. Interventions would also include asking about past health care provider's recommendations about screening frequency and asking whether the client knows someone who has been diagnosed with cervical cancer. When negative influences are found, the CNS should try to alleviate the client's apprehensions and misimpressions by educating her about the purposes and procedures of routine Pap smear screening.

The results of this study found that quite possibly this population of women were being screened more often than is necessary. The CNS would need to ascertain reasons as to why this is so. Nursing interventions would include taking a client health history in order to review personal risk factors, signs and symptoms of disease, past abnormal test results and client perceptions of the necessity of such frequent screening. After this information is obtained the CNS will be able to judge each client individually, on a case by case basis, and decide whether such frequent screening is warranted.

The CNS is responsible for informing her clients about the complexity of screening issues. The CNS needs to be aware of both the advantages and disadvantages of annual screening for asymptomatic, low risk women both within her own practice and in the context of the health care system. The benefits of annual Pap smear screening include increasing the possibility of detecting cancers at their earliest stage,

compensating for past clinical errors, and client reassurance. These benefits need to be carefully weighed in relationship to the disadvantages such as the extra cost to the health care system over time, unnecessary clinical time spent performing the test, and lack of scientific proof of the efficacy of annual screening.

Future Research

This study leaves open several avenues for future research. These include accessing a more diverse population of women, providing further information about the HBM as a conceptual framework, refining the "Cervical Cancer Screening Practices Questionnaire", and more sophisticated analysis of data.

The sample in this study was homogeneous and lacked variability. The problem of homogeneity was compounded by the probable self–selection of study participants. It is reasonable to assume that there was a degree of self-selection in this study. Women who were motivated to complete and return the questionnaires were perhaps the type of individuals who are likely to schedule and keep regular doctor's appointments. On the other hand, nothing is known about the screening practices of the women who did not return the questionnaires. It is quite possible that these women do not participate in Pap smear screening to the same extent as the women who returned the questionnaires. Future research should therefore work with a broader, more heterogeneous sample, and should attempt to minimize the self-selection problem by including strategies, such as phone interviews, to recruit those who are not apt to voluntarily return written surveys.

The sample used in this study contained virtually no older women from minority

groups, women of low socioeconomic status, women who lacked a high school education, or women who didn't have health insurance. More information is needed about the health beliefs and Pap smear screening behavior of individuals with these characteristics because these types of women are very likely to have screening practices that differ from the subjects who participated in this study. An investigation that gained access to this population would provide valuable further information about health behavior to the nursing profession. Strategies to locate these women could include targeting non health related facilities such as churches and social service institutions.

It is possible that the HBM is not an appropriate conceptual framework for cervical cancer screening in some populations. For instance, a known limitation of the HBM is that it may only be effective in measuring the health behaviors of those who believe that their health is a valued state. Similarly, it may only be effective in measuring perceptions of individuals who are well educated about their health or those who have faith the health care system. Women of low socioeconomic status may not view their own health care as a priority because of difficult economic or life circumstances. Women with certain cultural backgrounds may have fatalistic attitudes and perceive health and preventable illnesses as something that cannot be controlled by the individual. Women without a high school education may not understand the necessity of routine lifetime screening. A study that drew from a large diverse population, or one that focused on a special population (such as minority or rural woman) would provide further testing of the HBM's ability to accurately measure perceptions and beliefs regarding Pap smear screening.

Revisions of the "Cervical Cancer Screening Practices" questionnaire would include designing questions to more specifically fit cervical cancer screening and refining the scales that had a low reliability or did not yield significant results, namely the susceptibility, knowledge, efficacy, and influence scales. Refinement of these scales would be directed at improving their construct validity, that is, the extent to which the questions developed are accurately reflecting the broader theoretical concepts under investigation. The "Cervical Cancer Screening Practices" questionnaire could also be adapted for use in the clinical setting. For example, by incorporating the items used to measure barriers into a written history form the barriers scale could successfully be used as a client assessment tool.

Revision of the perceived susceptibility scale would include developing questions addressing cervical cancer risk factors relevant to older women. These questions would assess life-style factors such as sexual practices and smoking history in relationship to developing cervical cancer. Questions would also include items dealing with past abnormal Pap smear results. Revisions of the knowledge scale would entail further development of items measuring cognition about the cervical cancer disease process, screening schedules, and the role that the Pap smear plays in early detection of cervical cancer. Revisions of the efficacy scale would focus on adapting questions to reflect the self–efficacy concept. Questions would include items that measured perceived control over health, motivation and ability to arrange for routine screening and the degree of self–confidence the individual had in being able to control their health. Revisions of the influence scale would include broadening the concept to include all dimensions of

social influence: positive, negative and the lack of influence.

In this study the data associated with the six health belief concepts was studied using separate univariate correlational analyses. Future research would include more sophisticated data analysis using a multivarate regression technique, which would simultaneously examine of the effects of all six independent variables on the dependent variable. This would allow one to assess the relative importance of each of the independent variables. Because the study variables are closely related conceptually a multivariate technique would more accurately reflect the HBM's conceptual framework.

Summary

The results of this study have several implications for the clinical practice of the CNS involved with Pap smear screening. Two variables, barriers and intentions, were found to significantly influence Pap smear screening frequency. The analysis of these scales led to the conclusion that effective nursing management should include efforts to reduce perceived barriers to cervical cancer screening by making the Pap smear procedure as comfortable as possible, alleviating fear and anxiety, and clarifying misconceptions about the test. These interventions should be linked with efforts to increase intentions to be screened in the future through motivational strategies that establish realistic screening schedules and emphasize the importance of regular lifetime screening. The remaining four variables studied, knowledge, susceptibility, efficacy, and influence, were not found to affect screening frequency.

The significance of the findings was limited because the study used a convenience sample of restricted diversity, consisting mostly of middle class women with health insurance and access to health care facilities. The majority of subjects had received annual Pap smears for the last 10 years and were well educated about cervical cancer screening. Because there are no current guidelines that explicitly advocate annual screening it is felt that these women were screened more frequently than is necessary. The data also showed that subjects who were taking hormone replacement therapy had a higher rate of screening than those who were not, even though HRT has not been found to be a risk factor for cervical cancer.

This study has increased the knowledge base available to the CNS about the cervical cancer screening practices of older women. However, it was not able to address several other important issues related to Pap smear screening in this age group. The homogeneous sample used in this study did not involve minority woman, women of low socioeconomic status, or woman without health insurance. It is important that the CNS in clinical practice understand the needs and attitudes these woman have concerning cervical cancer screening. A worthwhile avenue for future research would be to apply the HBM to study Pap smear screening in a diverse population that included woman at the margins of the health care system.

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APPENDICES

Appendix A

Cover Letter

Michigan State University
College of Nursing
Life Sciences Building
E. Lansing, MI. 48824

August 8, 1992

Dear CTU member,

I am a registered nurse graduate student at Michigan State University and I am conducting a survey for my Masters of Science in Nursing thesis. I received your name and address from the Clerical Technical Union, and, with their permission, I am sending you the enclosed questionnaire.

I am interested in knowing your views about Pap smear screening for cervical cancer. The information you provide may be important in helping nurses and other health care professionals.

In addition to your feelings toward Pap smears the questionnaire includes some items about your background and personal health history. It should take you about 20 - 25 minutes to fill out. After completion please mail the questionnaire back to me at the College of Nursing in the self addressed stamped envelope provided.

Your responses will remain anonymous. Your name will never be placed on the questionnaire and no attempt will be made to link your name to any returned questionnaire. Results of this survey will be reported as a whole and therefore will not be associated with you as an individual in any way.

Participation in this study is strictly voluntary. Your completion and return of this survey will serve as an indication that you understand the study and that you consent to participate.

The completed study results will be reported in the Clerical Technical Union newsletter in early 1993. If you have any concerns please write to me at the above address or call and leave a message for me at the college of nursing and I will return your call (telephone no. 355 - 6523). I would be happy to answer any questions. Thank you very much for your interest and participation in this survey.

Sincerely,

Judith Fleishman

Questionnaire

PERSONAL HISTORY

The first set of questions ask you about your personal health history as well as your Pap smear screening history.

1. Please write in the date of your birth. (WRITE IN)
   Month/ _____ Date/_____Year/_____

2. Have you reached menopause? (CHECK ONE)
   YES (1)____ NO (2)____ DON'T KNOW (3)____
   If YES, at what age did you begin menopause?   (WRITE IN AGE)_____ .

3. Have you ever taken hormones such as: (Check one for each)

   a. Estrogen   YES (1)__   NO (2)__   DON'T KNOW (3)__
   b. Premarin   YES (1)___   NO (2)___   DON'T KNOW (3)___
   c. Provera   YES (1)___   NO (2)___   DON'T KNOW (3)___
   d. DES   YES (1)___   NO (2)___   DON'T KNOW (3)___
   e. Other (PLEASE SPECIFY)_____

4. Have you ever been diagnosed with: (CHECK AS MANY AS APPLY)
   _____ High Blood Preassure (1)
   _____ Heart Disease (2)
   _____ Diabetes (3)
   _____ Arthritis (4)
   _____ Cancer (Please specify; _____) (5)
   _____ Other (Please specify; _____) (6)

5. Have you ever had a hysterectomy (uterus removed)? (CHECK ONE)
   _____ No (1)
   _____ Uterus only (2)
   _____ Uterus and ovaries removed (3)
   _____ Don't know (4)
   _____ Other (Please specify; _____) (5)

6. Have you ever had an abnormal Pap smear? (CHECK ONE)
   YES (1)_____ NO (2)_____ (If NO, go to next section)

If YES, what were the results? (CHECK ONE)
   _____ Positive for cancer (1)
   _____ Negative for cancer (2)
   _____ Positive for other cervical disease (3)
   _____ Negative for other cervical disease (4)
   _____ Don't know results (5)

If you were diagnosed with cervical cancer, what treatment did you receive? (CHECK ALL THAT APPLY)
   ___ Hysterectomy (Removal of uterus and cervix) (1)
   ___ Radiation (X-Ray treatment) (2)
   ___ Chemotherapy (Cancer drugs) (3)
   ___ Cone Biopsy (Removal of part of the cervix) (4)
   ___ Other (Please specify)_____ (5)

What year were you diagnosed? _____(Write in year)

PAP SMEARS

A Pap smear is a procedure to screen for cervical cancer. Cells from the outer layer of the cervix are obtained during a pelvic exam. These cells are then checked under a microscope to look for any changes which may be pre-cancerous or cancerous.

7. Have you ever had a Pap smear? (CHECK ONE)
   YES (1)_____ (go to question 8) NO (2)_____

8. If YES to question 7, about how many Pap smears have you had in the last 10 years? (CHECK ONE)
   _____ don't know (1)
   _____ about 1 (2)
   _____ about 2 (3)
   _____ about 3 (4)
   _____ about 4 (5)
   _____ about 5 (6)
   _____ about 6 (7)
   _____ about 7 (8)
   _____ about 8 (9)
   _____ about 9 (10)
   _____ more than 10 (11)

9. Which of the following best describes what prompted you to have your most recent Pap smear? (CHECK ALL THAT APPLY)

_____ To follow up a problem on a previous Pap smear (1)
_____ It was part of my routine check-up (2)
_____ A health professional recommended it (3)
_____ A friend or relative has recently had an abnormal Pap smear (4)
_____ A relative or friend recommended that I have Pap smear (5)
_____ Other: Please Specify: _____ (6)

DETECTION

The following set of questions focus on early detection of cervical cancer. Early detection means finding an abnormality in the early stages. For cervical cancer this means when the cancer is still confined to the cervix and has not spread to other areas of the body.

10. If found early enough, cervical cancer can be cured. (CHECK ONE)
_____ Strongly agree (5)
_____ Agree (4)
_____ Disagree (3)
_____ Strongly disagree (2)
_____ Don't know (1)

11. Unless she has symptoms, a woman doesn't need a Pap smear. (CHECK ONE)
_____ Don't know (1)
_____ Strongly agree (2)
_____ Agree (3)
_____ Disagree (4)
_____ Strongly disagree (5)

12. Pap smears can detect early abnormalities likely to be cervical cancer. (CHECK ONE)
_____ Strongly agree (5)
_____ Agree (4)
_____ Disagree (3)
_____ Strongly disagree (2)
_____ Don't know (1)

13. Once a person develops cancer, it is usually too late to do anything about it. (CHECK ONE)

    _____ Don't know (1)

    _____ Strongly agree (2)

    _____ Agree (3)

    _____ Disagree (4)

    _____ Strongly disagree (5)

14. Early detection of cervical cancer with a Pap smear would improve a woman's chances of recovery. (CHECK ONE)

    _____ Strongly agree (1)

    _____ Agree (2)

    _____ Disagree (3)

    _____ Strongly disagree (4)

    _____ Don't know (5)

15. How confident are you that a Pap smear could detect an abnormality likely to be cervical cancer? (CHECK ONE)

    _____ Don't know (1)

    _____ Not at all confident (2)

    _____ Somewhat confident (3)

    _____ Quite confident (4)

    _____ Extremely confident (5)

16. Early detection would improve one's chances for cure of cervical cancer. (CHECK ONE)

    _____ Strongly agree (5)

    _____ Agree (4)

    _____ Disagree (3)

    _____ Strongly disagree (2)

    _____ Don't know (1)

17. If you had abnormal cells in your cervix, how confident would you be that a Pap smear would be able to detect these changes? (CHECK ONE)

    _____ Extremly confident (5)

    _____ Very confident (4)

    _____ Somewhat confident (3)

    _____ Not very confident (2)

    _____ Not at all confident (1)

INFLUENCE

The next series of questions ask you about the influence that others might have on your decision to to have a Pap smear.

18. Do you have any close friends that have been diagnosed with cervical cancer in the last five years? If yes, please write in the number _____.

19. Have any of the following persons discussed Pap smears with you? (CHECK ONE FOR EACH)

DISCUSSED:	PAP SMEAR	
	YES	NO
Family doctor		
OB/GYN doctor		
Internist		
Surgeon		
Nurse		
Family		
Friend		
Co-worker		
Other: specify		

20. Have any of the following persons advised you to obtain a Pap smear? (CHECK ONE FOR EACH)

ADVISED:	PAP SMEAR	
	YES	NO
Family doctor		
OB/GYN doctor		
Internist		
Surgeon		
Nurse		
Family		
Friend		
Co-worker		
Other: specify		

21. Have any of the following persons <u>discouraged</u> you from obtaining a Pap smear? (CHECK ONE FOR EACH)

DISCOURAGED:	PAP SMEAR	
	YES	NO
Family doctor		
OB/GYN doctor		
Internist		
Surgeon		
Nurse		
Family		
Friend		
Co-worker		
Other: specify		

22. With regard to cervical cancer screening, how important to you is the opinion and advice of the following? (CHECK ONE FOR EACH)

	very important	important	somewhat important	not at all important
Family doctor				
OB/GYN doctor				
Internist				
Surgeon				
Nurse				
Family				
Friend				
Co-worker				
Radio/T.V.				
Literature/Pamphlets				
Other: specify				

CONCERNS

The following questions explore concerns women have about getting cervical cancer. We want you to answer these questions in the way that you generally think about these issues. Let us know your <u>usual</u> feelings.

23. As compared with other women of your age, what do you think the chances are that you will develop cervical cancer in the next five years? (CHECK ONE)

_____ Much less than other women (1)

_____ Somewhat less than other women (2)

_____ About the same as other women (3)

_____ Somewhat higher than other women (4)

_____ Much higher than other women (5)

24. What is the chance that someone like yourself will develop cervical cancer sometime during your lifetime ? (CHECK ONE)

_____ Much less than other women (1)

_____ Somewhat less than other women (2)

_____ About the same as other women (3)

_____ Somewhat higher than other women (4)

_____ Much higher than other women (5)

25. How serious do you think the risk of cervical cancer is for women in the U.S.A.? (CHECK ONE)

_____ Extremely serious (5)

_____ Very serious (4)

_____ Somewhat serious (3)

_____ Not very serious (2)

_____ Not at all serious (1)

26. If you were to develop cervical cancer, how probable do you think it is that it would have spread before it was discovered? (CHECK ONE)

_____ Can't predict (1)

_____ Not at all probable(2)

_____ Somewhat probable (3)

_____ Very probable (4)

_____ Extremely probable (5)

27. Who do you think is more likely to get cervical cancer? (CHECK ONE)

_____ Women over age 50 (4)

_____ Women under age 50(3)

_____ Age makes no difference (2)

_____ Don't know (1)

28. Could a woman have cervical cancer without having any symptoms or feeling ill? (CHECK ONE)

_____ Yes (3)

_____ No (2)

_____ Don't know (1)

29. If the Pap smear showed no signs of cervical cancer, how confident would you be that it is correct? (CHECK ONE)

_____ Don't know (1)
_____ Not at all confident (2)
_____ Somewhat confident (3)
_____ Quite confident (4)
_____ Extremely confident (5)

30. If a woman didn't have any symptoms but was 50 years of age or older, how often should she have a Pap smear?(CHECK ONE)

_____ At least every three years (4)
_____ Every year (3)
_____ Only when she had a problem/symptom (2)
_____ Don't know (1)

31. If you do not have any symptoms/problems, how sure can you be that you don't have cervical cancer? (CHECK ONE)

_____ Not at all sure (4)
_____ Somewhat sure (3)
_____ Quite sure (2)
_____ Extremly sure (1)

32. In the next year, how likely are you to have a Pap smear? (CHECK ONE)

_____ Definitely (5)
_____ Very likely (4)
_____ Somewhat likely (3)
_____Not very likely (2)
_____ Not at all likely (1)

33. To what extent is getting a Pap smear on a regular basis a priority for you? (CHECK ONE)

_____ Not at all (1)
_____ To a small extent (2)
_____ To some extent (3)
_____ To a great extent (4)

34. How much do you agree or disagree with each of the following statements about Pap smears? (CHECK ONE BOX FOR EACH QUESTION)

A PAP SMEAR :	Strongly Disagree	Disagree	Agree	Strongly Agree
a. is an embarrassing procedure				
b. is an unpleasant procedure				
c. is a hardship due to cost				
d. is painful/physically uncomfortable				
e. would make me feel anxious				
f. is convenient to arrange				
h. is not worth the effort				
i. makes me feel uncomfortable				
j. is able to detect abnormalities early				
k. I don't know when I need exams				
l. I have too many other worries				
m. I'm afraid something abnormal would be found				
n. improves my chances of early detection				
o. I want to keep control of my health				
p. I'm just too busy to have a Pap smear				
q. I forget when I'm supposed to have a Pap smear				
r. I don't really know how to ask for an exam				
s. I am confident the exam will be done correctly				
t. my doctor has never suggested having an exam				
Other comments: (Please write in)				

BACKGROUND

This final series of questions asks for background information about you, including your employment and occupation. We remind you that all the information you provide will be held in the strictest confidence and will not be linked to you as an individual.

35. What is your current employment status? (CHECK ONE)
_____ Work full-time (1)
_____ Work part-time (2)
_____ Volunteer (non-salaried)(3)
_____ Retired (4)
_____ On leave or disability (5)
_____ Other (please specify) (6) _____

36. Do you have health insurance? (CHECK ONE)
YES (1)_____ NO (2)_____

37. Is this insurance coverage provided by: (CHECK ALL THAT APPLY)
_____ Your employer (1)
_____ Your spouse (2)
_____ Other family member's employer (3)
_____ Self Pay(4)
_____ Medicare (5)
_____ Medicaid (6)
_____ Not insured (7)
_____ Other (please specify) _____ (8)

38. Does your health insurance pay for routine Pap smears ? (CHECK ONE)
YES (1)_____ NO (2)_____ DON'T KNOW (3)_____

39. What is your ethnic background? (CHECK ONE)
_____ White (1)
_____ Black (2)
_____ Hispanic (3)
_____ American Indian/Alaskan native (4)
_____ Chinese (5)
_____ Japanese (6)
_____ Filipino, Hawaiian, Korean, Veitnamese (7)
_____ Other (please specify) _____ (8)

40. What is your marital status? (CHECK ONE)
_____ Single - never married (1)
_____ Widowed (2)
_____ Married or living as married (3)
_____ Seperated (4)
_____ Divorced (5)
_____ Other (please specify) _____ (6)

41. What is the highest grade (or level) of education that you completed? (CHECK ONE)
_____ Less than 8th grade (1)
_____ 8th grade to 11th grade (2)
_____ High school graduate/GED (3)
_____ Post high school, trade or technical school(4)
_____ One to three years of college (5)
_____ College graduate (6)
_____ Graduate and/or professional school (7)

42. Which catagory best describes your total combined <u>household</u> income <u>last year</u> (from all adult sources living in your household)? (CHECK ONE)

_____ Less than $10,000 (1)

_____ $10,000 $15,000 (2)

_____ $15,000-$20,000 (3)

_____ $21,000-$25,000 (4)

_____ $26,000-$30,000 (5)

_____ $31,000-$35,000 (6)

_____ $36,000-$40,000 (7)

_____ $41,000-$45,000 (8)

_____ $46,000-$50,000 (9)

_____ More than $50,000 (10)

43. Who USUALLY does your Pap smear screening procedure? (CHECK ALL THAT APPLY)

_____ Never had a Pap smear screening procedure done (1)

_____ Family practice physician (2)

_____ Internist (3)

_____ Obstetrician-gynecologist (4)

_____ Nurse practioner or clinical nurse specialist (5)

_____ Other (6) (Please specify _____)

Is the person who USUALLY does your Pap smear screening procedure male or female? (CHECK ONE)

Male (1)_____ Female (2)_____

THANK YOU FOR YOUR TIME AND INTEREST IN COMPLETING THIS QUESTIONNAIRE. PLEASE PLACE IT IN THE SELF-ADDRESSED STAMPED ENVELOPE AND MAIL BACK WITHIN TWO WEEKS. IF YOU HAVE ANY ADDITIONAL COMMENTS PLEASE FEEL FREE TO NOTE THEM BELOW.

PLEASE RETURN WITHIN TWO WEEKS.

Appendix C

<u>Reminder Postcard</u>

Michigan State Univ.
College of Nursing
Life Sciences Building
E. Lansing, MI. 48824
355-6523

Your participation in the CERVICAL CANCER SCREENING
PRACTICES survey is greatly appreciated. If you have already
mailed back the questionnaire, thank you very much. If you have
not completed the questionnaire and would like another copy, or if
you have any questions, please contact me at the above address.

Sincerely,

Judith Fleishman

Appendix D

U.C.R.I.H.S. Approval

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

June 30, 1992

Judith Fleishman
4161 Mariner Lane
Okemos, MI 48864

RE: HEALTH BELIEFS AND CERVICAL CANCER SCREENING PRACTICES OF WOMEN AGED 50-65, IRB #92-323
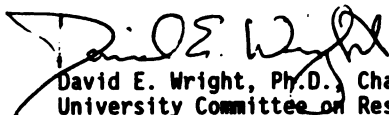
Dear Ms. Fleishman:

The above project is exempt from full UCRIHS review. The proposed research protocol has been reviewed by a member of the UCRIHS committee. The rights and welfare of human subjects appear to be protected and you have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to June 25, 1993.

Any changes in procedures involving human subjects must be reviewed by UCRIHS prior to initiation of the change. UCRIHS must also be notifed promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to my attention. If I can be of any future help, please do not hesitate to let me know.

Sincerely,

David E. Wright, Ph.D., Chair
University Committee on Research Involving
Human Subjects (UCRIHS)

DEW/pjm

cc: Dr. Rachel Schiffman

Appendix E

C.T. Union Approval

Clerical-Technical Union of Michigan State University

Phone: 355-1903   P.O. Box 825   East Lansing, Michigan 48826

March 31, 1992

Ms. Judith Fleisman
4161 Mariner Lane
Okemos, MI 48864

Dear Ms. Fleisman:

It was a pleasure to see you at our March 17, 1992, Executive
Board meeting and to hear more of the details involved with your
thesis project.

The CT Union would be happy to grant your request for labels to be
used in a mailing targeting female CTs and retirees from the ages
of 50-65. Please contact my secretary, Debbie Wells, to arrange
ordering of the labels as well as details regarding costs involved
($50.00 or less), etc.

Board members Becky Hicks (3-3944), Barbara Reeves (5-8447) and
Josselyn Carrasco (3-9016) are available to help in reviewing the
questionnaire to be used in the mailing.

The Board looks forward to offering our assistance as needed, on
this project.

Sincerely,

Rondy Schmidt
President

RS/dw