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IMPACT OF A
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By

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ABSTRACT

IMPACT OF A DECISION SUPPORT INTERVENTION FOR MIDLIFE WOMEN ON HEALTH CARE SELF-EFFICACY

By

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This research examined the impact of a decision support intervention for midlife women on self-efficacy and behavior related to active participation in health care. A model of the relationship between self-efficacy, perceived barriers, outcome expectations, subjective norms, behavioral intention and participation in health care decisions was developed and tested. Participants were randomly assigned to one of three educational interventions addressing menopause and hormone replacement therapy: a written brochure, a lecture/discussion-format intervention or a decision support intervention. Participants completed self-administered questionnaires prior to the intervention, immediately following the intervention and two months following the intervention. Self-efficacy increased significantly among participants in all three conditions following intervention. There were no significant differences in self-efficacy or self-reported active patient participation behavior between participants in the decision support intervention compared to the written brochure. Self-efficacy increased significantly more among participants in the lecture/discussion-format intervention than among those in the written brochure condition. Significant predictors of self-reported participation in health care were intention to participate, perceived barriers to participation and outcome expectations related to active participation behavior. It was concluded that external factors such as barriers were more important to active participation behavior than were internal, individual factors such as perceived skills related to participation.

Dedicated to my patient family;
John, David and Thomas
who gave up so much

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CHAPTER 1

INTRODUCTION

Statement of the Problem

Women face a dilemma as they reach midlife. Hormone Replacement Therapy [HRT] has been found to significantly reduce white women's risk of heart disease and osteoporosis and to decrease deaths from all causes (Cummings, Black & Rubin, 1989). It significantly reduces hot flashes and vaginal dryness among most women (Judd, 1987). At the same time it has been found to significantly increase risk of endometrial cancer (Persson, Adami, Lindberg, Johansson, & Manell, 1989) and has an unknown affect on risk of breast cancer (Dupont, Page, Rogers & Parl, 1989; Bergkvist, Adami, Persson, Hoover & Schairer, 1989). It may also be accompanied by side effects such as vaginal bleeding, swelling and breast tenderness (Luciano, Turksoy, Carleo & Hendrix, 1988). Because the decision whether or not to take hormone replacement therapy depends on individual values as well as personal risk factors, it has been argued that the patient should be included in the decision process.

Although involvement of patients in the decision process has been advocated throughout public health and patient education literature for more than two decades (Steele, Blackwell, Gutmann & Jackson, 1987); studies have found that many patients prefer to leave medical decisions to professionals (Ende, 1989; Beisecker, 1988; Strull, Lo & Charles, 1984) though few studies have examined the reasons for this patient preference. The only consistent predictors of patient desire to participate in medical decisions have been age and education (Cassileth, Zupkis, Sutton-Smith & March, 1980; Blanchard, Labrecque, Ruckdeschel & Blanchard, 1988; Beisecker, 1988). These demographic factors offer little insight into the reasons behind patient preference. Preference to leave medical decisions exclusively to professionals is puzzling when one examines the benefits associated with active participation and the hazards of lack of involvement.

Patient Participation in Decision Making

There are significant advantages to active patient participation in decisions. Active patients may be better able to participate in prevention, management and cure of disease resulting in reduced health care costs and decreased physical and psychological morbidity. Many illnesses today are directly related to behavior (Glanz, Lewis, & Rimer, 1990) and others require active patient involvement and cooperation for effective management (Giloth, 1990; McKinlay, McKinlay & Beaglehole, 1989). Informed health care consumers may be able to avoid or reduce illness through modifying health related behavior.

A second advantage is that informed consumers may reduce the costs associated with health care. Consumers can benefit by practicing informed use of limited medical resources (Figge, 1990). Knowing effective self-treatment methods, how to apply them and when to seek expert advice can help to decrease costs.

A third benefit of patient participation in decisions is incorporation of the patient's individual needs and values in the treatment choice. Many medical conditions have several treatment options which are equally effective (Wilson, Hart & Dawes, 1988). In these cases, patient participation in decision making can ensure that the treatment chosen best meets the patient's personal needs.

Furthermore, medical technology has provided new choices which demand decisions based on ethics and values rather than simply medical judgment (Saxton, 1987). For example, prenatal diagnosis makes it possible to diagnose and abort defective fetuses (Saxton, 1987). Such decision choices reflect ethical rather than clinical decisions. Society will suffer if decisions resulting from this technology do not reflect the values of health care consumers.

Further justification for involving patients in decision making derives from research on self-efficacy. Studies of clinical outcome and self-efficacy have shown that self-efficacy is associated with improved functional status. Allen, Becker and Swank (1990) found that greater predischarge self-efficacy was the strongest predictor of functional status at 6 months post-surgery among coronary bypass patients. "These findings support the belief that restoring self-confidence to perform activities is essential for recovery of the patient with heart disease," (Allen, et al., 1990, p. 342). Davis-Berman (1989) found that self-efficacy was a better predictor of depressive symptoms among a sample of older adults than was physical illness. "Results of this study suggest that illness is not the most salient factor, but rather, that the cognitive interpretation of physical health and functioning is the more pivotal variable in the prediction of depressive symptoms," (Davis-Berman, 1989, p. 213).

A study of an intervention to increase Active Patient Orientation among hypertension patients found that patients who were afforded a high degree of Active Patient Orientation were more likely to have their blood pressures under control and exhibited more positive cognitive and behavioral responses to illness-management (Schulman, 1979). Improved health outcomes related to self-efficacy suggest that the traditional patient role (clients excluded from participation in decision making) may adversely affect health outcomes.

Psychological Morbidity

Patients who have not had an opportunity to participate in decision making regarding their treatment may suffer increased depression and anxiety. Among 30 patients with early breast cancer, Morris & Royle (1988) found that a significantly higher percentage of the patients who were not offered a choice of surgery versus excision plus radiotherapy experienced clinical levels of anxiety and depression pre-operatively and up to 2 months post-operatively compared to patients allowed to choose among the two treatments. Morris and Royle (1988) concluded that offering a choice of operation may reduce distress. One explanation for the observed reduction in distress may be that offering a choice in treatments mitigates the helplessness experienced by individuals who find themselves in the role of patient. The patient role encompasses a loss of control inherent to illness which is amplified by denial of the opportunity to participate in treatment choices and decisions. Repeated exposure to uncontrollable events has been found to be associated with an increase in depression and an inability to take corrective actions when events are once again within the individual's control (learned helplessness) (Abramson, Seligman & Teasdale, 1978). Individuals who learn that nothing they do in the role of patient will influence which treatment they undergo, may generalize this helplessness to other aspects of the patient role such as adherence to the prescribed treatment or self-care. Increasing the patient's sense of helplessness by denying participation in decision making may result in decreased self-efficacy for carrying out health-related behaviors and reinforce an external locus of control as it relates to health. In a review of the literature related to locus of control and health, Strickland (1978) concluded that patients who perceived that they had little control over their own health were significantly less likely to change their behavior to prevent future illness or to improve present health than were patients who perceived that they had control. Denying patients participation in health care choices may promote generalized helplessness and depression by affecting locus of control and self-efficacy.

Further evidence that the loss of control experienced when an individual assumes the patient role may negatively affect health outcomes can be found in studies of control. Langer (1983) found increased mortality among nursing home patients who did not receive an intervention to induce a sense of responsibility.

Patients who received a talk emphasizing their responsibility for themselves and who were given plants to care for themselves had a lower mortality rate than did patients who received a talk emphasizing the staff's responsibility for them as patients and who were given plants that were watered by the staff (Langer, 1983).

Patient Preference to Participate

Although some studies have concluded that patients do not wish to participate actively in health care decisions, midlife women may be an exception. In a study of 262 college-educated midlife women, Duffy (1988) concluded that highly educated midlife women would not want to leave their health to chance. Furthermore, although studies have found that many patients prefer to leave decisions to professionals, a significant minority prefer to make decisions themselves or together with the practitioner (Degner & Sloan, 1992; Strull, et al., 1984).

Patient participation in health care decisions has many advantages for patients. Patients who are informed and actively involved in decision making are more likely to have the information and skills needed to maintain their health and prevent disease. Informed use of limited medical resources can decrease health care costs. Active patient involvement can ensure incorporation of patient values in medical decisions and make health care more reflective of individual patient needs and values. Patients with higher self-efficacy and active patient orientation demonstrate improved clinical outcomes and decreased psychological morbidity. Research on learned helplessness and lack of control suggest that the passive patient role may negatively affect patient health and well-being. Finally, some patients do wish to participate actively in their health care.

Given the compelling reasons for active patient involvement in health care, and evidence that some patients do wish to actively participate, why do other patients prefer to leave decisions to professionals? One explanation is that individuals believe that they lack the skills necessary for effective participation. Trinkaus (1991) asked a convenience sample of 779 first-year business students (91% of whom were age 23 or below) whether they would like their physicians to provide them with more information about medications prescribed for them and whether they normally asked for this information. Trinkaus found that although 95% of American respondents (n=431) indicated that they desired more information about medications only 52% indicated that they normally asked for this information. Trinkaus speculated that patients might be hesitant to ask for desired information out of fear of offending, not being given the opportunity, not knowing how to ask, a feeling of inferiority, a desire to avoid embarrassment or because the physician behaved in an intimidating, authoritarian manner. Factors which may influence patient participation behavior then, include internal control factors such as confidence or self-efficacy and external control factors such as system-level barriers to participation (Steele, et al., 1987).

Several models of behavior have been developed which use factors such as control to predict a variety of behaviors. To better understand the factors important in determining patient participation behavior an examination of these models is needed. The next section will describe two theoretical models of behavior which include the factors Trinkaus and others have suggested may be important to participation behavior.

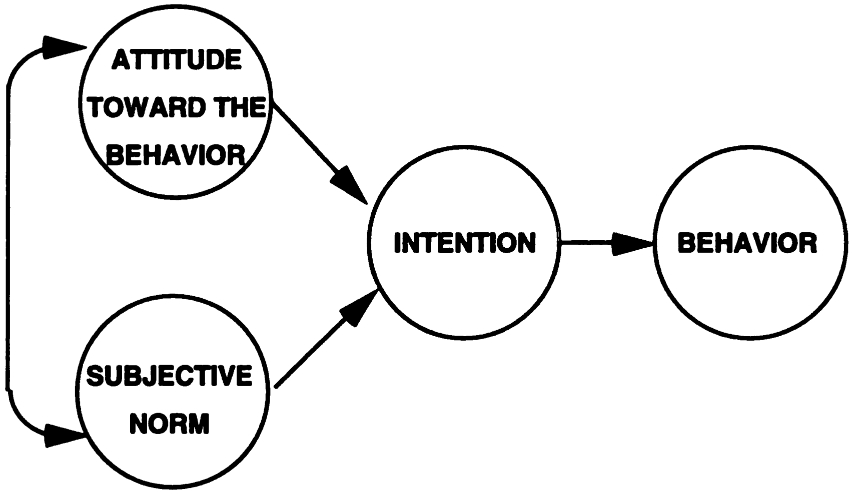
Theoretical Models

Theory of Planned Behavior

One theoretical model which may help explain patient preferences and behavior is the "theory of planned behavior" (Ajzen & Madden, 1986). The theory of planned behavior is an extension of the (Fishbein & Ajzen, 1975) theory of reasoned action (Figure 1). According to the theory of reasoned action, any behavior is preceded by the intention to perform that behavior. The determinants of intention are 1) attitude toward the behavior and 2) subjective norm. Attitude toward the behavior is the product of the belief that a given behavior will produce a specific outcome (behavioral belief) and the subjective value of that outcome. The subjective norm is the sum of normative beliefs. Normative beliefs are the product of a) the likelihood that another person or group would approve or disapprove of the behavior and b) motivation to comply with the other's opinion.

Figure 1

Theory of Reasoned Action (Ajzen & Madden, 1986)



Consistent with the theory of reasoned action, behavioral intentions have been found to be highly correlated with volitional behavior, and behavioral attitudes and subjective norms have been found to predict behavioral intentions (Ajzen,Timko, & White, 1982; Manstead,Proffitt, & Smart, 1983; Hinsz & Nelson, 1990). In a study of the relationship between attitudes, intentions and voting behavior, for example, Ajzen et al., (1982) found that attitude toward voting was correlated .51 (p <. 01) with intention to vote; subjective norm was correlated .35 (p < .01) with intention to vote, and intention to vote was correlated .70 (p < .01) with actual voting behavior.

One limitation of the theory of reasoned action however, was that it applied only to volitional behavior (behavior which is completely under the individual's control) (Ajzen & Madden, 1986). In order to expand the theory of reasoned action to include behavior which depends on factors other than simple will (such as time, money, skills or the cooperation of other people), the theory of planned behavior added the factor, "perceived behavioral control" as an additional predictor of behavioral intention (Ajzen & Madden, 1986).

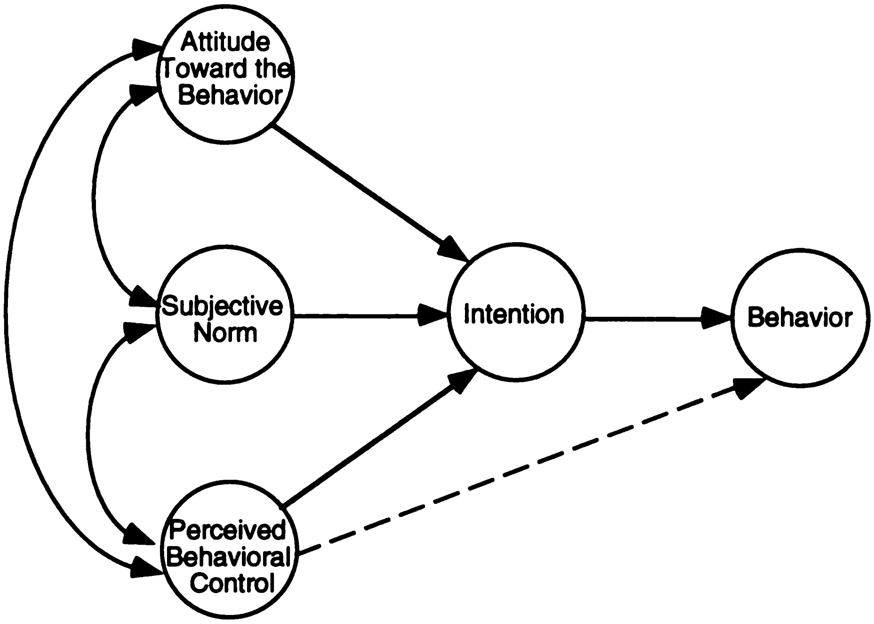
Perceived Behavioral Control

Perceived behavioral control was defined as "the person's belief as to how easy or difficult performance of the behavior is likely to be" (Ajzen & Madden, 1986, p. 457). Perceived behavioral control consists of beliefs about two sources of control; internal factors and external factors. Internal factors include skills, abilities, knowledge and planning. External factors include time, opportunity, and dependence on the cooperation of other people (Ajzen & Madden, 1986).

According to the theory of planned behavior, perceived behavioral control will be a significant predictor of behavioral intention beyond attitude toward the behavior and subjective norms when the behavior in question is not entirely under volitional control (Ajzen & Madden, 1986). Furthermore, perceived behavioral control will contribute significantly to prediction of the behavior itself (beyond the variance explained by behavioral intention) when perceived behavioral control is an accurate reflection of actual behavioral control. Perceived behavioral control is considered a partial substitute for a measure of actual control (Ajzen & Madden, 1986).

Figure 2

Theory of Planned Behavior (Ajzen & Madden, 1986)



The theory of planned behavior is shown in Figure 2. According to the model, perceived behavior is correlated with attitude toward the behavior and subjective norm as well as with intention. The theory of planned behavior has been found to predict behavioral intention better than the theory of reasoned action when the behavior is not completely volitional (Gatch & Kendzierski, 1990; Netemeyer & Burton, 1990; DeVellis,Blalock, & Sandler, 1990; Schifter & Ajzen, 1985; Beale & Manstead, 1991).

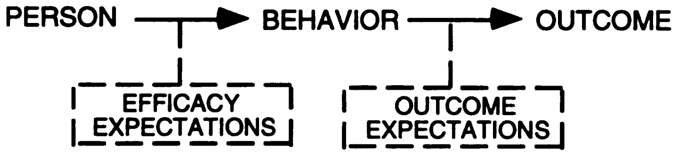
Although the planned behavior model has been found to explain a significant degree of the variance in non-volitional behavior, some studies have found that the model fails to explain behavior as well as alternative models. Dzewaltowski, Noble and Shaw (1990) found that perceived behavioral control, subjective norm and intentions failed to account for any unique variance in physical activity participation over self-efficacy. Multiple R for the theory of planned behavior model was .52 for behavioral intentions and .32 ($p < .05$) for prediction of physical activity behavior. Self-efficacy combined with self-evaluation of behavior contributed to significant prediction of physical activity behavior ($R = .46$; $p > .05$).

Other studies have found that self-efficacy contributed significantly to predicting behavior and behavioral intentions when added to the theory of reasoned action (McCaul,O'Neill, & Glasgow, 1988; Tedesco,Keffer, & Fleck-Kandath, 1991; Dzewaltowski, 1989; Brubaker & Wickersham, 1990).

It has been noted that the construct of perceived behavioral control (Ajzen & Madden, 1986) is highly related to Bandura's (1977) construct of self-efficacy expectations (Ajzen, 1988). Self-efficacy has been defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977). Self-efficacy theory differentiates between efficacy expectations and outcome expectations. Outcome expectations are a person's estimate that a given behavior will lead to certain outcomes (Bandura, 1977). Davis and Yates (1982) manipulated self-efficacy and outcome expectations among college undergraduates using an anagram task and found that performance deficits and depressive affect occurred only when self-efficacy was low and outcome expectancy was high, supporting self-efficacy theory. Figure 3 shows a diagrammatic representation of the difference between efficacy expectations and outcome expectations. According to self-efficacy theory, efficacy expectations affect people's choice of behavioral settings, how much effort they will expend and how long they will persist in the face of obstacles.

Figure 3

Self-Efficacy Theory Model (Bandura, 1977)



Many studies have validated the important role of self-efficacy in behavior. Self-efficacy was found to predict persistence in pain control without medication (Manning & Wright, 1983); post-treatment drinking behavior (Solomon & Annis, 1990); and efficient use of analytic strategies in a laboratory management exercise (Bandura & Wood, 1989).

Although self-efficacy theory has been used extensively in predicting behavior, some aspects of the theory appear to be problematic (Eastman & Marzillier, 1984). For example, although self-efficacy theory makes a distinction between outcome expectations and efficacy expectations, Maddux,Sherer, & Rogers (1982) found that an experimental manipulation designed to influence outcome expectancies, influenced expectations of self-efficacy as well. Describing an interpersonal communication technique as effective (manipulation of outcome expectations) produced an increase in self-efficacy expectations as well as outcome expectations (Maddux et al., 1982). This raised questions about the theoretical and practical distinction between the two constructs.

According to self-efficacy theory, when outcomes (defined as the consequence of behavior) are inherent to a given behavior, or when people anticipate outcomes based on how well they expect to perform, outcome expectations can not be differentiated from self-efficacy expectations. In this case, outcome expectations may not add to the prediction of behavior (Bandura, 1986). Williams and Kinney (1991) found that outcome expectations (anticipated pain) did not significantly add to prediction of pain tolerance behavior when self-efficacy was held constant.

Although some studies have found that outcome expectations do not add to the predictability of behavior (Manning & Wright, 1983; Solomon & Annis, 1990), theorists have emphasized the value of the distinction between the two constructs. "Both self-efficacy and outcome expectations are likely to be important and perhaps differentially important as a function of the specific client problem," (Kazdin, 1978, p. 180). In the theory of reasoned action and the theory of planned behavior, "belief that a given behavior will produce a specific outcome" is one of the factors which contributes to attitude toward the behavior (Ajzen & Madden, 1986).

In summary, although there are some questions about the distinction between outcome expectations and self-efficacy expectations, there is experimental and theoretical support for maintaining that the two constructs are distinct and that, at least in some situations, they contribute separately to prediction of behavior.

Similarity Between Social Cognitive Theory and Theory of Planned Behavior

Several of the constructs which compose the theory of planned behavior are also part of self-efficacy theory. Table 1 shows the constructs in common and their definitions. The first similarity between the two theories is that they both involve an individual's assessment of personal skills. Self-efficacy involves organizing cognitive, social and behavioral subskills into action (Bandura, 1986). In the theory of planned behavior, personal skills, abilities and knowledge are believed to contribute to perceived behavioral control (Ajzen & Madden, 1986). Self-efficacy is measured by asking the individual to indicate confidence in ability to perform a given behavior on a scale from 10 to 100. Perceived behavioral control has been measured by items such as, "If I wanted to I could easily attend this class every session," (extremely likely/extremely unlikely) (Ajzen & Madden, 1986).

The major difference between self-efficacy and perceived behavioral control is that in addition to measuring the individual's assessment of personal skills and resources, perceived behavioral control measures the individual's assessment of external factors which would facilitate or hinder the behavior.

Belief about the relationship of behavior to outcome is also an important element of both self-efficacy theory and the theory of planned behavior. Self-efficacy theory describes outcome expectation as a person's estimate that a given behavior will lead to certain outcomes (Bandura, 1977). In the theory of planned behavior, the underlying elements of attitude toward behavior are 1) behavioral belief which links the behavior to a certain outcome, and 2) the outcome's subjective value (Ajzen & Madden, 1986).

In summary, both self-efficacy theory and the theory of planned behavior include belief about personal skills and belief about the relationship of behavior to outcome in their models of behavior. The theory of reasoned action differs from self-efficacy theory in that it posits that the immediate precursor to behavior is behavioral intention, and it includes subjective norms as a predictor of behavioral intention.

Although both self-efficacy theory and the theory of planned behavior have been found to significantly predict behavior, is there any evidence that either theory may help predict patient participation in health care?

Table 1

Common Constructs in Self-Efficacy Theory and Theory of Planned Behavior

Self-Efficacy Construct	Planned Behavior Construct
Self-Efficacy Expectations The conviction that one can successfully execute the behavior required to produce the outcomes (Bandura, 1977).	Perceived Behavior Control A person's belief as to how easy or difficult performance of the behavior is likely to be. Internal factors contributing to perceived control include skills, abilities, knowledge and planning. External factors include time, opportunity and dependence on other people (Ajzen & Madden, 1986).
Outcome Expectations A person's estimate that a given behavior will lead to certain outcomes (Bandura, 1977).	Attitude Toward Behavior The degree to which a person has a favorable or unfavorable evaluation of the behavior. Consists of behavioral beliefs which link the behavior to a certain outcome and the outcome's subjective value (Ajzen & Madden, 1986).

Self-Efficacy as a Mediator of Low Desire for Control of Health Care

Woodward and Wallston (1987) found that among older adults desire for control in health-related situations was mediated by low health care self-efficacy. One hundred sixteen adults between 20 and 99 years old completed measures of desire for control of health care, desire for information and health care self-efficacy. Three age groups (20–39; 40–59; 60+) differed significantly on desire for control of health care and health care self-efficacy. When health care self-efficacy was used as a covariate for desire for control of health care the main effect for age was no longer significant. Desire to be actively involved in health care decisions was dependent on self-perception of competence to participate effectively.

The finding that desire to participate is mediated by self-efficacy is important because it indicates an avenue through which patient involvement in decision making can be modified.

Can Self-Efficacy be Changed?

In a critique of self-efficacy theory, Lee (1989) concluded that reliable interventions to alter efficacy expectations could not be developed until a model of the relative weighting of various types of self-efficacy information (mastery experiences, vicarious experience, persuasion and physiological information) has been developed. Previous research indicating that self-efficacy was changed through intervention shows that this conclusion was unwarranted. Vallis and Bucher (1986) increased self-efficacy for pain tolerance during a cold pressor test. Maddux, Sherer, and Rogers (1982) successfully manipulated self-efficacy for assertiveness using verbal persuasion and Davis & Yates (1982) experimentally induced high and low self-efficacy expectations among a group of 108 male and female undergraduate students. Sanna (1992) experimentally manipulated self-efficacy expectancy by providing false feedback on a vigilance task and by manipulation of task difficulty (providing mastery experiences).

Although interventions can not be developed based on quantitative formulas of specific amounts of persuasion, modeling and mastery, effective interventions can be developed and tested. Interventions to increase self-efficacy should provide one or more of the four types of information outlined by Bandura (1982).

What Factors Impact Health Care Self-Efficacy?

Bandura (1977) described four principal sources of efficacy information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states.

Performance Accomplishments. Performance accomplishments are the most influential sources of information (Bandura, 1977, Barling & Snipelisky, 1983). Success experiences raise efficacy expectations and repeated successes develop strong efficacy expectations which reduce the impact of failure experiences. Performance accomplishments are promoted through skill-building activities such as participant modeling, performance exposure and self-instructed performance. Skill-building leads to increased success experiences and strengthens efficacy expectations. Davis and Yates (1982) found that providing college students with either mastery or failure experiences in solving anagrams produced changes in self-efficacy. Students who were given difficult anagrams had lower self-efficacy than those given easy anagrams. Participant modeling of skills like question-asking and decision making may effectively increase participant health care self-efficacy.

Vicarious Experience. Self-efficacy may also be influenced through observation of live or symbolic models (Bandura, 1977). Schunk and Hanson (1985) found that children who observed a peer model developed higher self-efficacy for learning than those who observed a teacher model or no model at all. Observation of peers modeling communication and decision making skills in a group intervention setting may strengthen gains in health care self-efficacy obtained through participant modeling and provide independent efficacy information.

Verbal Persuasion. Efficacy expectations can be increased through persuasion although expectations induced this way are easily extinguished by disconfirming experiences (Bandura, 1977). Maddux, et al., (1982) manipulated self-efficacy among introductory psychology students using verbal persuasion. Students who read essays describing a technique as easy to use had higher self-efficacy for using the technique than those who read essays describing the technique as difficult to use. Verbal persuasion can be used in health care settings to introduce new information which may change expectations and encourage participant modeling experiences.

Physiological States. Emotional arousal is another source of efficacy information (Bandura, 1977). Anxiety may be interpreted as a sign of an inability to perform in a given situation and can operate to inhibit performance of efficacious behavior.

These four sources of efficacy information can be utilized to modify self-efficacy. The most effective source of efficacy information has been found to be performance accomplishments (Bandura, 1982). Following this, vicarious experience and verbal persuasion have also been found to be effective in modifying efficacy expectations (Bandura, 1982). But how can self-efficacy expectations be maintained in instances where the individual must interact with others? This issue is of particular concern related to health care self-efficacy. What health care settings are likely to promote health care self-efficacy? How can patients be trained to interact with the health care system to maximize their success experiences? What is the impact of cultural role expectations and the interaction between patients and health care providers on patient participation behavior and satisfaction?

Patient/Professional Interaction

The most significant aspect of health care settings is the interaction of the health care professional with the patient. Three basic models have been used to describe the interaction between patients and medical practitioners; 1) Professional as Decision Maker, 2) Joint Decision Making and 3) Consumer as Decision Maker. All three models have potential value in health care. For example, the professional as decision maker model may be appropriate in instances in which the patient is incapacitated or otherwise unable to participate in decision making (Schain, 1980). Below each model is described and critiqued as to its potential impact on patient health care self-efficacy.

Professional as Decision Maker—Advocacy Models

In the advocacy model of professional/client interaction, the patient is regarded as helpless and dependent (Schain, 1980). The professional maintains an authoritative role and solves problems and makes decisions on the patient's behalf (Sharf, 1988; Schain, 1980). In this kind of an interaction it would be difficult for a patient to develop or maintain confidence in regard to health matters. The patient would have to remold the nature of the interaction in order to take an active role in decisions.

In American society, physicians in particular, though to some extent other health professionals as well, control medical knowledge, medical practice and the institutions of medicine, (Navarro, 1983). As a consequence, the medical profession commands high social and economic status (Ehrenreich & Ehrenreich, 1978; Navarro, 1983) which makes it difficult and unlikely that a patient could effectively change the nature of the interaction between herself and the professional (Roter, 1987).

Modern medical technology further complicates the patient's efforts at self-efficacy in health care. As medical technology becomes increasingly more complex and formidable it further removes the patient from an active role. Expert technicians are required to operate and interpret the information from sophisticated equipment. Professionals and patients alike may be so fascinated with medical technology (Figge, 1990) that they treat the machines as decision makers. Davis-Floyd (1987) reported that obstetricians for example, were likely to perform a caesarean if a fetal monitor indicated a potential problem although caesarean rates have not been found to be related to neonatal outcomes.

Patients may find the array of machinery and technology so daunting that they surrender all hope of ever being able to understand the nature of their health problems, let alone make decisions regarding them. The professional-as-decision-maker model provides no aid to the patient in attempting to overcome this intimidation and take an active role.

Joint Decision Making Models

The second model which has described patient/professional interactions is the joint decision making model. Schain (1980) and Roter (1987) advocated models of interaction in which patient and professional shared responsibility for health care decisions equally. The patient maintained autonomy and dignity while respecting the skill, opinions and expertise of the professional. Joint decision making models were designed to mitigate the tendency of professionals to emphasize medicotechnical concerns and neglect psychosocial issues (Roter, 1987). Psychosocial concerns of the patient are incorporated into decisions through the patient's input into the process. Many patients may be unable to participate equally in decisions with professionals however, due to the social power differences between themselves and the professional. Joint decision models lack a strategy for supporting patients in the decision making role and fail to address the issue of power inequity between clients and professionals.

Because of the difference in power between patients and professionals it is likely that in practice the professional would dominate a joint relationship between clients and professionals. Joint decision making models would become professional-as-decision maker models in practice.

Consumer as Decision Maker—Decision Support Models

In contrast to the joint decision making models, several articles have outlined models which specifically address the consumer's role as decision maker. Corcoran (1988) delineated the role of an advocate in the decision process. Corcoran (1988) operationalized Gadow's 5 steps in assisting a patient in decision making in the following way: (1) Assure relevant information, (2) Enable the patient to select information, (3) Encourage patients to seek information, (4) Offer to develop a decision flow diagram, (5) Disclose nurse's view, (6) Share personal values and viewpoints (7) Help patient determine own values, (8) Discuss the meaning of the experience for the patient.

O'Connor and O'Brien-Pallais (1989) also developed a model for assisting patient's in making decisions. O'Connor & O'Brien-Pallais established that the goal of decision counseling should be for the client to make an "effective" decision . An effective decision was defined as a decision which was informed, consistent with personal values and congruent with subsequent behavior (O'Connor & O'Brien-Pallais, 1989). Steps in decision therapy include: (1) Clarify goals, alternatives and outcomes, (2) Realign unrealistic alternatives, (3) Identify viable alternatives, (4) Clarify outcome expectations, (5) Realign unrealistic outcome expectations, (6) Clarify desirability of possible outcomes, (7) Clarify priority of outcomes, (8) Identify values tradeoffs, (9) Facilitate alternative selection, (10) Teach self-help skills required for behavioral implementation of decision.

Critique of Decision Support Models. Effective decision counseling has been found to be associated with decreased levels of post-decisional regret and increased satisfaction. Cooper, Bledin, Brice, and Mackenzie (1985) found that women who indicated regret or uncertainty about their decision to be sterilized were significantly more likely to report that their preoperative counseling had not been adequate than were women who reported that they were definitely glad they had been sterilized ($p < .005$). Parents who recalled being involved in making choices regarding their newborns with myelomeningocele were significantly more likely to be satisfied with the tertiary-care center than were parents who did not recall involvement in making choices ($p < .01$) (Charney, 1990).

Decision support models of client–professional interaction have several advantages over the traditional interaction model and the joint decision making model. Both the Corcoran (1988) and the O'Connor & O'Brien-Pallais (1989) models define specific steps for facilitating client decisions. Unlike the joint decision making models, the decision support models emphasize that the final decision should rest with the client, with the professional's role being to serve as facilitator in the client's decision process. Because the emphasis is on helping clients to make decisions themselves, many of the problems associated with authoritative and shared decision models—such as the power inequity between professional and client—are circumvented.

Several issues remain to be addressed, however. Control of information by the health professional has not been adequately addressed in decision support models. Corcoran (1988) noted that the professional may subtly manipulate a patient's decision by the information that is or is not provided. Corcoran's model left this problem open because the professional holds the responsibility for "assessing" the amount of information the patient desires and "can cope with." The O'Connor & O'Brien-Pallais (1989) model gave no such responsibility to the professional thus making such an occurrence less likely, though still possible.

Corcoran (1988) indicated that it was important to assess the patient's desire to know and provide only the desired level of information. The clinician must guess how much information the client desired and withhold other information. Clinicians have been found to estimate patient preferences for information inaccurately. Strull, et al. (1984) found that while 55% of patients being treated for hypertension indicated that they preferred "Quite a lot" or "Very Extensive" discussion about therapy, their clinicians estimated that only 43% desired that extent of discussion. The professional should communicate to the client that several levels of information are available so that the client can choose what information he or she seeks.

A drawback of decision support models has been a lack of operationalized evaluation criteria. Corcoran (1988) gave no criteria by which to evaluate the effectiveness of the decision advocacy guidelines but did encourage nurses to test and refine the model and to develop additional guidelines. O'Connor & O'Brien-Pallais (1989) listed expected outcomes to be achieved by patients through decision support therapy. Some of the expected outcomes such as "identifies viable alternatives" can be measured using existing measures such as decision analysis. Other outcomes such as "expresses satisfaction at having made the best decision under the circumstances" presently lack reliable measures.

Because decision support models place decision making with the client, interactions based on these models are most likely to promote health care self-efficacy. Health care self-efficacy is promoted two ways in decision support; through mastery and persuasion. First, the client experiences competence in the decision making process. Second, the professional communicates confidence in the client's ability to make a decision which is best for him or her.

Conclusion

Of the three models of client-professional interaction commonly advocated, the decision support model is most likely to promote high health care self-efficacy among patients. Although the model has been developed there have been few programs which have applied the model in actual practice.

Despite growing demand for active involvement of patients in their health care, practical guidelines for supporting the client in this role and evaluating such efforts have been lacking. Also lacking has been a theoretical basis for evaluating interventions designed to facilitate active patient participation in medical decision making (Steele, et al., 1987).

Community Psychology Concepts

Theoretical concepts and tools useful for evaluation of patient participation interventions may be drawn from community psychology. Community psychology is concerned with development and evaluation of social programs. It embraces an approach to these problems which is 1) democratic, 2) innovative and 3) can be disseminated (Fairweather & Davidson, 1986). Inherent to the concept of democratic change is empowerment (Rappaport, 1987). Full participation in social change requires providing information and skills to those who have traditionally been excluded from decision making. Intervention for social change can occur at the individual, group, organizational or societal levels but most often requires intervention at all four levels (Fairweather & Davidson, 1986). Empowerment and level of change are two principals of community psychology which apply to evaluation of a patient participation intervention.

Empowerment

Empowerment refers to individual determination over one's own life and democratic participation in the life of one's community (Rappaport, 1987). Empowerment describes both a psychological sense of personal control or influence and a concern with actual social influence, political power and legal rights (Rappaport, 1987). It applies to individuals as well as to organizations (Rappaport, 1987).

Empowerment has been described as a multi-factor construct which includes the elements self-efficacy, political efficacy, mastery, desire for control, and locus of control as well as others (Zimmerman & Rappaport, 1988).

Health care self-efficacy is one element of psychological empowerment related to health care. Measurement of this construct can be used to evaluate the extent to which an intervention serves to empower health care consumers in their interactions with the health care system. Self-efficacy focuses on the individual aspect of empowerment while measures of barriers or external perceived control focus on the health care system. Combined, self-efficacy and perceived barriers represent the two main elements of psychological empowerment related to health care.

Individual Versus System-Level Intervention

Fairweather and Davidson, (1986) indicated that while intervention for social change could occur at any of four levels, it was most likely to result in successful and lasting social change if it occurred at multiple levels.

Although intervening at multiple levels is most likely to promote effective change, it is difficult to do. Attempts to intervene at the system level often meet with barriers. Primary among the barriers is the tendency of those invested in the status quo to perpetuate the status quo at all costs (Fairweather & Tornatzky, 1977). Gray, Doan and Church (1991) reported that one barrier to empowerment of persons with cancer was the behavior of health professionals. The health professionals were invested in the traditional patient/professional model. Professionals derived social and economic status from their role as decision makers (Ehrenreich & Ehrenreich, 1978; Navarro, 1983). Persons with cancer found it difficult to obtain the needed information from these health professionals in order to participate in decisions.

Individual-Level Intervention for System-Level Change

One solution to the barriers to intervening at the system level is intervention at the individual level which stimulates individuals to demand changes at the system level. An example of this was the alternative birth movement in the United States. The movement was a reaction by women against the medical establishment which controlled obstetrical care (Mathews & Zadak, 1991). Mathews and Zadak (1991) reviewed the history of the alternative birth movement: The natural childbirth movement gained momentum in the 1960's and 1970's when it converged with the feminist and consumer movements of the time. The movement emphasized public education, informed choice and self-help. Educated, middle class Americans began to choose home births and alternative birthing centers over hospital births. They demanded a more personalized, family-centered, patient-controlled birthing experience. Hospitals and obstetricians experienced a loss of control and increased competition for patients. As a result health professional organizations joined together to endorse a philosophy of family-centered birthing and hospitals began to offer in-hospital combined labor-delivery-recovery birthing rooms. Routine procedures such as shaving the perineum, giving the laboring woman enemas and confining her to bed began to fall into disfavor. Hospital rooms were redesigned to minimize the appearance of technological intervention in birthing. The alternative birth movement initiated a major transformation in the birthing process in the United States (Mathews & Zadak, 1991). This transformation was a result of empowering health care consumers rather than directly intervening at the system level.

Despite outward appearances however, the degree of actual change in obstetric practice can be questioned. Mathews and Zadak (1991) pointed out that alternatives to traditional medical management of childbirth are available only to highly motivated, well-prepared women who anticipate a completely normal pregnancy and delivery. The control and prerogatives of the obstetrical community continue to be maintained.

In spite of continued control by the obstetrical community however, childbirth in the United States continues to change to meet consumer demands. As hospitals have changed and consumers have continued their demands for family-centered care, medical education has slowly begun to adapt. Pregnancy and childbirth is being redefined as a natural rather than a medical event. The impact of the alternative birthing movement continues to mold US obstetrical practices. Providing health care consumers with the information and skills to challenge the traditional model of care successfully promoted change within the system. Intervention at the individual level resulted in system-level change despite resistance from those invested in the current system.

Another way in which system-level change may be effected is through development, evaluation and dissemination of programs which empower health care consumers to participate actively in health care decisions. Once an effective method of empowering consumers is identified it may be disseminated to the health care community as an alternative model for interacting with patients. Dissemination involves four phases; approach, persuasion, activation and diffusion (Fairweather & Davidson, 1986). The approach phase involves identifying the target population (such as individual health professionals, clinics or health maintainence organizations) and implementing a plan to inform them of the innovation (such as advertisements, professional training workshops, articles in professional journals, etc.). Persuasion involves identifying and utilizing an effective method of information transmission. It is important to consider the style of persuasion, content of the message and legitimacy of the advocate (Fairweather & Davidson, 1986). The most effective method of persuasion can be identified through implementation of multiple methods and evaluation of their success. Use of respected fellow professionals as advocates and focusing the content of the message on time- and cost-efficiency as well as patient well-being are possible aspects of persuasion with health professionals. The next phase of dissemination is the activation phase. Once the professional or organization decides to adopt the innovative program it is necessary to activate the model in the community setting through accurate model replication. Activating the model in the community while maintaining its integrity requires transmission of content and process, guidance during implementation and ongoing monitoring of implementation (Fairweather & Davidson, 1986). Activating a program to empower health care consumers to participate in health care decisions will require packaging the program materials in a manner appropriate to the private office or clinic setting, appropriate training of program personnel and observation and feedback regarding the program implementation. The final phase of dissemination involves spreading the innovation from the initial adopters to the rest of the target population and society as a whole (Fairweather & Davidson, 1986). During diffusion it is critical to continue monitoring implementation of the program to maintain its integrity and effectiveness. With patient empowerment programs it is imperative to avoid cooptation by the status quo such as partially occurred in the instance of the natural birth movement. Integrity of the empowerment goal of the program may be maintained by tracking adoption of the program through copyright of materials and visible requests to be informed of program adoption. Tracking of implementation will allow program developers to closely monitor implementation and provide feedback regarding congruence with original goals.

The specific method used for each of the four phases of dissemination should be determined through experimentation (Fairweather & Davidson, 1986).

Current Programs to Empower Health Care Consumers

Two areas in which the patient empowerment approach has been used are cancer care and diabetes education. Involvement of patients in decision making is especially important in diabetes education and in cancer care because in diabetes care the patient is personally responsible for carrying out so much of the treatment program (Anderson, Funnell, Barr, Dedrick, & Davis, 1991) and in cancer, patients lose much control in their lives (Gray, et al., 1991).

The University of Michigan Diabetes Research and Training Center developed a training program aimed at teaching diabetes educators to empower patients. The program included four steps; 1) Help patients determine what part of their diabetes care is a problem for them, 2) Help patients focus on their emotions, 3) Help patients clarify their health-related values and establish goals, and 4) Help patients develop and commit to a specific plan to achieve their goals (Anderson, et al., 1991). Participating professionals were required to follow a simulated diabetes care regimen for 3 days prior to participation in the skills-based workshop. The goal of the simulation was to introduce the professionals to the challenges of caring for diabetes on a daily basis. The program was based on Rogers' client-centered counseling model and was developed, pilot tested and offered to diabetes educators. Evaluation of the effectiveness of the program in empowering patients was not reported.

A second program focused on cancer patients. Because people diagnosed with cancer lose control in their lives due to illness, side effects and unbalanced power relations with health professionals, they can benefit from interventions to empower them in relation to the health care system (Gray, et al., 1991). Gray, et al. (1991) developed a model to empower people diagnosed with cancer. The model included the following ways of empowering people: 1) Address symptom management for persons with cancer, 2) increase funding for outpatient, community and home-based care, 3) allow patients to determine the amount of information and participation they receive 4) teach patients stress-management techniques, 5) teach assertiveness training for patients, 6) develop mutual support groups for people with cancer, 7) involve patients in setting health care policies, 8) hire patient advocates, 9) encourage political activism by persons with cancer, 10) change societal attitudes toward illness and death to decrease stigmatization of cancer survivors.

Both programs addressed patient empowerment on two levels, change at the system level and change directed toward patients themselves. At the system level, the diabetes education program sensitized diabetes educators to the problems of diabetes patients by having them follow a diabetic care regimen for 3 days. It educated professionals in how to change their behavior in order to empower patients. The model for empowering persons with cancer recommended involving patients in setting health care policies and encouraging political activism.

Both programs developed to empower medical patients also included elements directed at intervening with patients themselves. The individual-level elements of the interventions were similar to those advocated in decision support models of client-professional interaction.The diabetes program trained educators to intervene with patients using the four steps described above. The model for persons with cancer emphasized informing patients and training them in skills such as stress-management and assertiveness.

The four recommendations shared by the individual-level portions of the intervention programs and by the decision support models of client-professional interaction were 1) provide information about the factors important to the health-related decision; 2) help the client clarify his or her values related to the important factors; 3) involve the client in health care decisions; and 4) help the client develop and commit to a specific plan to carry out health care decisions. These four elements along with system level interventions, form the basis of the patient participation philosophy.

Although there have been programs aimed at empowering patients with specific medical problems, no program has combined the four basic elements of patient participation into an intervention to aid women in their decision making related to menopause which is the focus of the research reported in this paper.

The Need for a Program Addressing Menopause

Menopause is a time of physical changes for women. Recent research demonstrating benefits and risks associated with hormone replacement therapy after menopause contribute to the decision making dilemmas women face at menopause. Because women at midlife face physical changes associated with menopause as well as new concerns about health changes associated with aging, the need to be an informed decision maker regarding health issues is especially important. Additionally, it is important to involve women in health care decisions at menopause because they are ultimately responsible for carrying out the care plan selected. The woman herself must carry out many of the activities which may benefit her health such as exercise programs, diet changes or taking medicines as directed. Because of the changes and decisions women face at menopause a program which promotes their participation in their health care is needed.

Conclusion

Women at midlife face an increased risk of health problems such as osteoporosis and heart disease. They may choose to respond to these increased risks through health promotion behaviors such as regular exercise, elimination of smoking and diet modifications. They may also choose whether or not to take hormone replacement therapy.

Because the issues related to health maintainence and hormone replacement therapy are complicated and controversial, midlife women may benefit from informed, active involvement in decision making related to their health care. Active consumer participation in health care is important for other reasons as well. Expanded choices and increased costs of medical care provide medical practitioners with multiple treatment options. Consumers should help choose the option which best represents their own values. Furthermore, active participation and a sense of self-efficacy related to health have been found to result in improved clinical outcomes and decreased psychological morbidity.

Despite potential benefits related to active participation, health care consumers frequently decline to participate in health care decisions. One explanation is they believe they lack skills necessary for effective participation. Health care consumers have low self-efficacy related to health care.

One solution to this problem is to increase health care self-efficacy. It has been demonstrated that self-efficacy can be modified through intervention. Bandura (1977) described four principal sources of efficacy information through which intervention could occur; performance accomplishments, vicarious experience, persuasion and physiological states. An intervention which enhanced self-efficacy through these sources could promote participation among individuals for whom low self-efficacy was a barrier.

Health care self-efficacy may also be modified by the quality of the interaction between the consumer and the health care professional. Interactions in which the professional maintains control over decision making may serve to lower consumer self-efficacy. Alternatively, interactions which promote autonomy by the consumer may serve to increase self-efficacy. The advocacy and the joint decision making models of interaction may hinder development of health care self-efficacy by encouraging a passive role for the consumer. In the advocacy model the professional makes decisions for the patient. In the joint decision making model the professional may encourage input from the patient but the status contrast between patient and professional may prevent active participation by the patient.

The decision support model of interaction is hypothesized to have the most positive impact on health care self-efficacy. In this model the health care consumer is assisted to make decisions which are informed, consistent with values and congruent with subsequent behavior (O'Connor & O'Brien-Pallais, 1989).

Few programs to empower health care consumers have been developed and evaluated. Two programs which have been developed incorporated aspects of the decision support model of interaction. These programs 1) informed consumers, 2) helped the consumer clarify values, 3) promoted consumer decision making, and 4) helped the consumer develop a personal plan to carry out health care decisions.

Although a few programs have been developed to empower health care consumers to participate actively in decision making, no program has been developed and evaluated which addressed the issue of menopause. Development and evaluation of such a program is needed.

Concepts and methods from community psychology may be useful in evaluating such a program. The concepts of empowerment and multi-level intervention may be applied to determine the effectiveness of such a program in empowering midlife health care consumers.

The Current Research

The purpose of the current research was to determine the impact of three menopause education programs on the health care self-efficacy of midlife women and to test a model of the impact of self-efficacy on participation in health care decisions. Because self-efficacy has been found to be related to desire for control of health care and it has been documented that some patients desired more information than they actively requested from health care providers, it was hypothesized that patient participation behavior could be influenced by increasing self-efficacy related to active participation behavior. The three intervention programs to be tested for their impact on self-efficacy were developed by Rothert (1990) to help women become better decision makers about their menopausal health and hormone replacement therapy.

The first program, (A) provided information in the form of a written brochure. The brochure consisted of three sections addressing 1) the physiology of menopause and self-care, 2) the pros and cons of hormone replacement therapy and 3) communication with health care professionals (Rothert, Kroll, Holmes-Rovner, Rovner, Schmitt, & Talarczyk, 1992). Section one of the brochure described what women could expect at menopause, including information on what menopause is, when it occurs and the physical changes women may experience at menopause. Section one discussed the symptoms and increased risks that may accompany menopause and suggested self-care strategies.

Section two of the brochure described additional risk factors to consider related to use of hormone replacement therapy and described the two main types of hormone therapy; estrogen-only therapy and estrogen combined with progesterone. The benefits and risks of each type of therapy and the increase or decrease in death rate due to endometrial cancer, heart disease and osteoporosis were depicted numerically and graphically.

Section three of the brochure was in workbook format with spaces to record personal and family health history, menstrual history and questions for the health care professional. Examples illustrated how to provide detailed information to help health professionals care for one's health and sample questions were offered to help the reader think of her own questions and concerns related to menopause. Recommendations for communicating effectively during the visit included the following: describe symptoms specifically, let the professional know about questions at the beginning of the visit (to allow time during the visit to have them answered), ask questions and ask for clarification when necessary, repeat information to ensure understanding and write down information that will be needed later.

The brochure was designed as a standard treatment control for the decision support intervention (described below). Although the brochure provided instruction in effective communication with health care professionals, it was not anticipated that the brochure alone would be sufficient intervention to increase self-efficacy related to the health care system.

The second program (B) provided information in a lecture/discussion format. Program B consisted of three $1\ ^1/2$ hour sessions using a lecture format with overhead transparencies as visual aids. Program content was parallel to the brochure. Session I covered the physiology of menopause and self-care methods for managing symptoms and decreasing health risks. Session II discussed the pros and cons of hormone replacement therapy and Session III covered communicating with health care providers. A 10 to 20 minute question and answer period was led by a nurse or physician member of the instructor team following discussion of the pros and cons of HRT. Session III presented a lecture on communicating with health care providers which paralleled the content of Section III of the brochure but instructors included anecdotal examples to illustrate how effective communication could result in more satisfying interactions with the health care system. For example, an advisory panel of health professionals indicated that it would be helpful for patients to convey that they have questions at the beginning of a visit in order to allot time to answer them. The reasoning behind this recommendation was therefore explained in the lecture, but not in the written brochure.

The lecture/discussion format program was not anticipated to significantly impact self-efficacy related to the health care system. Although information on effective communication with health care providers was presented verbally as well as in written form, instruction alone was not expected to be an effective intervention by itself. The lecture/discussion program was designed as a time and attention control group for the decision support intervention.

The third program (C) was a decision support intervention which provided information and experience in an active involvement format. The intervention consisted of a series of exercises to foster active involvement in the decision process. The program, parallel to Program B in time spent, consisted of three sessions, each approximately 1 $^1/2$ hours long.

The first session of the program was identical in content to Programs A and B. Information on the physiology of menopause and self-care strategies for managing symptoms and minimizing health risks was presented in a lecture format.

The second session of Program C presented the information contained in the brochure and in Program B on the risks and benefits of hormone replacement therapy. As in Program B, a question and answer period was included following presentation of the pros and cons of hormone replacement therapy. The women received information about a previous study by the research team which found that different women weighed the risk factors related to HRT in differing ways (Rothert, et al., 1990). This information was presented to help the women understand that women differed in how they approached the decision about

HRT and to introduce an exercise assessing personal risks and values related to HRT.

In order to better understand their own risks and values related to HRT the women completed a Personal Risk Assessment, Problem Significance Assessment and Relevance Chart which combined base rate risk, personal risk and personal values for each of up to 7 factors important to the woman's decision about HRT. The Personal Risk Assessment informed the women of their personal risk of heart disease, osteoporosis and endometrial cancer. The women scored their own risk assessments and marked base rate risk and their personal risk on their relevance charts. The purpose of the relevance chart was to help women visually compare their risks and values across the multiple factors in their decision.

Following the Personal Risk Assessment exercise, the women completed the Problem Significance Assessment on which they rated having each of the following factors on an 11 point scale with 0=Perfect Health and 100=Death: fractures from osteoporosis, heart disease, endometrial cancer, hot flashes, cyclic bleeding, treatment side effects and other. Intermediate points on the scale were marked in 10-point increments from 10 to 100. The Problem Significance Assessment was designed to help the women clarify their values related to the tradeoffs in the HRT decision. This information was transferred in graphic form to the Relevance Chart.

After completion of the Personal Risk Assessment and Problem Significance Assessment, the women were given a work sheet with a series of six scenarios describing various combinations of risks and values. One or two of the scenarios were read in class and sample relevance charts were completed on overhead transparencies to show how a woman might weigh and combine the information and come to a decision. The women were then given time to read over the other scenarios, placing themselves in each situation, and consider how they would weigh the various factors and make a decision related to symptom management and risk minimization.

Following the scenarios exercise, the women returned to the relevance chart and assigned a "relevance" score to each factor based on her risk and significance for that factor (heart disease, fractures, endometrial cancer) or significance alone. The relevance chart visually depicted each woman's unique combination of risks and values with base rate information. The women weighed the relevance of each factor to make a preliminary choice between 1) I choose not to discuss HRT with my health care provider, 2) I choose to discuss taking HRT with my health care provider or 3) I choose to continue to take HRT.

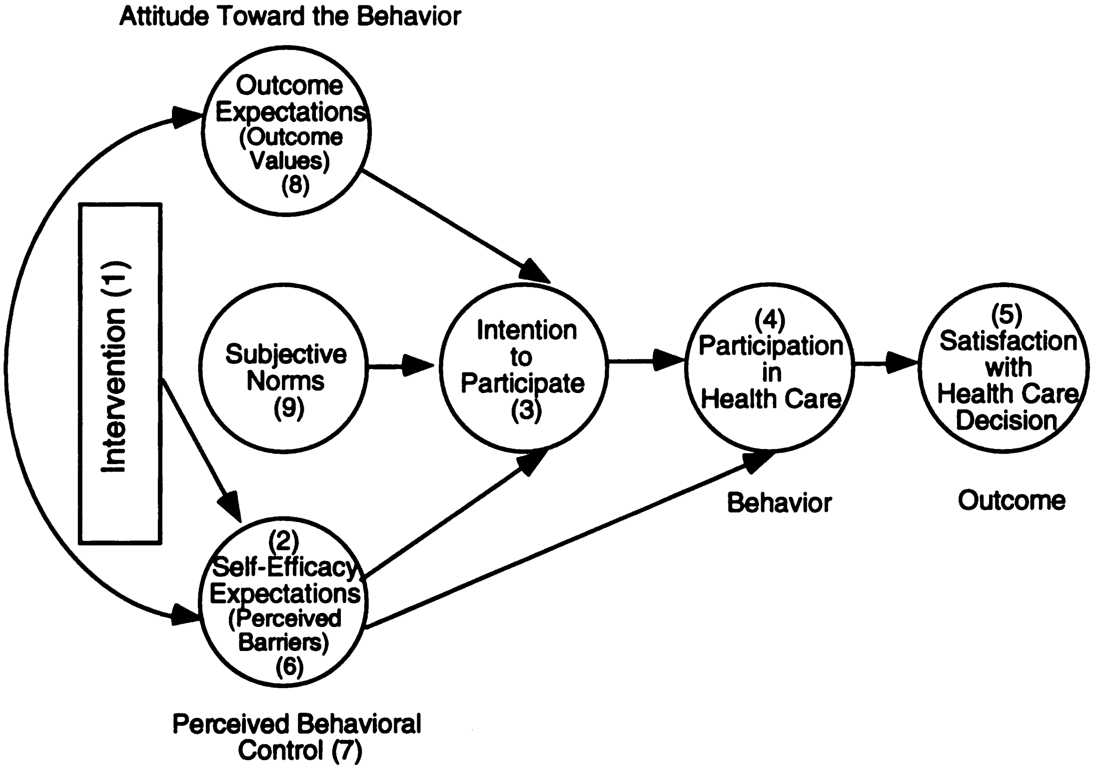
During session III of the decision support intervention, participants received the same lecture on communicating with health care providers presented to participants in program B. The information was parallel to that provided in the brochure and included anecdotal examples to support the value of effective communication and participation in health care. In addition, participants took part in a role play exercise in which they took turns acting as health care providers and as active patients. Participants received the following instructions prior to the role play, "For those of you who are playing health care providers, remember you have a schedule to keep and patients in the waiting room but you are seeing one of your regular patients. For those of you who are playing patients, you have called ahead and informed the receptionist you want to make an appointment to discuss menopause." The purpose of this exercise was to provide a participant modeling experience in which the women could gain confidence actively participating in a simulated health care encounter. The women separated into pairs and took turns acting as the health professional and as the patient. In addition to gaining experience and confidence in active patient behavior, this allowed participants to gain understanding of how a health care provider might feel when facing an active patient. Following the role play there was a discussion period in which the instructor asked the group the how the role play went and how it worked. One comment included that when playing the health care provider it felt uncomfortable not to know the answers to the patient's questions. This allowed a brief discussion about whether health care providers may know the answers to all questions. Sometimes discussion focused on past experiences in actual health care encounters and how the concepts learned in the class could be applied to the situation in the future.

The purpose of the role play was to increase self-efficacy related to active participation in health care, which was expected to lead to increased active behavior in health care encounters. Although mastery experiences have been found to be the most effective in increasing self-efficacy, practical limitations required that the intervention use a simulated rather than actual health care encounter.

The hypothesized impact of the intervention on health care self-efficacy and participation behavior is depicted in Figure 4. Because mastery experiences have been found to be the strongest sources of self-efficacy information, it was hypothesized that intervention C, which included experience in a simulated health care encounter, would significantly increase self-efficacy. The brochure alone and the lecture/discussion format were not expected to significantly increase self-efficacy related to the health care system. The relationship between the hypotheses and the proposed model are described below.

Figure 4

Patient Participation Model



Hypotheses

Hypothesis 1

Statement of Hypothesis

Post-intervention, participants in Program C will have greater confidence in their ability to participate actively in health care decisions which will result in greater intention to participate, increased participation behavior and greater satisfaction with decision compared to participants in programs A and B.

Summary of Related Literature

Link Between Intervention and Self-efficacy. In the Health Care Self-Efficacy model (figure 4), Intervention C (1) was hypothesized to impact the self-efficacy aspect of perceived behavioral control (2) through participant modeling and persuasion. Since participant modeling has previously been found to increase self-efficacy among snake phobics (Bandura, Adams, & Beyer 1977), it was hypothesized that the role play exercise would increase participants' health care self-efficacy in a similar way. The brochure alone and the lecture/discussion format intervention were not expected in significantly influence self-efficacy.

Link Between Self-efficacy and Intention. It was hypothesized that the increase in self-efficacy (2) induced by Intervention C (1) would result in increased intention to actively participate in health care decisions (3). The impact of self-efficacy on behavioral intention has been well documented. For example, self-efficacy was found to be predictive of intention to perform dental hygiene behaviors (McCaul, O'Neill & Glasgow, 1988; Tedesco, Keffer & Fleck-Kandath,1991) and intention to participate in physical activity (Dzewaltowski, Noble & Shaw, 1990). In previous studies, the correlation between self-efficacy and behavioral intention was found to be substantial; .89 for teeth-brushing (Tedesco, Keffer & Fleck-Kandath,1991) and .81 for physical activity (Dzewaltowski, Noble & Shaw, 1990).

Link Between Intention and Behavior. Because previous studies have found that behavioral intention was a significant predictor of behavior, it was hypothesized that intention to participate actively in health care (3) would predict self-reported participation in health care (4). Intention has been found to predict class attendance among college students (Ajzen & Madden, 1986), brushing and flossing among dental patients (Tedesco, Keffer & Fleck-Kandath, 1991), physical activity participation among undergraduate college students (Dzewaltowski, Noble & Shaw, 1990), and testicular self-examination among college students (Brubaker & Wickersham, 1990).

Link Between Active Participation Behavior and Satisfaction. The outcome of active participation in health care (4) was hypothesized to be satisfaction with decision (5). Parents who recalled being involved in the decision making regarding their hospitalized children were significantly more likely to be satisfied with their care than were parents who did not recall involvement (Charney, 1990). It was therefore anticipated that patients who actively participated in their health care would be more satisfied with the health care decision made.

Relation to Model

Hypothesis 1 regarded the relationship between intervention C (1), self-efficacy (2), intention to participate (3), participation in health care (behavior) (4) and satisfaction with health care decision (outcome) (5).

Intervention and Self-efficacy. The health care self-efficacy model shown in Figure 4 shows the hypothesized relationship between the intervention (1) and self-efficacy (2) suggested by the literature. The intervention was hypothesized to increase self-efficacy through participant modeling and persuasion. In the model, the factors self-efficacy (2) and perceived barriers (6) paralleled Shifter & Ajzen's (1985) construct "perceived behavioral control (7)." Self-efficacy expectations represented the internally controlled aspects of perceived behavioral control and perceived barriers represented the externally controlled aspects.

Self-efficacy and Behavioral Intention. The model also showed the expected relationship between self-efficacy expectations (2) and behavioral intention (3). It was hypothesized that health care self-efficacy would be positively related to intention to participate in health care and that intention would predict participation behavior.

Behavioral Intention and Behavior. As shown in Figure 4, it was anticipated that the decision support intervention (1) would significantly increase health care self-efficacy expectations (2) and that increased self-efficacy would result in increased intention to participate in health care (3). Intention to participate was hypothesized to predict self-report of actual participation in health care (4) which would result in increased satisfaction with the health care decision (5).

Participation and Satisfaction with Decision. In the health care self-efficacy model, satisfaction with decision (5) was the desired outcome stemming from patient participation behavior. It was hypothesized that self-reported participation in health care (4) would be significantly associated with increased satisfaction with health care decision (5).

Hypothesis 2

Statement of Hypothesis

Outcome Expectations, Subjective Norms and Health Care Self-Efficacy will significantly predict Intention to Participate in health care decisions.

Summary of Related Literature

According to the theory of planned behavior, behavioral intention was determined by three factors, Attitude Toward a Behavior, Subjective Norm and Perceived Behavioral Control (Shifter & Ajzen, 1985). Attitude Toward a Behavior had two determinants, behavioral beliefs and outcome evaluation.

Behavioral beliefs was defined as the likelihood that performing a behavior would result in a given outcome and outcome evaluation was defined as the positive or negative value placed on a given outcome (Ajzen & Fishbein, 1980). These two concepts were identical to the concepts Outcome Expectation (Bandura, 1977) and Outcome Value (Teasdale, 1978) in self-efficacy theory (Tedesco, Keffer & Fleck-Kandath, 1991).

Outcome Expectations. Outcome expectations were defined as the belief that a given behavior would lead to a specific outcome (Bandura, 1977). According to the Theory of Planned Behavior, the determinants of Attitude Toward the Behavior were behavioral beliefs (subjective probability that performing the behavior will lead to a given outcome) and the outcome's subjective value (Ajzen & Madden, 1986). Each behavioral belief and outcome value were multiplied together and the products summed to produce Attitude Toward the Behavior (Ajzen & Madden, 1986). Behavioral beliefs were identical to Bandura's (1977) Outcome Expectations. Teasdale (1978) clarified the nature of outcome expectation as the sum of the probability of each outcome times the value of that outcome. Solomon and Annis (1990) used Teasdale's (1978) and Ajzen & Madden's (1986) method of multiplying outcome expectations by their value when developing a measure of outcome expectancy related to drinking behavior.

Although outcome expectations, alone or in combination with self-efficacy expectations, have not been found to predict behavior as well as self-efficacy expectations alone (Solomon & Annis, 1990; Manning & Wright, 1983); they have been found to contribute significantly to prediction of behavioral intention (Ajzen & Madden, 1986; Manstead, Proffitt & Smart, 1983; Maddux, Sherer & Rogers, 1982; Crawley, 1990; Netemeyer & Burton, 1990; Shifter & Ajzen, 1985). Maddux, Sherer and Rogers (1982) found that outcome expectancy was significantly related to behavioral intention to use a novel communication technique and that outcome expectancy was correlated with self-efficacy.

Subjective Norm. Subjective norm had two determinants; normative beliefs and strength of normative beliefs. A normative belief was the perceived likelihood that other people would approve or disapprove of a given behavior. Subjective norm consisted of the product of each normative belief and its strength (motivation to comply with the other's belief) (Ajzen & Madden, 1986). Subjective norm has been found to significantly contribute to prediction of behavioral intention for some behaviors but not for others (Ajzen & Madden, 1986; Beale & Manstead, 1991; Brubaker & Wickersham, 1990; McCaul, O'Neill & Glasgow, 1988).

Relationship Between 3 Variables and Intention. Attitude toward behavior, subjective norm and self-efficacy have been found to significantly predict dental hygiene behavior intentions ($R^2 = .31$) (McCaul, O'Neill & Glasgow, 1988), intention to practice testicular self-examination (Brubaker & Wickersham, 1990), intention to exercise (Gatch & Kendzierski, 1990), intention to lose weight (Shifter & Ajzen, 1985), and intention to attend college class lectures (Ajzen & Madden, 1986).

Relation to Model

Hypothesis 2 regarded the prediction of intention to participate in health care (3) from the factors health care self-efficacy (2), outcome expectations (8) and subjective norm (9). As shown in the model of patient participation behavior, intention to participate was hypothesized to be determined by self-efficacy expectations, outcome expectations and subjective norms. It was hypothesized that all three factors would contribute significantly to prediction of intention. The participant modeling exercise in intervention C (1) targeted self-efficacy (2) as shown in the model, but was not part of the model itself. The model described the hypothesized relationships among self-efficacy, outcome expectations, subjective norms, perceived barriers and intention, behavior and satisfaction.

Hypothesis 3

Statement of Hypothesis

Health Care Self-Efficacy and Intention to Participate will significantly predict Participation in Health Care.

Summary of Related Literature

Self-efficacy represented the internal control aspect of perceived behavioral control (Shifter & Ajzen, 1985) and has been found to significantly improve prediction of behavior beyond behavioral intention (Ajzen & Madden, 1986; Shifter & Ajzen, 1985; Tedesco, Keffer & Fleck-Kandath, 1991). Although self-efficacy may influence behavior through its impact on behavioral intention, it has been found to be more highly correlated with some behaviors than behavioral intention suggesting a direct, unmediated relationship to behavior as well. For example, self-efficacy was found to correlate .41 with exercise behavior, while intention was correlated .32 (Dzewaltowski, Noble & Shaw, 1990). The degree to which self-efficacy (perceived behavioral control) has a direct influence on behavior has been hypothesized to depend on the degree of actual control present in a given situation. Perceived behavioral control has been found to improve prediction of behavior in situations in which individuals lack complete behavioral control and have experience with the behavior in question (Beale & Manstead, 1991; Ajzen & Madden, 1986). Since active participation in health care has been found to be a situation in which some individuals perceive a lack of internal control (self-efficacy) (Woodward & Wallston, 1987), it was anticipated that perceived behavioral control would exert a direct influence on participation behavior as well as impact intention to participate. According to the theory of planned behavior, perceived control represents actual behavioral control and experience results in a more accurate prediction of actual control (Ajzen &

Madden, 1986). Since the health care encounter was a situation with which most midlife women had experience, it was expected that their prediction of actual control would be highly accurate and therefore perceived control would be representative of the actual control available in that situation and directly related to behavior.

Relation to Model

As shown in Figure 4, it was hypothesized that there would be a direct relationship between self-efficacy (2) and participation behavior (4) not accounted for by behavioral intention (3) alone. It was therefore hypothesized that intention and self-efficacy together would significantly predict participation in health care decisions (4). Intervention C was hypothesized to exert an influence on behavior only via self-efficacy.

Hypothesis 4

Statement of Hypothesis

Self-Efficacy Expectations and Outcome Expectations will be significantly correlated.

Summary of Related Literature

According to theory, attitude toward the behavior and perceived behavioral control would be expected to be correlated (Ajzen & Madden, 1986) however, some studies have found a correlation between the two factors (Dzewaltowski, Noble & Shaw, 1990), while others have not (Shifter & Ajzen, 1985). Social cognitive theory maintained that while self-efficacy expectations and outcome expectations were distinct constructs, self-efficacy expectations and outcome expectations would be correlated except when no level of competence could produce desired outcomes (Bandura, 1988). Self-efficacy has been found to be significantly correlated with outcome expectations in several studies (Manning & Wright, 1983; Dzewaltowski, Noble & Shaw, 1990) supporting the theory. It has also been shown that self-efficacy expectations and outcome expectations can be manipulated independently (Davis & Yates, 1982) and that outcome expectations contributed separately to self-efficacy's prediction of behavior (Dzewaltowski, Noble & Shaw, 1990; Manning & Wright, 1983) supporting the distinction between the factors.

Relation to Model

The patient participation model (figure 4) paralleled the theory of planned behavior and health care self-efficacy (2) was therefore expected to be correlated with outcome expectations (8) since it was anticipated that patients would perceive a relationship (positive or negative) between patient participation behavior and quality of medical care. Intervention C was expected to influence self-efficacy expectations directly.

Hypothesis 5

Statement of Hypothesis

Perceived Barriers and Health Care Self-Efficacy will contribute significantly to prediction of Intention to Participate in Health Care Decisions and participation behavior.

Summary of Related Literature

According to the theory of planned behavior, perceived behavioral control included the elements of internal, personal control (skills and abilities) and control by external sources (time, opportunity, and other people) (Ajzen & Madden, 1986). The internal control factor was conceptually identical to self-efficacy (Ajzen & Madden, 1986; Dzewaltowski, Noble & Shaw, 1990; Gatch & Kendzierski, 1990; Brubaker & Wickersham, 1990) and the external control factor was similar to the concept "perceived barriers" in the Health Belief Model (Beale & Manstead, 1991). Combined, self-efficacy and perceived barriers included both the internal and external control aspects of Perceived Behavioral Control.

In the Theory of Planned Behavior, both internal and external aspects of perceived behavioral control contributed to prediction of intention and behavior. According to social cognitive theory, perceived self-efficacy was the determining factor in intention and behavior:

> "Human behavior is, of course governed largely by perceptions of personal efficacy and social environments rather than simply by their objective properties. Thus, individuals who believe themselves to be inefficacious are likely to effect limited change even in environments that provide many opportunities. Conversely, those who have a firm belief in their efficacy, through ingenuity and perseverance, figure out ways of exercising some measure of control in environments containing limited opportunities and many constraints," (Bandura & Wood, 1989; p. 806).

Recent research has suggested that self-efficacy alone was a better predictor of intention and behavior than perceived behavioral control which incorporated both internal and external control factors. Dzewaltowski, Noble and Shaw (1990) found that self-efficacy was more highly correlated with behavioral intention (r = .81) and exercise behavior (r = .41) than was perceived behavioral control (r = .40 and .10, respectively).

Perceived behavioral control has however, been found to significantly contribute to prediction of behavioral intention and behavior in several studies (Dzewaltowski, Noble & Shaw, 1990; Beale & Manstead, 1991; Gatch & Kendzierski, 1990; Netemeyer & Burton, 1990; Shifter & Ajzen, 1985; Ajzen & Madden, 1986). According to the theory of planned behavior, perceived control predicted behavior because it was a substitute for a measure of actual control (Ajzen & Madden, 1986). Since it was actual behavioral control which was believed to predict behavior in the theory of planned behavior (Ajzen & Madden, 1986), external control factors may add to prediction of behavior.

Relation to Model

As shown in the model, it was hypothesized that perceived barriers to participation (6) would contribute significantly to prediction of intention to participate (3) and participation behavior (4). Intervention C was expected to directly influence self-efficacy (2) but not perceived barriers (6) since external, or system-level barriers were outside the realm of the intervention.

Table 2 shows the relationship between the model, hypotheses, instruments and analyses. The numbers in parentheses refer to Figure 4.

Table 2

Hypotheses

Hypothesis	Instruments	Analysis
1. Intervention C (1) will increase self-efficacy (2) which will influence Intention (3) & Participation (4) which will impact Satisfaction (5)	• Health Care Self-Efficacy Scale • Behavioral Intentions Scale • Behavior Self-Report Scale • Satisfaction with Decision Scale	• Multiple Regression • Path Analysis
2. Outcome Expectations (8), Self-Efficacy Expectations (2) & Subjective Norms (9) will predict Intention (3)	• Outcome Expectations Scale • Health Care Self-Efficacy Scale • Subjective Norms Scale • Behavioral Intentions Scale	• Path Analysis
3. Self-Efficacy Expectations (1) & Intention (3) will predict Participation Behavior (4)	• Health Care Self-Efficacy Scale • Behavioral Intentions Scale • Behavior Self-Report Scale	• Path Analysis

Table 2 (Continued)

Hypotheses

Hypothesis	Instruments	Analysis
4. Self-Efficacy (2) & Outcome Expectations (8) will be significantly correlated	• Health Care Self-Efficacy Scale • Outcome Expectations Scale	• Pearson Correlation Coefficient
5. Perceived Barriers (6) & Health Care Self-Efficacy (2) will predict Intention to Participate (3) and Participation Behavior (4)	• Perceived Barriers Scale • Health Care Self-Efficacy Scale • Behavioral Intentions Scale • Behavior Self-Report Scale	• Path Analysis

CHAPTER 2

Method

Setting

The experimental interventions were conducted by the Decision Making in Menopause Study in classrooms at Michigan State University. Classrooms were equipped with desks and overhead projectors.

Research Participants

Recruitment. Three hundred seventy nine women were recruited by the Decision Making in Menopause Study through advertisements in the city newspaper, stories in community newspapers and radio and television announcements. Advertisements were directed at women over 40 who wanted to learn more about menopause and hormone replacement therapy. Most responses came from advertisements in the city newspaper. The newspaper in which the advertisements appeared had a circulation of 322,100 adults, 167,300 of whom were women. By age, the newspaper circulation was 90,700 for age 35–49; 51,200 for age 50–64; and 39,900 for age 65 and older. Since approximately 52% of the circulation was women, it was estimated that the advertisements potentially reached about 42,000 women between the ages of 45 and 64. The total population of women age 45 and over in the tri-county area was 60,348 in 1990. Interested persons were directed to call the study for information. See Appendix A for advertisement. Women who called were told that the purpose of the study was to test three educational programs to help women in their decision making related to menopause and hormone replacement therapy. They were informed that participation required attendance at up to three class sessions, completion of monthly calendars and attendance at follow-up sessions to complete questionnaires. Random assignment was described and explained as similar to a lottery to ensure the women understood that they would have an equal chance of being in one of the two classroom groups or the brochure group. The three programs were described and participants who agreed to random assignment were registered for the study.

Random Assignment. Random assignment was accomplished by the author or assistants following a written protocol and using a table of random numbers. Registration forms were placed in alphabetical order or order of registration and a one-digit number was read from the table for each registration form. Participants were assigned to Group A if the number on the table was a 1, 2 or 3; Group B if the number was a 4, 5 or 6 and Group C if the number was a 7, 8 or 9. If the number read was a zero the next number in the column was used. Participants were informed of their group assignment at, not prior to, the first data collection session to prevent selective attrition based on group assignment.

Attrition. Three hundred seventy nine (379) women registered for the study. Three hundred (300) women attended session I. Of those who registered but failed to attend session I, approximately half canceled by phone prior to the program. The most frequent reasons given for cancellation were scheduling conflicts or illness. Of the women who attended session I, 252 (84%) completed all sessions and provided Time 1 and Time 2 data. Four participants were eliminated from analyses because they were not randomly assigned to group, resulting in a total sample size of 248 women at the conclusion of the intervention program. Distribution across experimental groups was as follows: Group A=87; Group B=78; Group C=83. Two hundred and two participants returned two-month follow-up questionnaires by mail (53% of those who registered; 67% of those who attended session I; 80% of those who attended session III). Distribution across experimental groups for the 2-month follow-up was: Group A=76; Group B=62; Group C=64. Of the 202 who completed the follow-up questionnaires, 67 had visited their health care providers and provided behavior self-report data. Distribution across experimental groups was: Group A=22; Group B=24; Group C=21. Table 3 shows attrition.

Attrition was monitored by comparing the demographic and other data from participants who terminated participation in the study with data from participants who continued in the study. Chi-square's or Pearson correlation coefficients were computed comparing participants who dropped between session I, session III and follow-up. There were no differences in class membership, history of hysterectomy or oophorectomy, time since last menstrual period (menopausal status), education, or self-efficacy at time 1. There was selective attrition by experimental group, with more Group A participants than Group B or Group C participants continuing participation. It is hypothesized that this difference was due in part to less demand made on Group A participants. Group A participants needed only to attend sessions I and III to complete questionnaires, while Group B and Group C participants had to attend session II as well. Group B and Group C participants who attended sessions I and III but failed to attend the second session were counted as attrition since they did not receive the full treatment. Of those who remained in the study at session III, there was no difference in attrition by experimental group at follow-up. There was no significant attrition by experimental group between session III and follow-up.

There was selective attrition by race, with more non-white participants dropping from the study between session I and session III than would be expected due to chance alone. The intervention may have been less useful for non-white women because of the small number participating. Attrition by race was constant across experimental groups and attrition between session III and follow-up was not significantly different by race.

Table 3

Attrition by Experimental Group

		Group A	Group B	Group C	Can.	TOTAL
Registered	**Wave I**	51	52	53		156
	Wave II	62	64	75	22	223
	Total	**113**	**116**	**128**	**22**	**379**
Session I (% of Registr.)	**Wave I**	41 (80%)	41 (79%)	37 (70%)		119 (76%)
	Wave II	55 (89%)	57 (89%)	69 (92%)		181 (81%)
	Total	**96 (85%)**	**98 (84%)**	**106 (83%)**		**300 (79%)**
Session II (% of Session I)	**Wave I**		38 (93%)	33 (89%)		71 (91%)
	Wave II		50 (88%)	56 (81%)		106 (84%)
	Total		**88 (90%)**	**89 (84%)**		**177 (87%)**
Session III (% of Session I)	**Wave I**	39 (95%)	34 (83%)	29 (78%)		102 (86%)
	Wave II	49 (89%)	47 (82%)	54 (78%)		150 (83%)
	Total	**88 (92%)**	**81 (83%)**	**83 (78%)**		**252 (84%)**
Follow-up (2 mos.)	**Wave I**	33 (80%)	29 (71%)	26 (70%)		88 (74%)
	Wave II	43 (78%)	33 (58%)	38 (55%)		114 (63%)
	Total (% Reg)	**76 (67%)**	**62 (53%)**	**64 (50%)**		**202 (53%)**
	(% of Sess. 1)	**(79%)**	**(63%)**	**(60%)**		**(67%)**
	(% of Sess. 3)	**(86%)**	**(77%)**	**(77%)**		**(80%)**

Experience with menopausal symptoms affected attrition during the intervention programs. Participants who had never experienced symptoms were more likely to complete the intervention. Those who were not currently experiencing symptoms but had in the past were less likely to complete the intervention. There was no difference in return of follow-up questionnaires by experience with symptoms although participants who had never experienced menopausal symptoms were less likely to provide behavior self-report data (i.e. they were less likely to have visited a health care provider during the follow-up period). Difference in attrition during the intervention may have been due to the decreased relevance the intervention might have for women whose symptoms were in the past rather than current or anticipated. There was no difference in experience with menopausal symptoms at time 1 across experimental groups.

In order to ensure adequate statistical power at follow-up (Time 2 and Time 3), twice as many participants were recruited at Time 1 as were needed at Time 3. See Power Analysis below.

Characteristics of the Sample. Participants were two hundred forty eight women who were at least 40 years old, who were participating in a study of menopause education programs. The women were recruited by the Michigan State University Decision Making in Menopause Study through media requests for participants (Rothert, 1990). Selected demographic characteristics of the sample and the Tri-County Area from which the sample was drawn are shown in Table 4. Comparable data for the Tri-County Area was not available for employment status. Sixty-three percent of the sample was employed full-time; 20% part-time, 5% were retired; 11% were not employed and 2% listed "other" for employment. The sample was primarily White, employed full- or part-time, with incomes of at least $50,000 per year. Health history and access to care are shown in Table 5.

Table 4

Demographic Characteristics of Sample

Variable	N	%	Tri-County Area
Age			
40-45	92	37.1%	
46-50	114	46.0%	
51-55	34	13.7%	
56-60	6	2.4%	
61-65	2	.8%	
Race (Females age 40–64)			
African-American	9	3.6%	5.3%
Hispanic	4	1.6%	(2.2%)
American Indian	0	0.0%	0.8%
White	234	94.4%	91.5%
Asian/Pacific Islander	0	0.0%	1.4%
Other	1	.4%	1.0%
Household Income			
Under $14,999	10	4.0%	21.0%
$15,000-$49,999	100	40.3%	53.0%
$50,000-$99,999	113	45.6%	23.0%
$100,000 and over	24	9.7%	3.0%
Missing	1	.4%	—
Education (Persons age 25+)			
Less than 12 years	2	.8%	16.0%
High School Graduate	24	9.7%	28.0%
Greater than 12 years but no degree	64	25.8%	24.0%
Technical/Community College degree	31	12.5%	8.0%
Bachelors Degree	59	23.8%	14.0%
Graduate/Professional Degree	63	25.4%	10.0%
Other	4	1.6%	—
Missing	1	.4%	—
Marital Status (Females age 45+)			
Ever Married	231	93.1%	96.0%
Never Married	17	6.9%	4.0%

Table 5

Health History and Access to Medical Care

Variable	N	%
Last Natural Menstrual Period		
Still Have Regular Periods	143	57.7%
Less than 3 months ago	20	8.1%
3 to 12 Months ago	21	8.5%
More than 12 months ago	59	23.8%
Not Sure	5	2.0%
Experience With Menopausal Symptoms		
Have Never Experienced Symptoms	43	17.3%
Currently Experiencing Symptoms	123	49.6%
Have Experienced Symptoms in the Past	22	8.9%
Not Sure	60	24.2%
Hysterectomy		
Yes	36	14.5%
No	212	85.5%
Oophorectomy		
Both Ovaries Removed	17	6.9%
One Ovary Removed	8	3.2%
No	223	89.9%
History of Cancer		
Breast Cancer	4	1.6%
Endometrial Cancer	4	1.6%
Other Cancer	5	2.0%
None	235	94.8%
Source of Payment for Medications		
Completely Out-of-Pocket	31	12.5%
Partly Out-of-Pocket/Partly Other Source	187	75.4%
Completely Paid by Other Source	30	12.1%

Research Design

This was a longitudinal experimental study with two experimental groups and a standard treatment control group. Participants were randomly assigned to one of three educational programs on menopause. Program A served as the control group with a written brochure as the standard intervention. Program B, controlling for time and attention as well as information used a lecture and discussion format. Program C utilized an innovative decision support intervention developed by Rothert (1990) which consisted of exercises and role play to communicate the information. The independent variable was education method and the major dependent variables related to consumer participation in health care decisions were Self-efficacy; Perceived Barriers; Subjective Norm; Outcome Expectations; Behavioral Intention and Participation Behavior. Satisfaction with Decision was an outcome variable. Table 6 shows the schedule of administration for each measure.

Power Analysis

Power was calculated for a two-tail F-test because although the major interest was in a positive relationship, a negative relationship between the intervention and self-efficacy was potentially possible. For an analysis of variance, 21 participants per group would produce a statistical power of .80 for a large effect magnitude of .40 ($f = .40$) at $\alpha_2 = .05$, requiring a final total N of 63 (Cohen, 1988). It was also determined that an N of 63 would provide a power of 80 or greater for a multiple regression analysis with fewer than 16 independent variables. Power was also calculated for a medium effect size. It was found that an N of 156 (53 per group) would be required to detect a medium effect size ($f = .25$) for analysis of variance and a multiple regression analysis with fewer than 13 independent variables. Power (β) for detecting a small effect size ($f = .02$) with $N=248$ was less than 29. See Appendix B.

Table 6

Measures administration schedule

Time 1	Time 2	Time 3
Health Care Self-Efficacy Scale	Health Care Self-Efficacy Scale	Health Care Self-Efficacy Scale
	Perceived Barriers Scale	Behavior Self-Report Instrument
	Subjective Norms and Motivation to Comply Instrument	Satisfaction with Decision Scale
	Outcome Expectations and Outcome Values Scale	
	Intention to Participate in Health Care Decisions Item	

Procedure

Instructors

Program instructors were members of the Decision Making in Menopause Study research team. Two instructors team-taught each intervention session for programs B and C and attended the data collection sessions for program A. Instructors were organized into clinician/non-clinician teams. Each team member practiced the appropriate portion of the intervention in front of an audience prior to implementation of the intervention. Timing, content and delivery were tested in an intervention pilot (see below) which was attended by all instructors to ensure consistency across instructors. There was minor disruption of instructor teams due to absenteeism. Absent members of an instructor team were replaced by a practiced instructor from another team. Clinicians were replaced by team members trained as clinicians and non-clinicians were replaced by non-clinicians. One member of the research team was trained in both clinician and non-clinician aspects of the intervention and served as substitute where possible. There were 2 instances of replaced instructors for Programs B or C out of 24 sessions. Table 7 shows the balancing of instructor team across group and wave.

As expected, one-way Analysis of Variance failed to indicate differences on outcome variables by instructor team, supporting the assumption that the intervention was implemented consistently across instructor teams. Co-instructors served as manipulation checks for each other, assuring that each intervention session was implemented as designed.

Table 7

Instructor Schedule

Instructor Teams				
Wave	Class	Experimental Group		
		A	**B**	**C**
1	1	Y	Z	X
	2	Z	X	Y
2	3	X	Y	Z
	4	Y	Z	X

Intervention Pilot

Prior to implementation of the intervention study, outlines of the content and format for each session of Program B and Program C were developed. The handouts and intervention instruments for Program C (see The Intervention, below) were prepared and pilot-tested on a convenience sample of 21 women age 40 and over recruited from among the faculty and staff of a large midwestern university (see Instrument Pilot section for information on recruitment). Participants were contacted by phone regarding participation in the intervention pilot. Those who agreed to attend all three sessions were registered. Pilot study participants received a buffet luncheon and a draft copy of the brochure developed for the intervention.

The intervention pilot for Program C was held during the lunch hour for three consecutive days in a private dining room at a convenient campus location. All three intervention sessions were video recorded. The video recordings were transcribed and used in modifying the intervention outlines. Questions generated by pilot participants during the question and answer period in the intervention were compiled and the answers were either incorporated into the intervention or anticipated in future question and answer periods. Answers were generated so that they would be consistent across instructors.

Feedback from the intervention pilot indicated that participants liked the question and answer period and the informational content. Participants felt that adequate time for the program and clarity of the intervention instruments could be improved. It was also suggested that audio-visual aids be used during the lecture portions of the program.

Based on the intervention pilot, the program content was modified and reorganized. Some aspects of the intervention, such as inclusion of a bar chart showing women's decisions related to hormone replacement therapy, were eliminated. Instead this information was conveyed briefly in a descriptive format based on feedback that the bar chart was confusing. Other content was reordered to improve understandability and use of time. Over-head transparencies were added to the lecture portions of the programs and the intervention instruments were modified for understandability.

The Intervention

Written Brochure Intervention. The written brochure, described in the section The Current Research, provided information on menopause, hormone replacement therapy and communication with health care professionals (Rothert, et al., 1992). The brochure comprised the entire intervention for participants in Program A, and provided a written adjunct to the lectures for Programs B and C. See Appendix C for outline.

Lecture/Discussion Intervention. The second program (Program B) consisted of three $1\,^{1}/2$ hour sessions using a lecture format with overhead transparencies as visual aids. Participants in Program B received copies of the brochure to use during the lectures which paralleled the brochure in content. In addition, participants were provided with 3X5 cards on which they could write questions to be read and answered by the instructor during the group question and answer period. To help participants think about the HRT decision, data was presented which depicted how different women may weigh various factors related to the decision. This helped to introduce discussion of personal risk factors and to show that women vary in their values related to those factors. Information about the impact of personal risk factors on heart disease, osteoporosis and endometrial cancer was presented and participants were encouraged to think about their personal values related to each of the factors important to the HRT decision. The format and content of Program B was discussed in detail in the section The Current Research. See Appendix C for an outline of the content and format of the three sessions.

Decision Support Intervention. The third program (Program C) was a decision support intervention developed to aid women in decision making related to their menopausal health. See Appendix C for outline.

The first session of the program was identical in content to Programs A and B. Session I of Intervention C was identical in format as well as content to Session I of Program B. For the initial wave of participants, the lecture on the pros and cons of HRT was also included in Session I. Time constraints resulted in modification of the program so that this information was presented in Session II for Wave II programs.

As in Program B, a question and answer period using 3X5 cards was included following presentation of the pros and cons of hormone replacement therapy. As in Program B, data was presented which depicted how different women may weigh various factors related to the decision. The women then completed the Personal Risk Assessment, Problem Significance Assessment and

Relevance Chart. As the women marked risk on their relevance charts, they were first instructed to mark one box for base rate risk for each of the factors to help them understand the relative risk for each factor. For example, since heart disease is much more common than endometrial cancer, the heart disease risk "arm" of the relevance chart was marked comparatively longer than the endometrial cancer risk "arm." Women then marked a specified additional number of boxes for their personal risk if it was above population base rate. Women who had few additional risk factors did not mark any additional boxes on the chart beyond that for base rate risk. The purpose of the relevance chart was to help women visually compare their risks and values across the multiple factors in their decision.

Following the Personal Risk Assessment exercise, the women completed the Problem Significance Assessment. The women scored their Problem Significance Assessments in the following way: A factor rated 30 or below was of low significance, a factor rated greater than 30 but less than 70 was of moderate significance and a factor rated 70 or greater was of high significance. This information was transferred in graphic form to the Relevance Chart. The three factors for which risk information was relevant (heart disease, osteoporosis and endometrial cancer) had two "arms" on the relevance chart; one for risk and one for significance. For these factors the women marked one box on the significance arm for factors they rated as low significance, two boxes for factors moderate in significance and all three boxes for factors rated high in significance for their decision making. For the other factors only the significance arm was present and it was marked in the same way.

After completion of the Personal Risk Assessment and Problem Significance Assessment, the women participated in the scenarios exercise to help them think about how to combine their personal risks, values and base rate risk.

Following the scenarios exercise, the women completed the Relevance Chart and made a decision about whether to consult their health care providers about taking HRT. Session III included the lecture and role play on communicating with health professionals. See the section, The Current Research for a detailed description of the intervention.

Women in all three intervention programs completed a personal plan form during week 3 of the intervention. The women chose up to three new activities to prevent disease, promote health or manage symptoms. The women were asked to choose activities in one of four categories; 1) exercise, 2) calcium intake, 3) HRT or 4) other. They recorded their planned activities on the personal plan form along with how often they planned to engage in the activity. The women were asked to keep a monthly calendar indicating when they engaged in each planned activity.

Attrition Prevention

To decrease the likelihood of attrition from the study, a raffle for cash prizes was offered to participants in each of the three experimental groups. Participants in Programs B and C were expected to return for the Time 2 data collection because it was incorporated into the third session of their intervention programs. Therefore, participants in Programs B and C were only offered a raffle at the follow-up data collections (6 and 12 months post-intervention for the main study) and eligibility for the raffle was dependent on having returned all interim data. Participants in Program A (the brochure only group) were expected to be less likely to return at Time 2 since they had already received the complete intervention (the brochure) at Time 1. Therefore, participants in Program A were told that they would be eligible to participate in a raffle for one of three cash prizes ($25, $25, or $50) when they returned to complete questionnaires at Time 2. Participants in Program A also received a reminder post-card to attend the

Time 2 data collection since there was a one-week gap between Time 1 and Time 2 for this group. Participants in Programs B and C attended intervention sessions weekly decreasing the likelihood that they would forget to attend the third session of the program.

Participants received monthly mailings from the study which was expected to help minimize attrition. Participants who failed to return follow-up questionnaires received at least one reminder telephone call. Participants who indicated that they had discarded the questionnaires (usually through misunderstanding) were mailed replacement instruments. At least three attempts were made to reach participants by phone if they had not returned their questionnaires.

Data Collection

Prior to commencement of the intervention program, participants completed written consent forms, results request forms and a series of written questionnaires. Data collection took approximately 45 minutes during sessions I and III of the intervention program period. Following data collection, participants were informed regarding whether they had been randomly assigned to the brochure-only program or one of the class programs. Participants in program A then received brochures and were free to return home. Participants in programs B and C received brochures and the Session I lecture. Participants were informed that participation in the study was completely voluntary and that they could terminate participation at any time without penalty. The instructor team answered questions about the study and what would be expected of the women during the study period. Participants in program A were informed that they would be able to participant in a raffle for one of three cash prizes when they attended the follow-up data collection at Time 2 (see Attrition Prevention). Prior to data collection, the purpose of the study and instructions for completing the instruments were briefly presented. The Health Care Self-Efficacy Scale was completed at Time 1 and Time 2. Other instruments completed at Time 2 included the Perceived Barriers Measure, Subjective Norms Scale, Motivation to Comply scale, Outcome Expectations Scale, Outcome Values scale and Intention to Participate scale. Participants answered the questionnaires on a computer-scored answer sheet.

Two months following the intervention, participants were mailed the follow-up instruments and instructed to complete and return them. The instruments included the Health Care Self-Efficacy scale, Behavior Self-Report Measure and Satisfaction with Decision Scale. Participants answered directly on the questionnaires rather than on a computer-scored answer sheet.

Measures

Instrument Pilot

All measurement instruments were pilot tested using a convenience sample of 120 women age 40 and over recruited from among the faculty and staff of a large midwestern university. A letter explaining the study was sent to all female faculty and academic staff (n=approximately 1,300) and non-academic staff age 40 and over (n=1,611). Two hundred fifteen women interested in more information returned a registration form by mail or called the study office. Of these, 185 were scheduled to attend one of the data collection sessions. Thirty women indicated interest in participating but were unable to attend any of the sessions and 54 women were excluded because the sessions they registered for were canceled. Several women canceled prior to the data collection session. The remaining women were scheduled to attend a session to complete questionnaires with 120 completing instruments. Instrument pilot participants received refreshments and a draft copy of the brochure developed for the intervention. Instrument pilot participants completed a consent form and draft copies of the instruments and provided written and verbal feedback regarding the clarity of the instructions. The feasibility of using computer-scored answer sheets was also tested during the instrument pilot. All scales were found to have adequate internal consistency ($\alpha \geq .70$) and computer-scored answer sheets were found to be feasible with this population. Most participant comments were related to clarity of items and instructions. Confusing items and instructions were revised for clarity.

Outcome Measurement

Health Care Self-Efficacy. A modified version of a measure developed by Woodward & Wallston (1987) was used (Woodward, 1984). The modified scale was pilot-tested for clarity and found to have adequate internal consistency ($\alpha = .91$; $\overline{M} = 63.82$; SD = 13.12). The scale (Appendix D) consisted of 5 items measuring self-efficacy related to desire for control over health care and 3 items measuring self-efficacy related to desire for health information. The modified scale correlated .66 with the original scale. Responses were on a scale from 1 (Not At All Confident) to 10 (Extremely Confident). Responses were coded from 1 to 10. The scale score was calculated by taking the mean of all non-missing items on the scale resulting in a scale score with a range of 1 to 10.

The Health Care Self-Efficacy scale was confirmed to have adequate internal consistency with the study sample at Time 1 ($\alpha = .91$) and Time 2 ($\alpha = .93$). The scale means and standard deviations at Time 1, Time 2 and Time 3 are shown in Appendix E. Figure 5, Figure 6 and Figure 7 show the frequency distributions for Health Care Self-Efficacy at Time 1, Time 2 and Time 3. A higher scale score indicated greater confidence in ability to participate actively in health care decisions.

Figure 5

Frequency Distribution Self-Efficacy Time 1 (Pre-intervention)

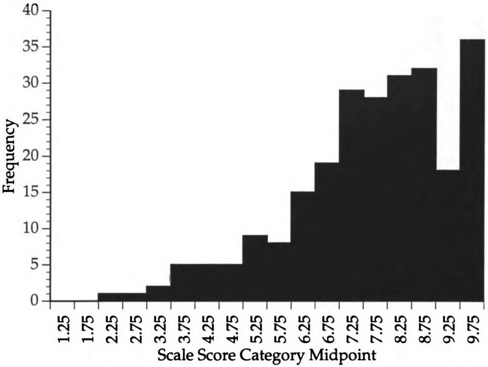


Figure 6

Frequency Distribution Self-Efficacy Time 2 (Post-intervention)

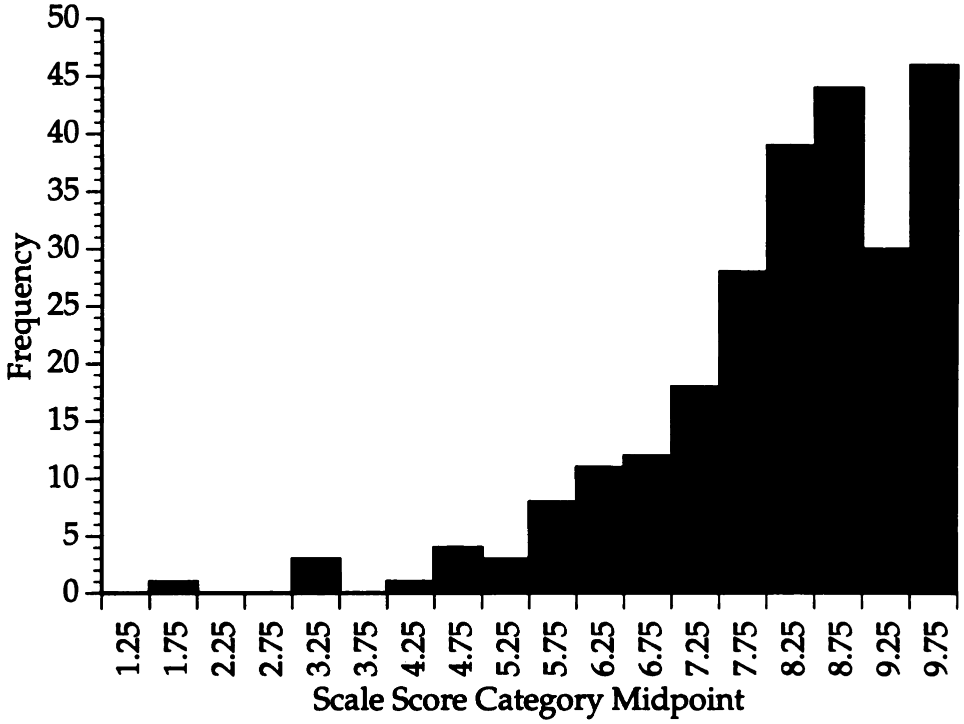
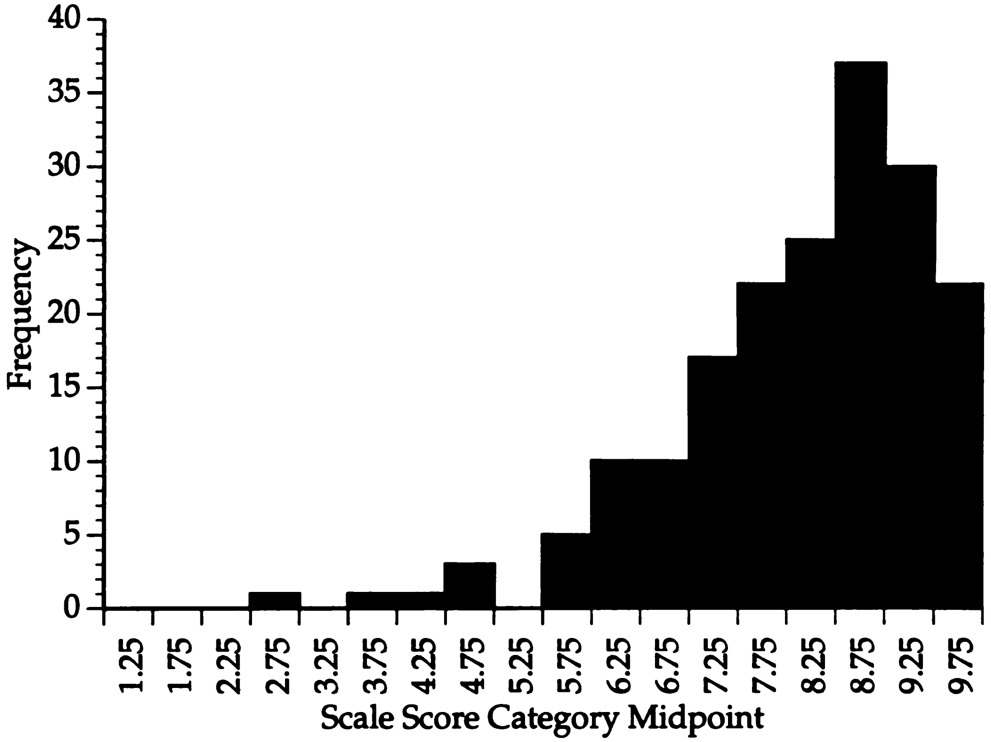


Figure 7

Frequency Distribution Self-Efficacy Time 3 (2 Months Post-intervention)



Barriers to Participation Measure. The Perceived Barriers scale (Appendix D) was a 5-item scale which assessed the impact of potential barriers to participation in decisions such as health care practitioner, payment options, health state, lack of access to information and conflicting information. Responses were on a 5-point scale with 3 anchors: 1 = Not at All, 3 = Somewhat and 5 = A Great Deal. The measure also included 2 open-ended items to assess other perceived barriers. Cronbach's alpha coefficient was .62. Appendix E shows the scale mean and standard deviation. A higher scale score indicated greater perceived barriers to participation in health care decisions. Table 8 shows the corrected item-total correlation for the scale items. Figure 8 shows the scale frequency distribution. Table 9 shows the frequency of responses to two open-ended items asking about additional barriers to participation. Responses to the two items over-lapped and were combined in the table. In cases where a participant wrote in the same answer for both questions, only one was counted. Where multiple barriers were mentioned by a single respondent, all were counted and listed under the heading 'mentioned.' The heading 'N' indicates the number of participants who listed a barrier in that category.

Table 8

Barriers to Participation Scale Corrected Item-Total Correlation

Item	Corrected Item-Total Correlation
How much does your doctor (or regular health care practitioner) limit your participation in medical decisions?	.22
How much do your payment options (such as health insurance) limit your participation in medical decisions?	.29
How much does your health state or personal risk factors limit your participation in medical decisions?	.38
How much does lack of access to accurate information limit your participation in medical decisions?	.57
How much does conflicting medical advice limit your participation in medical decisions?	.45

Figure 8

Frequency Distribution Barriers to Participation Scale

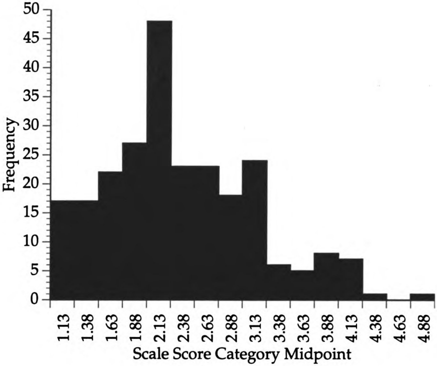


Table 9

Number of Barriers Mentioned on Open-Ended Questions

Category	Mentioned	N
Health Care Providers: •Hard to find good provider •Hard to get appointment with provider •Provider too busy/in a hurry •Provider doesn't listen •Provider arrogance/personality •Provider doesn't inform patient •Provider discourages patient participation •General distrust of health care providers •Poor communication among multiple providers/fragmented care	33	25
Payment-Related •Limitations on provider choices •Limitations on treatment choices •Limitations imposed by HMO's •Lack of insurance/cost •General cost	18	16
Personal Limitations •Personal lack of time •Personal lack of knowledge •Personal health problems •Lack of personal support •Fear/Embarrassment/Problem Making Decisions	26	23
Knowledge-Related •Medicine doesn't have all the answers •Lack of research •Conflicting advice	12	11
System-Related •System not prevention-oriented •Lack of sexual equality •Lack of access to medical records •Referral system	7	7
Miscellaneous •Makes own decisions •Doesn't want to participate •Family input •Job •Unspecified	18	18

Outcome Expectations Scale. The Outcome Expectations scale was a 7-item measure which assessed the extent to which the individual expected that active patient participation behavior would lead to specific outcomes. An example item was, "Patient participation in medical decisions and choices results in: the best medical care." The response scale was a 5 point Likert-type scale with 1 = Extremely Unlikely and 5 = Extremely Likely with a midpoint of 3 = Neither Likely Nor Unlikely. For each outcome in the scale above, the respondent indicated its value on a 5 point scale, with 1=Extremely Bad and 5 = Extremely Good with a midpoint of 3 = Neither Bad Nor Good. The Outcome Expectations scale was computed by multiplying each expected outcome by its value and taking the mean of the non-missing values. The scale was found to have adequate internal consistency ($\alpha = .87$). A higher scale score reflected an expectation that patient participation in decisions would result in the better medical care. A lower scale score reflected an expectation that patient participation would result in worse medical care. Table 10 shows the corrected item-total correlation for the scale items. The corrected item-total correlations shown are for the product of the expectation and value. Figure 9 shows the scale frequency distribution. See Appendix D for the instrument. Appendix E shows the scale mean and standard deviation.

Figure 9

Frequency Distribution Outcome Expectations Scale

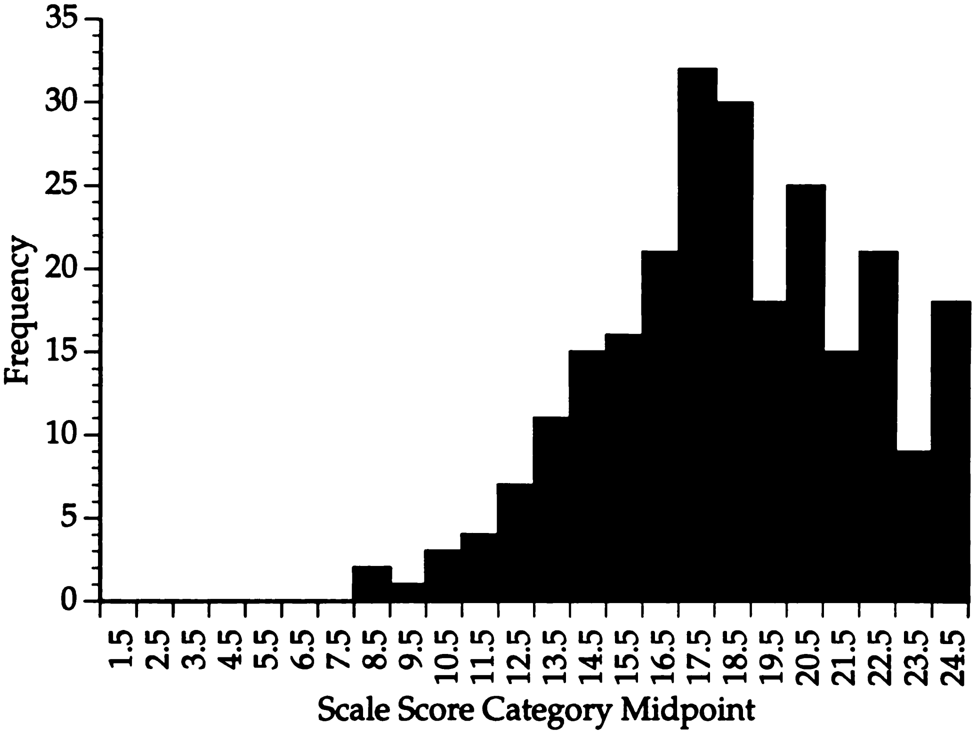


Table 10

Outcome Expectations Scale Corrected Item-Total Correlation

Item	Corrected Item-Total Correlation
Patient participation in medical decisions and choices results in:	
•Medical procedures that are unnecessary for the patient	.55
•Medical procedures that are harmful for the patient	.56
•The wrong medications for the patient	.56
•The right medical tests and examinations for the patient	.67
•The right treatment for the patient	.79
•The right medical decisions for the patient	.79
•The best medical care	.72

Subjective Norms Measure. The Subjective Norms measure was developed to assess the perceived opinion of others about patient participation in health care decisions. The items paralleled the desire to participate item developed by Strull, et al. (1984). The response scale was 1 = Clinician, 2 = Clinician after considering patient's opinion, 3 = clinician and patient together equally, 4 = patient after considering clinician's opinion, 5 = patient. The instructions for the scale were, "Some people think that the decision to take hormone replacement therapy should be made by the clinician while other people think the decision should be made by the patient. Indicate how each of the following people think the decision should be made: Medical practitioner, spouse, relatives, friends, other (open-ended)." For each of the people listed, the individual answered the question, "how much do you want to do what [this person] wants you to?" The

5-point response scale had anchors at 1 = Not At All and 5 = Very Much. For each item, the perceived norm was multiplied by the motivation to comply and the scale was computed by taking the mean of the non-missing items. Since each score was weighted by desire to comply, a higher scale score indicated a belief that significant others thought medical decisions should be made with greater patient participation and that there was high motivation to comply with their opinions. A lower score indicated a belief that others thought decisions should be made with less patient participation and that there was lower motivation to comply. See Appendix D for the measure. Cronbach's alpha coefficient of internal consistency was .75. Appendix E shows the scale mean and standard deviation. Figure 10 shows the scale frequency distribution. Table 11 shows the corrected item-total correlation for the 4 scale items. The scale item indicated is the product of the subjective norm and motivation to comply. Table 12 shows responses to the open-ended item on the Subjective Norms measure. The table lists significant others who influenced the decision regarding whether or not to take hormone replacement therapy.

Table 11

Subjective Norms Scale Corrected Item-Total Correlation

Item	Corrected Item-Total Correlation
Your doctor (or regular health care practitioner) thinks the the decision should be made by:	.31
Your spouse, partner or significant other thinks the decision should be made by:	.63
Your parents, relatives and children think the decision should be made by:	.71
Your friends, peers and classmates think the decision should be made by:	.53

Figure 10

Frequency Distribution Subjective Norm Scale

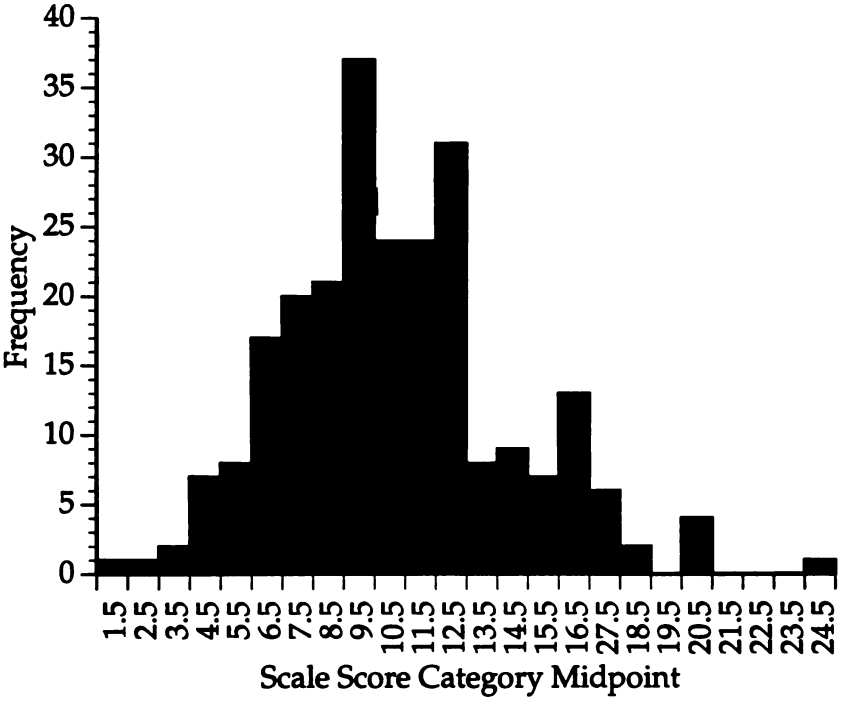


Table 12

Subjective Norms Sources of Influence on Decision Open-Ended Questions

Source	N
Media •Media in general •Feminist authors •Health writers •Authors in general	6
Self	5
Respected Other Sources •Religion •Counselor •Parents	3
Women Who Have Experience •Friends •Mother •Sisters •Other women in general	8
Knowledgeable Others •Researchers •Doctor •2nd Opinion •Freinds/Relatives in Health Occupation	9
Not Specified	1

Behavioral Intentions Measure. This measure listed 8 behaviors related to the next visit to the health care provider ($\alpha = .85$). The individual was asked to indicate the extent to which she intended to do each of the activities. The 5 point response scale had anchors at 1 = Not At All and 5 = Completely. The scale was computed by taking the mean of the non-missing items. See Appendix D for the measure. Appendix E shows the scale mean and standard deviation. A higher scale score indicated greater intention to participate actively in health care decisions. Figure 11 shows the scale frequency distribution. Table 13 shows the corrected item-total correlation for the 8 scale items.

Figure 11

Frequency Distribution Behavioral Intention Scale

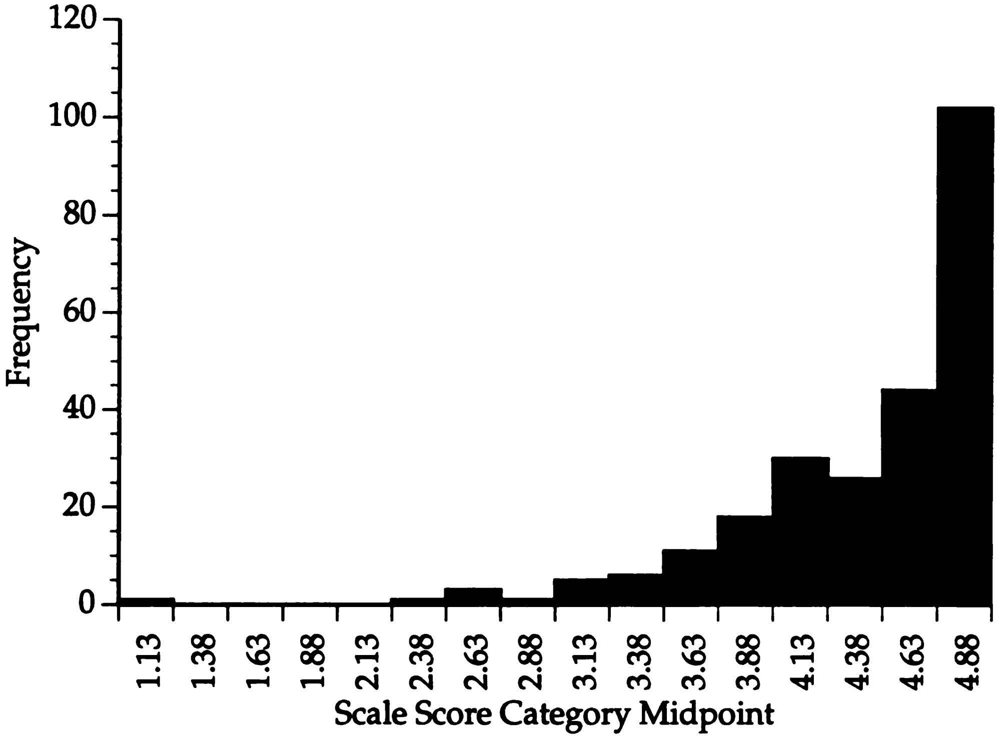


Table 13

Behavioral Intention Scale Corrected Item-Total Correlation

Item	Corrected Item-Total Correlation
Intention to:	
Carefully consider and understand my values related to the tradeoffs of hormone replacement therapy or other care	.44
Gather the information I need to make an informed decision about hormone replacement therapy or other care	.57
Carefully consider my personal risks related to hormone replacement therapy or other care.	.61
Ask for an extended appointment to discuss my concerns about my health care	.52
Prepare for my visit by thinking about the questions I want to ask, write them down and bring the list with me to the visit	.67
At the beginning of the visit, tell my doctor/practitioner that I have questions I would like to discuss.	.67
During my visit, ask the questions I had prepared, repeat the answers to be sure I understand them and ask for clarification if necessary	.67
After my visit, review the visit, follow the treatments or recommendations agreed upon and call my doctor/practitioner if I have additional questions or unexpected side effects.	.67

Behavior Self-report Measure. The behavior self-report measure included 6 items regarding participation behavior during the last visit to a medical practitioner ($\alpha = .86$). The 5-point response scale had anchors at 1 = Not At All and 5 = Completely. Behaviors assessed included: considered values, personal risks and gathered information prior to visit, asked questions during the visit, and followed recommendations and reported side effects after the visit. A final question was adapted from an item developed by Strull, et al. (1984). The item asked, "Which of the following choices best describes how the decision about whether or not you would take hormone replacement therapy was actually made?" Response choices ranged from 1) The clinician made the decision, using all that's known about hormone replacement therapy to 5) I made the decision using all I know and learned about hormone replacement therapy. Response choices parallel the item on desire to participate in decisions. See Appendix D for the measure. Appendix E shows the scale mean and standard deviation. A higher scale score indicated more active participation in health care decisions. Figure 12 shows the scale frequency distribution. Table 14 shows the corrected item-total correlation for the 8 scale items.

Figure 12

Frequency Distribution Behavior Self-Report Scale

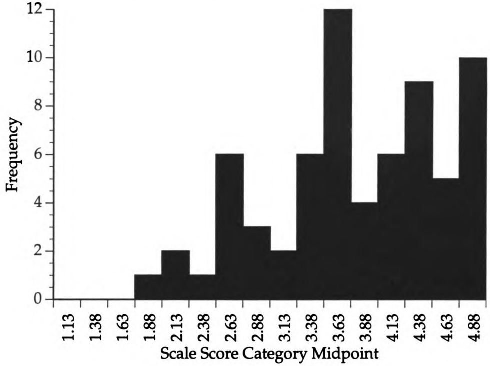


Table 14

Behavior Self-Report Scale Corrected Item-Total Correlation

Item	Corrected Item-Total Correlation
Carefully considered and understood my values related to the tradeoffs of hormone replacement therapy or other care.	.71
Gathered the information I needed to make an informed decision about hormone replacement therapy or other care.	.66
Carefully considered my personal risks related to hormone replacement therapy or other care.	.51
Asked for an extended appointment to discuss my concerns about my health care.	.41
Prepared for my visit by thinking about the questions I wanted to ask, writing them down and bringing the list with me to the visit.	.71
At the beginning of the visit, told my doctor/practitioner that I had questions I would like to discuss.	.67
During my visit, asked the questions I had prepared, repeated the answers to be sure I understood them and asked for clarification if necessary.	.75
After my visit, reviewed the visit, followed the treatments or recommendations agreed upon and called my doctor/practitioner if I had additional questions or unexpected side effects.	.65

Satisfaction With Decision. This 6-item measure, developed by Rothert (1990) was based on the O'Connor & O'Brien-Pallais (1990) model of an effective decision. Example items included, "The decision I made was the best decision possible for me personally," and " I am satisfied with my decision." The 5-point Likert-type response scale ranged from 1 = Strongly Disagree to 5 = Strongly Agree. The scale was computed by taking the mean of the non-missing items (α = .91). See Appendix D for measure. The Satisfaction with Decision scale was confirmed to have adequate internal consistency with the study sample at Time 3 (α = .91) Appendix E shows the scale mean and standard deviation. Figure 13 shows the frequency distribution for the scale at time 3.

Scale Intercorrelations

Table 15 shows the intercorrelations among the scales. The alpha coefficients of internal consistency are shown on the diagonal. Correlations corrected for unreliability are shown above the diagonal (Edwards, 1954). See Appendix F for calculation formula. Correlations which were significant at $p < .05$ are indicated by an asterisk.

Figure 13

Frequency Distribution Satisfaction with Decision Time 3

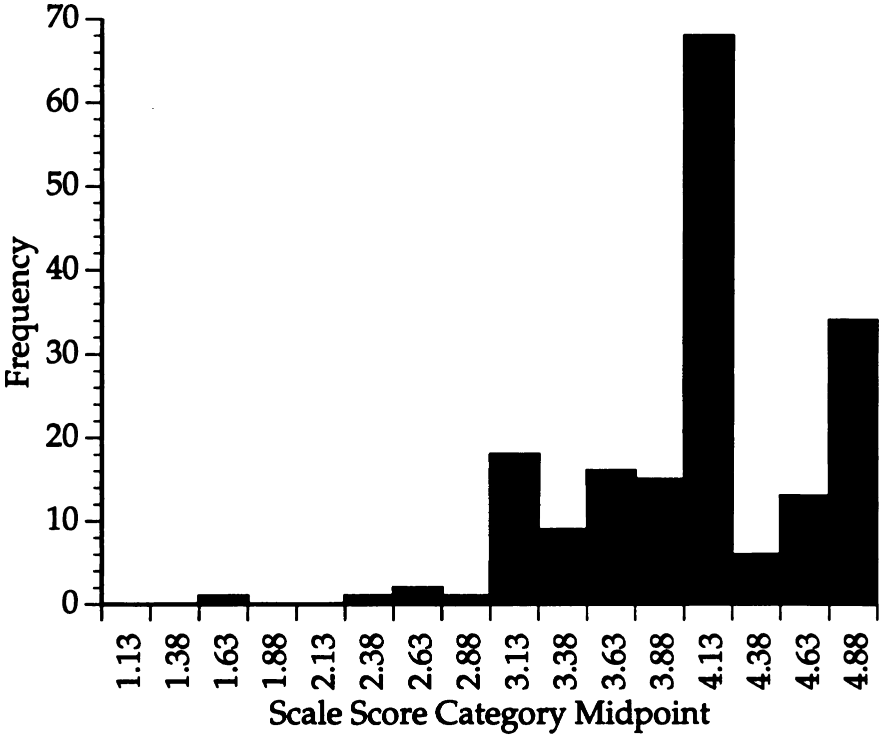


Table 15

Correlation Matrix

	Beh. Int.	Beh.	Sat /Dec.	Self-E T_2	Outc. Exp.	Subj. Nrm	Barr.	SE T_1	SE T_3
Beh. Intent.	.85 (248)	.44	.15	.17	.06	.07	–.04	.17	.13
Beh.	.38* (67)	.86 (67)	.50	.05	–.17	–.02	–.37	.12	.38
Sat. w/dec.	.13 (184)	.44 (67)	.91 (184)	.45	.22	.11	–.42	.38	.59
Self-Ef T 2	.15* (248)	.05 (67)	.41* (184)	.93 (248)	.35	–.06	–.60	.73	.74
Outcm Expect.	.05 (248)	–.15 (67)	.20* (184)	.31* (248)	.87 (248)	.04	–.18	.21	.28
Subj. Norm	.05 (243)	–.02 (66)	.09 (180)	–.05 (243)	.04 (243)	.75 (243)	.00	.03	.07
Barr.	–.03 (247)	–.27* (67)	–.32* (184)	–.45* (247)	–.13 (247)	.03 (242)	.62 (247)	–.43	–.62
Self-Ef T 1	.15* (244)	.10 (65)	.34* (182)	.68* (244)	.19* (244)	.03 (239)	–.32* (243)	.91 (244)	.67
Self-Ef T 3	.12 (184)	.34* (67)	.54* (180)	.69* (184)	.26* (184)	.06 (180)	–.47* (184)	.61* (182)	.93 (184)

*$p<.05$

CHAPTER 3

Results

The purpose of this research was to determine the impact of three menopause education programs on health care self-efficacy of midlife women and to test a model of the impact of self-efficacy on participation in health care decisions. Data on Self-Efficacy, Outcome Expectations, Subjective Norms, Intention to Participate and Participation Behavior were collected from 248 participants in a menopause education study and used to explore 5 hypotheses. The hypotheses regarded the effect of the interventions on self-efficacy and patient participation behavior related to medical decisions.

Hypotheses

Hypothesis 1

Hypothesis 1 predicted that participants in the Decision Support Intervention (Program C) would have greater confidence in their ability to participate actively in health care decisions which would result in greater intention to participate, increased participation behavior and greater satisfaction with decision. Table 15 shows the correlations between self-efficacy (Time 1 and Time 2), perceived barriers, subjective norms, outcome expectations, behavioral intention and behavior self-report.

A multiple regression analysis was conducted with Self-Efficacy at Time 2 as the dependent variable. Self-Efficacy at Time 1 was entered on the first step to control for preexisting between-participant differences. Experimental group was contrast-coded (Cohen & Cohen, 1983) and the two contrast-coded group variables were entered on the second step. Contrast 1 compared Experimental Group C (Decision Support Intervention) with Groups B (Lecture/Discussion) and A (Brochure Only). Contrast 2 Compared Group B with A. Table 16 shows the coding scheme for experimental group. Two variables representing the interaction between Self-Efficacy at Time 1 and experimental group were entered on a third step. The nominal variable experimental group was contrast-coded orthogonally so that the sum of the products of the coding coefficients was zero. See Appendix G for computation. Table 17 shows the regression coefficients (B) and their standard errors (s.e.), standardized regression coefficients (β) and their standard errors (s.e.), partial correlation coefficients (pr_i), Multiple R, and R^2-change for each step in the analysis. The constant represents the average *Y* intercept and is used to calculate the intercepts for each of the three regression equations. An asterisk indicates the F values which were statistically significant at $p < .05$. Self-Efficacy at Time 1 significantly predicted Self-Efficacy at Time 2 (R^2-change = .46, $p < .05$). The two contrast-coded variables representing the variance due to experimental group did not significantly increase prediction of Self-Efficacy at Time 2 (R^2-change = .01, $p > .05$). The interaction between experimental group and self-efficacy at Time 1 was carried by two variables (interaction 1 and interaction 2) computed from the products of Time 1 Self-Efficacy and the two contrast-coded group variables respectively. The interaction between Time 1 Self-Efficacy and Experimental Group contributed significantly to prediction of Self-Efficacy at Time 2 (R^2-change = .02, $p < .05$). Figure 14 shows Self-Efficacy Post-Intervention (Time 2) plotted against Self-Efficacy Pre-Intervention (Time 1) for each experimental group. Table 18 shows the regression equations for Self-Efficacy post-intervention (Time 2). See appendix G for calculations. The hypothesis that participants in Program C would have greater confidence in ability to participate actively in health care decisions than groups A and B was not supported ($B_{\text{contrast 1}} = .15$; $p > .05$). There was however, a significant interaction effect between experimental group and self-efficacy at Time 1.

The experimental treatment differentially impacted those for whom self-efficacy was low pre-intervention compared to those for whom self-efficacy was high pre-intervention (R^2-chg = .02; $p < .05$). The significant difference was due to the contrast between Experimental Group B and Group A ($B_{\text{interaction 2}} = -.13$; $p < .05$).

One-way Analysis of Variance indicated that Behavioral Intention, Behavior Self-Report and Satisfaction with Decision were no greater for Experimental Group C than for Groups A and B. (F = .39, .04, .10, respectively; $p > .05$). Table 19 shows the means and standard deviations of each variable by experimental group.

Table 16

Contrast Coding of Nominal Experimental Group Variable

Experimental Group	Contrast Variable 1	Contrast Variable 2
Brochure (A)	–.5	–1
Lecture/Discussion (B)	–.5	+1
Decision Support (C)	+1	0
Total	0	0
(-.5)(-1) + (-.5)(1) + (1)(0) = 0		

Table 17
Regression Coefficients and Significance for Regression of Experimental Group on Self-Efficacy at Time 2 (Controlling for Self-Efficacy at Time 1)

Step	Variable	B (s.e.)	β (s.e.)	pr_i	F	R	Adj. R^2	F-Eqn	R^2 Chg	F–Chg
1	Self-Efficacy Time 1	.57 (.04)	.65 (.05)	.65	171.86*	.68	.45	202.05*	.46	202.05*
2	Contrast Variable 1	.15 (.45)	.07 (.05)	.02	.11					
3	Contrast Variable 2	1.12 (.43)	.62 (.05)	.17	6.72*	.68	.45	68.15*	.01	1.11
4	Interaction 1	–.03 (.06)	–.12 (.22)	–.04	.30					
5	Interaction 2	–.13 (.06)	–.56 (.24)	–.15	5.81*	.69	.46	43.13*	.02	3.49*
	(Constant)	3.79 (.33)			128.40*					

*$p < .05$

Figure 14

Regression of T_1 Self-Efficacy on T_2 Self-Efficacy by Experimental Group

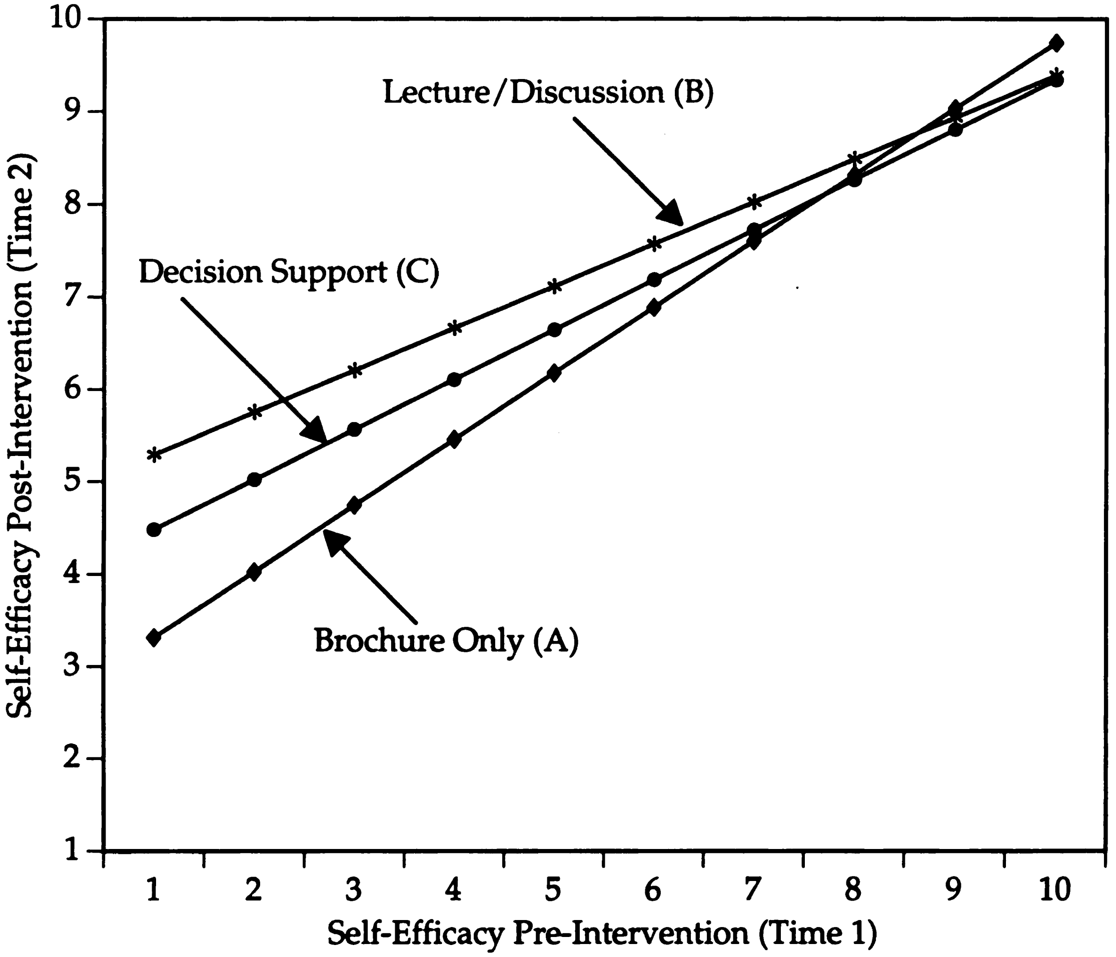


Table 18

Regression Equations for Self-Efficacy Post-Intervention (Time 2)

For Brochure Only Experimental Group (A): $\hat{Y}_A = .715(SE_{T_1}) + 2.595$

For Lecture/Discussion Experimental Group (B): $\hat{Y}_B = .455(SE_{T_1}) + 4.835$

For Decision Support Experimental Group (C): $\hat{Y}_C = .540(SE_{T_1}) + 3.940$

Table 19

Group Means for Intention, Behavior and Satisfaction

Variable	Experimental Group Mean (s.d.) *(n)*			
	Brochure (A)	Lecture/Discuss (B)	Decision Support (C)	TOTAL
Intention	4.4 (.64) *(87)*	4.5 (.63) *(78)*	4.4 (.55) *(83)*	4.4 (.60) *(248)*
Behavior	3.8 (.97) *(22)*	3.7 (.65) *(24)*	3.8 (.87) *(21)*	3.8 (.83) *(67)*
Satisfaction	4.0 (.72) *(68)*	4.0 (.62) *(54)*	4.1 (.57) *(60)*	4.1 (.64) *(182)*

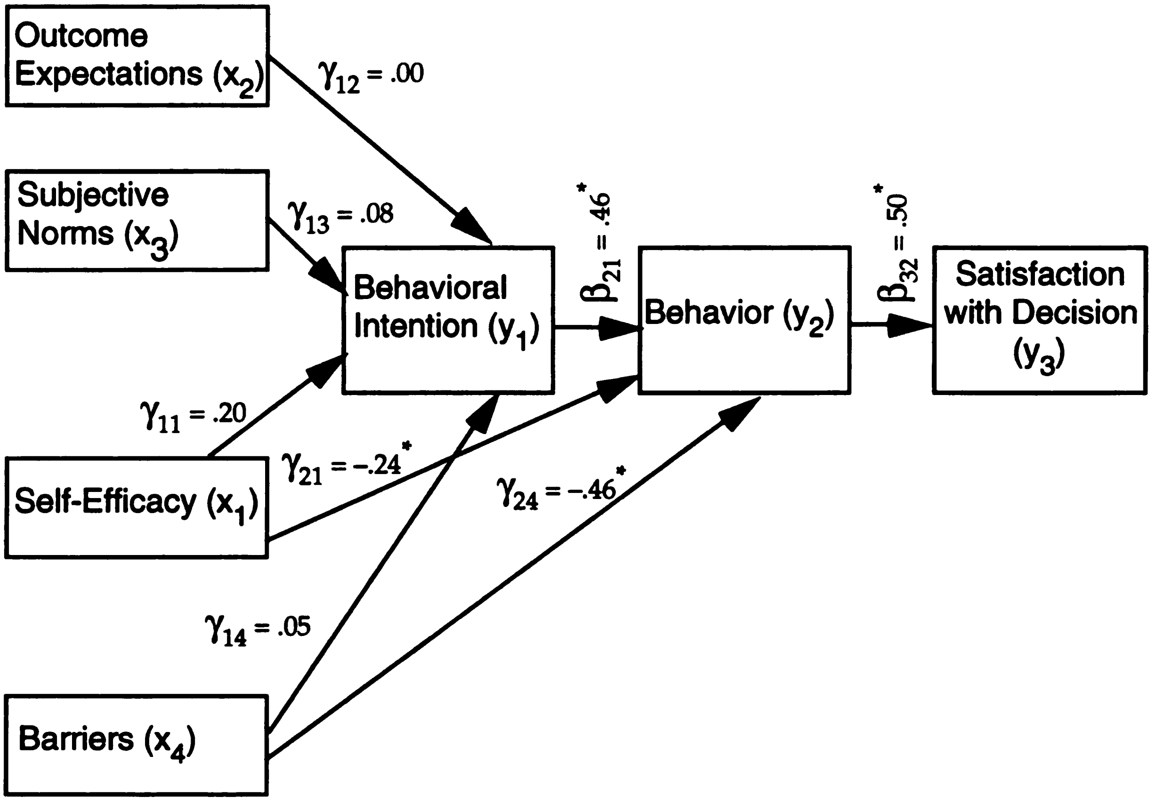
Hypotheses 2, 3 and 5

Hypotheses 2, 3 and 5 related to testing the model of active patient participation behavior shown in Figure 4. Hypothesis 2 stated that Self-Efficacy, Outcome Expectations and Subjective Norms would significantly predict Intention to Participate in health care decisions. Hypothesis 3 stated that Health Care Self-Efficacy and Intention to Participate would significantly predict Participation Behavior. Hypothesis 5 stated that Perceived Barriers and Health Care Self-Efficacy would contribute significantly to prediction of Intention to Participate in Health Care Decisions and Participation Behavior.

A path analysis using LISREL VII in SPSSX was conducted to analyze the extent to which the observed relationships among the variables fit the theoretical model. The intercorrelations among the variables were corrected for attenuation due to unreliability of the measures (See Appendix F for calculations) and the corrected correlation matrix was analyzed by LISREL VII. Table 15 shows the correlations among the variables analyzed. Missing data were handled by pairwise deletion. Figure 15 shows the path coefficients for the model as proposed. An asterisk indicates the paths which were significant. χ^2 with 7 degrees of freedom was 32.71 ($p < .000$) indicating a poor fit. Goodness of fit index was .90, adjusted goodness of fit was .58 and root mean square residual was .171. Significant residuals (indicating needed paths) were 3.74 between Self-Efficacy and Satisfaction with Decision and –2.16 between Barriers and Satisfaction with Decision. Table 20 shows the t-values for the paths in the model as proposed.

Figure 15

Path Coefficients for Model as Proposed



$^*p < .05$

Table 20

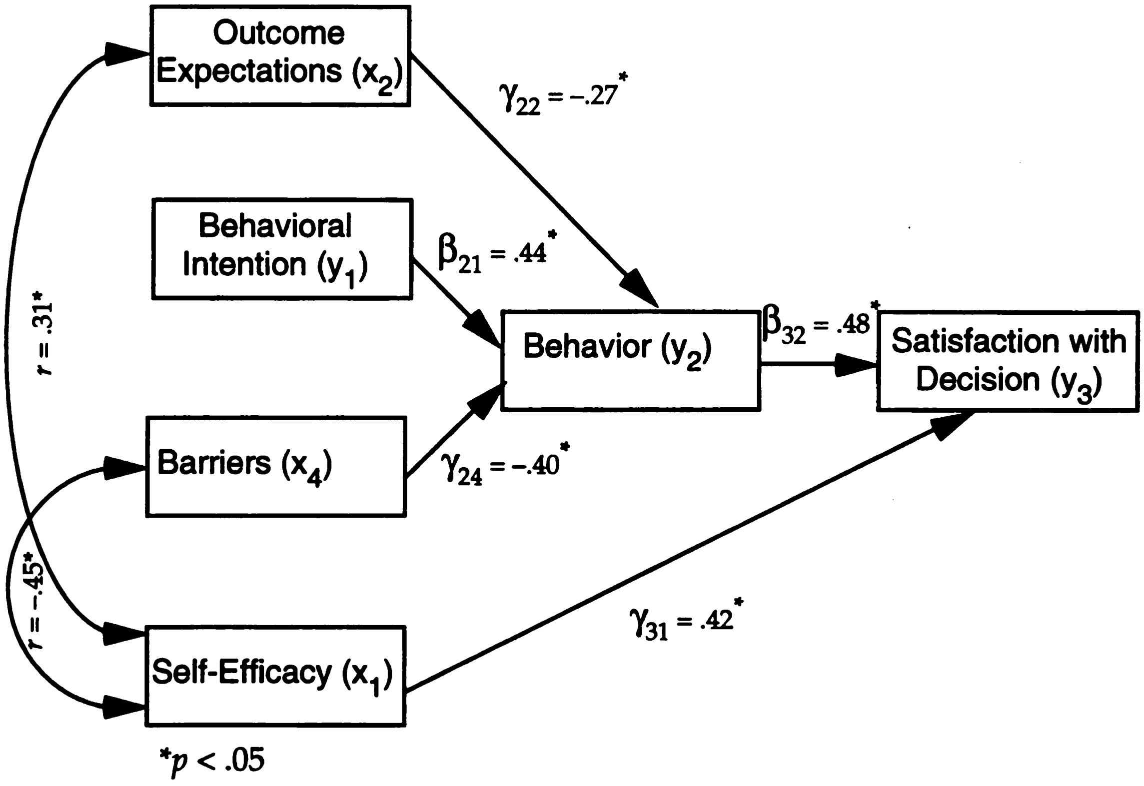
Model as Proposed: t–values

	Intent	Behav.	Sat w/Dec.	Self-Eff T_2	Outcm. Expect.	Subj. Norm	Barr.
Intent.	0.000	0.000	0.000	1.344	–0.030	0.655	.369
Behav.	4.455*	0.000	0.000	–2.066*	0.000	0.000	–4.014*
Sat w/Dec	0.000	4.509*	0.000	0.000	0.000	0.000	0.000

Based on the standardized residuals, t-values and modification indices the model was modified for better prediction of behavior and outcome. Figure 16 shows the path coefficients for the revised model. χ^2 with 10 degrees of freedom was 14.63 (p = .146) indicating a good fit. Goodness of fit index was .945, adjusted goodness of fit was .845 and root mean square residual was .107. No non-significant paths were included in the model. Table 21 shows the standardized residuals for the revised model. Table 22 shows the t-values for the revised model. Hypothesis 2 was not supported. Intention to Participate in Health Care Decisions was not predicted by Outcome expectations, Subjective Norms and Self-Efficacy. Although Self-Efficacy was significantly correlated with Intention

Figure 16

Path Coefficients for Revised Model



(SeeTable 15), it was not a significant predictor in the multivariate path analysis. Neither Outcome Expectations nor Subjective Norms were significantly correlated with Intention. Hypothesis 3 was partially supported. As shown in Figure 16, Behavioral Intention significantly predicted Participation Behavior, but Self-Efficacy did not. Self-Efficacy was not significantly correlated with Behavior (See Table 15). Hypothesis 5 was partially supported. Although neither Self-Efficacy nor Barriers significantly predicted Behavioral Intention, Barriers was a significant predictor of Participation Behavior (see Figure 16). Self-Efficacy was not a significant predictor of Participation Behavior.

It was expected that Self-Efficacy and Barriers would be highly correlated and have similar patterns of correlation with other variables because they were believed to be opposite poles of the same construct, Perceived Behavioral Control (after Azjen & Madden, 1986). This assumption was found to be unsupported. Although Self-Efficacy and Barriers were moderately correlated ($r = -.55$; corrected for attenuation), Barriers but not Self-Efficacy was significantly correlated with Behavior ($r = -.38$ and .05 respectively—corrected for attenuation). See Appendix F for calculation of corrected correlation coefficient.

According to the proposed model, outcome of Active Patient Behavior was satisfaction with the health care decision. The Path analysis indicated that Active Patient Behavior significantly predicted Satisfaction with Decision (see Figure 16). Unexpectedly, Self-Efficacy was also a predictor of Satisfaction with Decision ($\gamma = .43$; $p < .05$). The indirect effect of Behavioral Intention on Satisfaction with Decision was .213 and the total effect of Intention on Satisfaction was .213, indicating that Behavioral Intention had no direct effect on satisfaction. The variance in Satisfaction with Decision due to Behavioral Intention was due to the indirect effect of Intention via Behavior.

Table 21

Standardized Residuals for Revised Model

	Intent.	Behav	Sat w/Dec	Self-Eff T2	Outcm Exp	Subj. Norm	Barr.
Intent.	0.000						
Behav.	–0.001	–0.001					
Sat. w/Dec	–0.558	–0.280	–0.254				
Self-Eff.	1.328	–0.345	–0.190	0.000			
Outc. Exp	0.469	0.316	1.459	0.000	0.000		
Subj Nrm	0.597	–0.104	1.076	0.000	0.000	0.000	
Barriers	–0.312	–0.192	–0.473	0.000	0.000	0.000	0.000

Table 22

Revised Model: t-values

	Intent	Behav.	Sat w/Dec.	Self-Eff T_2	Outcm. Expect.	Subj. Norm	Barr.
Intent.	0.000	0.000	0.000	0.000	–0.000	0.000	0.000
Behav.	4.392*	0.000	0.000	0.000	–2.636	0.000	–3.934*
Sat w/Dec	0.000	4.937*	0.000	4.394*	0.000	0.000	0.000

*$p < .05$

Hypothesis 4

Hypothesis 4 stated that Self-efficacy expectations and Outcome Expectations would be correlated. A Pearson Correlation coefficient indicated that Self-Efficacy at Time 2 was correlated significantly ($p < .05$) with Outcome Expectations at Time 2 ($r = .31$) supporting the hypothesis.

Additional Analyses

It was observed that behavior was significantly related to self-efficacy at Time 3 but not at Times 1 or 2. The correlations between behavior and self-efficacy were significantly different for Time 1 and Time 3 (t = –2.0; df = 62; $p < .05$); Time 2 and Time 3 (t = –2.5; df = 64; $p < .05$, 2-tail) but not for Time 1 and Time 2 (t = .48; 62 df; ns). See Appendix H for sample calculations.

An analysis of variance was conducted to determine whether the correlation was due to selection bias. Were those who chose to visit their health care providers higher in self-efficacy at Time 2 than those who chose not to? There was no significant difference (F=.6506) in self-efficacy at Time 2 between women who visited their health care providers (n=66; m =8.0; s.d.=1.45) and women who did not visit their health care providers (n=182; m=8.2; s.d.=1.45) during the follow-up period. This finding confirmed that the observed relationship between self-efficacy at time 3 and behavior was not due to selection bias.

The correlation between participation behavior and self-efficacy was significantly greater at Time 3 than at Time 2 and was not due to selection bias. This suggested that behavior affected self-efficacy. To determine the extent to which post-behavior self-efficacy was influenced by experience (behavior), a multiple regression was performed which controlled for self-efficacy at Times 1 and 2. Table 23 shows the regression coefficients and significance values for the regression equation. The multiple regression analysis showed that participation behavior explained 9% of the variance in self-efficacy at Time 3 when self-efficacy at Times 1 and 2 were controlled. This supported the speculation that active participation behavior increased self-efficacy when pre-behavior levels of self-efficacy were controlled for.

Figure 17 graphically depicts the relationship between self-efficacy and behavior. Participation behavior is shown on the vertical y-axis (height) with self-efficacy at Time 3 plotted on the horizontal x-axis (width) and self-efficacy at Time 2 plotted on the z-axis represented by depth. The figure is rotated in space so that the moderate correlation between behavior and Time 3 self-efficacy is apparent. Note the elliptical pattern of the points plotted between the x and y axes. The relationship between behavior and self-efficacy at Time 2 can be seen by viewing the plot from front to back (depth). As can be seen, there is no pattern to the depth at which each point is plotted and its height on the vertical axis. At Time 2, most self-efficacy scores cluster near the high end of the scale, regardless of behavior.

Table 23

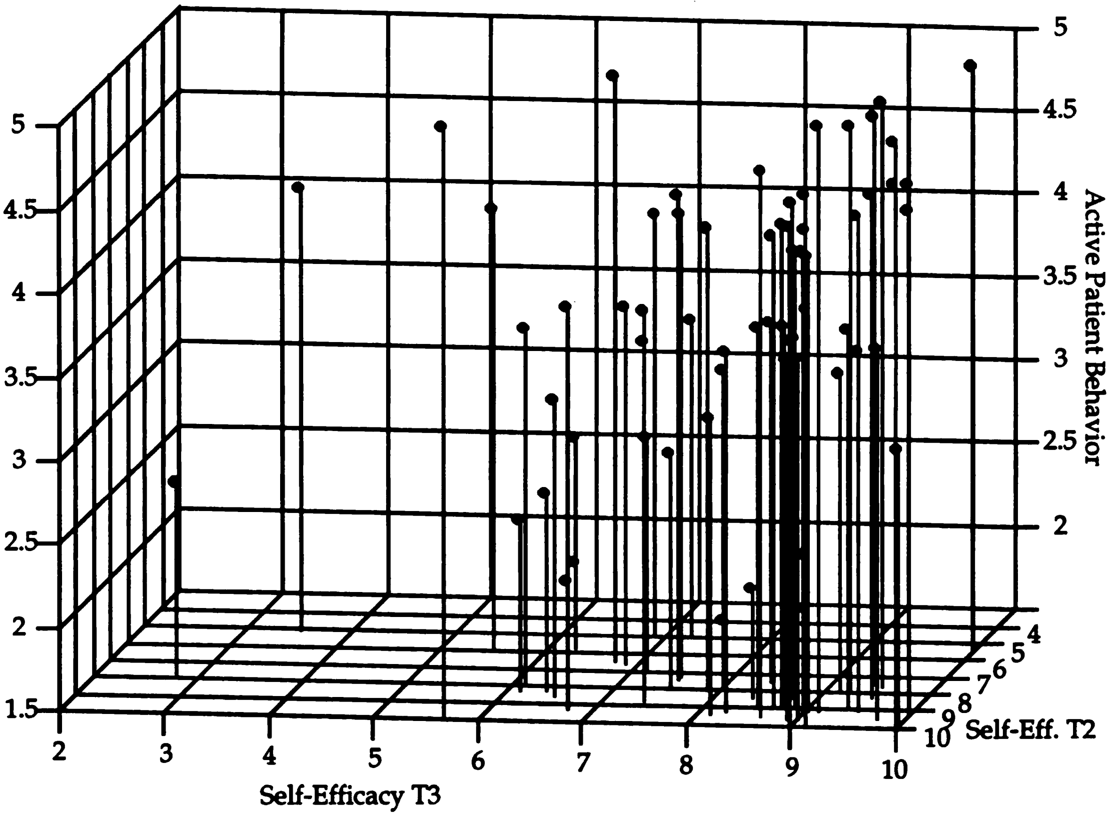
Regression Coefficients and Significance for Regression of Self-efficacy Time 3 on Self-efficacy Time 1, Time 2 and Behavior

Step	Variable	B (s.e.)	β (s.e.)	pr_i	F	R	Adj. R^2	F-Eqn	R^2 Chg	F–Chg
1	Self-Efficacy Time 1	.23 (.12)	.25 (.13)	.24	3.57	.50	.24	21.40*	.25	21.39*
2	Self-Efficacy Time 2	.36 (.14)	.34 (.13)	.31	6.64*	.56	.29	14.23*	.06	5.52*
3	Behavior	.59 (.19)	.31 (.10)	.37	9.58*	.64	.38	43.13*	.09	9.59*
	(Constant)	1.30 (1.09)			1.44					

*$p < .05$

Figure 17

Behavior Plotted Against Self-efficacy at Time 2 and Time 3



Summary

Of the 5 hypotheses, 1 was completely supported, 2 were partially supported and 2 were unsupported by the findings. Hypothesis 1, that the Decision Support Intervention would result in greater self-efficacy than the other two interventions, was not supported. The multiple regression analysis indicated that, among women low in self-efficacy pre-intervention, the Lecture/Discussion intervention, not the Decision Support Intervention, resulted in the highest post-intervention self-efficacy.

Hypothesis 2, that Self-Efficacy, Outcome Expectations and Subjective Norms would significantly predict Intention to Participation in Health Care, was not supported. The path analysis indicated that none of the variables measured significantly predicted Intention.

Hypothesis 3, that Self-Efficacy and Intention would significantly predict Participation Behavior, was partially supported. Behavioral Intention did predict Participation Behavior, but Self-Efficacy did not.

Hypothesis 4, that Self-Efficacy expectations and Outcome Expectations would be significantly correlated was completely supported. Self-Efficacy and Outcome Expectations were significantly, mildly correlated, indicating that they were related but distinct constructs.

Hypothesis 5, that Self-Efficacy and Perceived Barriers would both contribute to significantly to prediction of Intention to Participate and Participation Behavior, was partially supported. Neither Self-Efficacy nor Barriers predicted Intention, but Barriers significantly predicted Behavior.

In addition to the hypothesized findings, it was found that active participation experience in the health care setting, as measured by self-reported participation behavior, significantly predicted post-behavior self-efficacy.

CHAPTER 4

Discussion

The purpose of this study was to examine the impact of a decision support intervention on the self-efficacy and behavior of health care consumers related to active involvement in health care. Past research suggested that higher self-efficacy and an active patient orientation resulted in improved clinical outcomes and decreased psychological morbidity (Allen, et al., 1990; Davis-Berman, 1989; Schulman, 1979; Morris & Royle, 1988). Self-Efficacy was targeted as an avenue for intervention because it was found that although health care consumers desired information about their health care they did not ask for more information (Trinkaus, 1991). Trinkaus (1991) hypothesized that fear, lack of skills and lack of confidence might explain this contradiction. The importance of skills in determining patient participation was supported in a study by Woodward & Wallston (1987) who found that self-efficacy mediated low desire for control of health care.

Written questionnaires were used to measure self-efficacy, perceived barriers, outcome expectations, subjective norms, intention, behavior and satisfaction with decision among midlife women attending an educational program on menopause and HRT. Data was collected at three points in time; prior to the first class period of the three session program, following the final class and two months following the final class. The impact of the intervention on self-efficacy was examined using multiple regression and the impact of self-efficacy, barriers, outcome expectations and subjective norms on behavioral intention, self-reported behavior and satisfaction was assessed using path analysis.

Research Questions and Hypotheses

Did the Decision Support Intervention increase self-efficacy related to active patient participation behavior significantly more than the other two programs?

The first hypothesis stated that the Decision Support Intervention would result in greater confidence in ability to participate actively in health care decisions, greater intention to participate, increased participation behavior and greater satisfaction with decision. This study found no significant difference in post-intervention self-efficacy between the Decision Support Intervention (Program C) and the other two programs. When pre-intervention self-efficacy was controlled for, self-efficacy at time 2 (post-intervention) increased most in the Lecture/Discussion condition and least in the Brochure condition with the increase in Program C between the other two programs. There were no significant differences in behavioral intention, behavior or satisfaction with decision between the three experimental conditions.

It had been hypothesized that the decision support intervention would increase self-efficacy significantly more than either the lecture/discussion or brochure because it included a participant modeling exercise designed to provide a mastery experience related to active participation behavior. According to Bandura (1982) enactive attainments were the most influential sources of efficacy information because they were based on authentic mastery experiences. The participant modeling exercise was designed as an enactive experience in which participants would gain confidence by carrying out the target behavior in a role-play situation. The lack of a significant difference between the decision support group and the lecture/discussion group suggested that verbal persuasion was as effective in increasing self-efficacy as participant modeling. This conclusion was counter to previous studies which found that participant modeling significantly increased self-efficacy compared to control groups whereas persuasion resulted in little actual improvement in behavior (Bandura, 1977).

The role-play situation may not have been similar enough to the naturalistic situation to have a greater impact on self-efficacy than verbal persuasion. Since, (as discussed below) self-efficacy was related to actual behavior in the natural situation a more realistic mastery experience (role-play with actual health professionals, for example) may have had a greater impact on self-efficacy than the participant modeling exercise used.

In fact, both the lecture/discussion program and the decision support intervention included a question and answer period in which the women had an opportunity to ask questions of a health care provider. This opportunity may have had an impact on the women's self-efficacy. In the group setting the women were able to ask questions of either a nurse or physician and observe other women asking questions as well. They also received support from each other for their concerns and questions. Anecdotal observation suggested that the question and answer opportunity was highly valued by the women. Frequently the question period had to be terminated due to time limitations before the women had exhausted their questions. Because of the more individualized nature of the exercises in the decision support intervention the women had less time to participate in discussion among themselves and with the health care provider. This may partially explain the observed impact of the interventions on self-efficacy.

Among women for whom pre-intervention self-efficacy was low, the increase in self-efficacy was significantly greater for those in the lecture/discussion intervention than in the brochure-only group. As noted above, this may have been due to the greater opportunity for interaction with the health care provider offered by the question and answer period during the lecture/discussion intervention. It was also possible that self-efficacy was influenced similar to information acquisition. Written information alone has been previously found to be a less effective method of communication than verbal information combined with written information (Miller & Shank, 1986).

Counter to hypothesis, there was no significant difference between the lecture/discussion intervention and the decision support intervention in post-intervention self-efficacy. This finding was counter to previous studies which have found that modeling increased self-efficacy significantly more than information alone (Maibach & Flora, 1993). There are several possible explanations for the failure of the role-play intervention to differentially influence self-efficacy. The role-play intervention may not have continued long enough for the women to significantly increase their confidence in their ability to execute active participation behavior. Since the role-play was only a brief portion of the class session, it lasted only 15 minutes. A more extended role-play session may have produced more significant effects.

Another explanation for the lack of difference between the decision support intervention and the other two programs may be that the study sample was an exceptionally confident and motivated group and the intervention was not needed for the majority of the women. They were already highly confident in their skills related to interacting with health care providers. This possibility was supported by the distribution on the self-efficacy scale. As noted previously, mean pre-intervention self-efficacy was 7.6 (s.d. 1.67) on a scale from 1 to 10.

It may also be that the scale was not sensitive enough to detect differences between those who were confident in their ability to actively participate and those who were not. Woodward and Wallston (1987) found mean self-efficacy subscale scores of 38.72 and 21.81 among individuals age 40 to 59; 16% of whom were female and 15% of whom had less than a high school education. When these subscale scale scores (r = .86) were summed and divided by 8 to place them in units comparable to those used in this study, the mean scale score for all 8 items was 7.57, identical to that found at Time 1 in this study. This suggested that the lack of findings using this scale could be due to the restricted distribution found with this scale in all populations.

Did the proposed model adequately describe the relationship between self-efficacy, barriers, outcome expectations, subjective norms, intention and self-reported behavior?

Hypothesis 2 stated that Self-Efficacy, Outcome Expectations and Subjective Norms would significantly predict Intention to Participate in health care decisions. Of the three variables expected to predict behavioral intention, only self-efficacy was significantly (mildly) correlated with behavioral intention and in the multivariate analysis the path from self-efficacy to intention was not statistically significant. None of the factors measured in this study significantly predicted behavioral intention. This was counter to recent studies which have found a significant relationship between at least one of these factors and behavioral intention (Basen-Engquist & Parcel, 1992; Tedesco, Keffer & Fleck-Kandath, 1991; Manstead, Proffitt & Smart, 1983; Netemeyer & Burton, 1990; Gatch & Kendzierski, 1990; Brubaker & Wickersham, 1990; Schifter & Ajzen, 1985; Vallerand, Deshaies, Cuerrier, Pelletier & Mongeau, 1992; Geringer, Marks, Allen & Armstrong, 1993; Nash, Edwards & Nebauer, 1993; Fishbein, et al., 1992; Rosén, 1992; Boldero, Moore & Rosenthal, 1992; Cochran, Mays, Ciarletta, Caruso & Mallon, 1992; Gallois, Kashima, Terry, McCamish, Timmins & Chauvin, 1992; Powell-Cope, Lierman, Kasprzyk, Young & Benoliel, 1991).

One explanation for the failure of the variables to predict intention may have been the impact of previous experience. Jepson and Rimer (1993) found that only two of nineteen variables (income and knowledge of correct mammography frequency) contributed significantly to prediction of mammography intentions among women who had previously had mammograms. None of the other variables drawn from the health belief model and the theory of reasoned action contributed significantly to intention. It was speculated that a previous aversive experience with mammograms may have helped to explain the variance in mammography intention among women with prior experience (Jepson & Rimer, 1993). Since interacting with health care providers was a nearly universal experience, previous success or failure in active participation may be an important factor in intention to actively participate in future health care.

Another explanation for these findings may have been the difference between active participation behavior and other health-related behaviors. Active participation behavior involved interaction with the health care provider in the form of question-asking and participation in decision making. The behavior was interactive in nature rather than solely dependent on the skills and motivation of the individual. The model may have failed to predict intention because intention to execute interactive behavior may have different antecedents than other health-related behavior such as condom use.

Hypothesis 3 stated that Health Care Self-Efficacy and Intention to Participate would significantly predict Participation Behavior. Self-efficacy was expected to contribute directly to behavior as well as via intention because it was recognized that actual control over participation in health care might be limited by external factors. Although behavioral intention significantly predicted behavior, self-efficacy did not contribute significantly to this prediction. The significant relationship between intention and behavior suggested that active participation in health care was due at least partly to intention to execute specific behaviors. This supported Ajzen & Fishbein (1980) who argued that people considered the implications of their actions before they decided to engage in a given behavior. These findings indicated that the midlife women in this study decided whether or not to engage in active participation behavior prior to taking action in the health care setting. Active patient behavior was found to be intentional behavior and the findings supported previous studies which have found strong correlations between intentions and behavior (Ajzen & Fishbein, 1980). The lower mean on the behavior self-report scale (3.76) compared to the behavioral intention scale (4.40) indicated that the women intended to participate more actively than they actually did. The discrepancy between behavioral intention and actual behavior was partially explained by other variables in the model, but self-efficacy was not a factor.

As noted above, the path between self-efficacy and intention was not statistically significant. Unexpectedly, self-efficacy measured pre- and immediately post-intervention also failed to predict active participation behavior directly, but self-reported behavior was significantly correlated with self-efficacy at follow-up. Women who reported active patient participation behavior during a visit to their health care providers were more likely to have higher self-efficacy at follow-up than women who reported less active patient behavior. This supported the speculation of Jepson & Rimer (1993) that, among individuals with previous experience, behavioral intention may be less dependent on variables such as attitudes and more dependent on the quality of the past experience. Bentler and Speckart (1979) found that previous behavior was a significant determinant of intention to repeat the behavior. The finding that self-efficacy increased significantly between Time 1 and Time 2 in all three groups but remained stable—neither increased nor decreased—between Time 2 and Time 3 suggested that behavior influenced self-efficacy and intention rather than the reverse. Since mean self-efficacy did not change between Time 2 and Time 3, self-efficacy may have increased for some women and decreased for others following the encounter with the health care system. Actively participating in their health care may have increased some women's self-efficacy related to the health care system while the experience of system-level barriers may have decreased it for other women. The relationship between intention and behavior may have been mediated by perceived barriers, with those who experienced more barriers participating less actively than those who experienced fewer barriers.

Bandura (1977) warned that persuasion could result in decreased self-efficacy if performance expectations were increased through persuasion while the conditions to facilitate effective performance remained unchanged. Persuasively increasing performance expectations in the presence of situational barriers could lead to decreased self-efficacy. This circumstance may have occurred in this study. The impact of experience with the health care system may have influenced self-efficacy in a negative direction for women who encountered situational barriers to active participation while women who had success experiences in participating in their health care may have increased their self-efficacy.

Hypothesis 4 postulated that self-efficacy expectations and outcome expectations would be significantly correlated. The finding in this study that self-efficacy and outcome expectations were significantly, though moderately, correlated supported previous studies which found there to be a relationship between these constructs (Manning & Wright, 1983). The modest correlation supported the theoretical distinction between the two concepts however, suggesting that confidence in ability to participate actively could be distinguished from a belief that participating actively would result in specific outcomes (Bandura, 1977; Maddux, Sherer & Rogers, 1982; Grembowski, et al., 1993). This finding also partially supported the theory of planned behavior in which attitude toward the behavior was significantly correlated with perceived behavioral control (Ajzen & Madden, 1986). The lack of a significant correlation between barriers and outcome expectations however, indicated that attitude toward the behavior (outcome expectations) was correlated only with the internal (self-efficacy) aspect of perceived behavioral control. Although the theory of planned behavior treated perceived behavioral control as a unidimensional construct with internal and external aspects on a continuum, the findings in this study suggested that perceived behavioral control was a multidimensional construct. The finding that self-efficacy and barriers were distinct dimensions of perceived control simply reconfirmed previous understanding regarding the multidimensionality of control (Wallston, Wallston & DeVellis, 1978; Levenson, 1974; Marshall, 1991; Abrahamson, Schludermann & Schludermann, 1973; Coan, Fairchild & Dobyns, 1973; Annandale, 1987).

Hypothesis 5 stated that Perceived Barriers and Health Care Self-Efficacy would contribute significantly to prediction of Intention to Participate in Health Care Decisions and Participation Behavior. Neither self-efficacy nor barriers contributed significantly to prediction of behavioral intention. As noted above, this may have been due to the influence of past experience on intention, making psychological variables such as perceived barriers and self-efficacy less important in determining future intentions.

Although Time 2 self-efficacy failed to contribute to prediction of active participation behavior, perceived barriers was a significant factor. The direct effect of barriers on behavior supported the supposition that active patient behavior was not completely under volitional control of the respondents. Bentler and Speckart (1979) found that attitudes and norms predicted behavior directly, rather than via intention when the behavior in question was not completely under volitional control. Ajzen and Madden (1986) defined a behavior as being under complete volitional control when the individual could decide at will whether or not to perform the behavior. The more that performance of the behavior was contingent on the presence of opportunities and adequate resources, the less the behavior was under volitional control (Ajzen & Madden, 1986). The unique contribution of barriers to prediction of behavior suggested that participation behavior was not completely under volitional control.

Unsolicited comments on the self-efficacy instrument reinforced the conception that for some women participation was not completely under their own control. For example, next to an item asking about confidence in ability to ask questions one woman wrote, "I can certainly ask. There's no guarantee that the health professional will be willing to answer my questions—or even able to communicate clearly." Next to an item asking whether she would know how to help her health care provider decide what medical procedure she should get another woman wrote, "But that doesn't mean he or she'll listen to/agree with me! OR make a referral." Next to an item asking whether she was confident she would be able to understand information about what a medical procedure would do to her, a respondent wrote, "If they TELL YOU!" These comments suggested that self-efficacy failed to predict behavior because the critical factors in determining active participation behavior were intention and external barriers rather than internal factors such as confidence.

In addition to the four general categories of barriers to participation included in the barriers scale, women wrote in barriers on an open-ended question. Six general categories of barriers were identified; aspects of health care providers, payment-related barriers, personal limitations, knowledge-related limitations, system-related limitations and miscellaneous. A general picture of an unresponsive medical system arose from these comments suggesting that the women did not perceive participation in their health care to be under their own control.

As noted above, self-efficacy was significantly related to behavior at follow-up. Rather than self-efficacy influencing behavior, it appeared that experience with the health care system influenced self-efficacy. The impact of success and failure experiences on self-efficacy has been well-documented with successful experiences increasing self-efficacy and failure experiences resulting in a decrease in self-efficacy (Davis & Yates, 1982; Bandura & Cervone, 1986). The relationship between barriers and self-efficacy suggested that some women who desired to actively participate in their health care and felt confident in their skills failed to do so because of the presence of external barriers to participation. These women may have suffered a decrease in self-efficacy as a result. Other studies have found a discrepancy between desired participation in health care and actual behavior. For example, Trinkaus (1991) found that college undergraduates desired more information from their health care providers than they actively requested. In this study, the need for a more active role for consumers in health care was confirmed by the finding that active participation behavior and greater self-efficacy contributed significantly to prediction of satisfaction with the health care decision.

The path model which fit the data best (shown in Figure 16) indicated that behavior was predicted by behavioral intentions, perceived barriers and outcome expectations. Satisfaction with decision was predicted by behavior and self-efficacy. Women who intended to participate actively and who perceived few barriers to active participation were significantly more likely to report actively participating in their health care. Women who participated more actively and had greater confidence in their ability to participate were significantly more satisfied with their decision regarding their health care. The relationship between outcome expectations and behavior was spurious and probably due to the relationship between self-efficacy and barriers but improved the fit of the model to the data.

The relationship of self-efficacy to behavior and satisfaction with decision supported three findings. First, active participation in health care among midlife women was dependent on the woman's intentions to participate actively and on barriers such as lack of access to information and conflicting medical advice rather than on the woman's confidence in her ability to participate effectively. Second, the woman's success or failure in effectively overcoming perceived barriers to actively participate through such behaviors as asking questions, and helping to make choices, influenced her confidence in her ability to participate actively in the future. Third, women who actively participated in their health care and were more confident in their ability to participate actively were more satisfied with their decisions regarding their health care.

According to the findings in this study, intention was a significant predictor of participation behavior but the factors which influenced intention were not identified in this study. None of the variables measured significantly predicted intention. Knowledge of behavioral intention does not, by itself, provide any insight into the factors influencing participation behavior. Intentions may depend on an individual's assessment of personal skills compared to difficulty of the task, expectations that a given behavior will produce a desired outcome and perception that the behavior is the social norm. All of these factors were measured in this study and failed to predict intention. Understanding of the findings in this study must therefore focus on the other factors which contributed to prediction of behavior such as barriers.

Previous reports in the literature supported the findings in this study that barriers to active participation were an important factor in patient/health care provider interaction. Barriers to active patient participation cited in the literature included lack of courtesy and a patronizing attitude by physicians, physician lack of time, financial barriers, confusing explanations by physicians, and unwillingness of physicians to inform patients (Jones & Phillips, 1988). Additional barriers included patient loss of personal control, lack of privacy and social isolation for patients, lack of an integrated process for development of new patient skills, education of physicians and nurses, and a focus on cognitive rather than behavioral or psychosocial educational interventions for patients (Giloth, 1990). The emotionally charged nature of the health care setting, particularly hospitals, may generate fear and anxiety and hinder patient participation in decisions (Dawson, Youngner & Connors, 1990).

In conclusion, although the purpose of this research was to increase active patient participation in health care by increasing participants' perceived self-efficacy, the findings suggested that barriers to active patient participation were primarily due to factors external to the individual rather than internal. Lack of participation was not due to lack of skills, but to lack of available information, conflicting medical advice and payment restrictions.

Summary

This research identified the following main findings:

1. Self-efficacy related to active participation in health care significantly increased in all three educational conditions; Written Brochure Only, Lecture/Discussion and Decision Support.
2. The Lecture/Discussion intervention was significantly more effective in increasing self-efficacy than was the written brochure alone.
3. Self-efficacy at 2-month follow-up was significantly greater than at pre-intervention indicating that the observed increase following all interventions remained stable over time.
4. Intention to participate in health care was not significantly predicted by any of the measured variables. Self-efficacy, outcome expectations and subjective norms failed to significantly predict intention to participate.
5. Active participation behavior was significantly predicted by intention to participate, perceived barriers to participation and outcome expectations.
6. Outcome expectations were moderately, positively correlated with self-efficacy supporting both the association between these variables and the

distinction between them.

7. Perceived barriers to participation were significantly negatively correlated with self-efficacy . The pattern of correlation of these variables with other variables differed supporting previous understanding of control as a multidimensional construct.
8. Active participation behavior and self-efficacy predicted greater satisfaction with decisions.

This study was designed to determine the impact of an educational intervention on the self-efficacy and behavior of midlife women regarding active participation in their health care. The major finding for this study was that women who intended to participate actively in their health care and who perceived fewer barriers to participation were more likely to report actively participating during a visit to their health care providers. Self-efficacy did not predict active patient behavior when measured immediately post-intervention, but was significantly correlated with behavior two months following the intervention. Self-efficacy did increase significantly from pre-intervention to post-intervention, however, and increased most among women in the Lecture/Discussion condition.

The relationship between self-efficacy, barriers, intention and behavior suggested that experience with the health care system was an important factor in intention and participation behavior. The correlation between self-efficacy at follow-up and behavior suggested that successful participation behavior increased self-efficacy rather than vice versa and the independent influence of barriers on behavior and lack of predictors of intention suggested that intention may have been influenced by experience rather than attitudes or expectations.

The findings in this study suggested that active patient participation in health care was an intentional behavior influenced by barriers to participation and that those who participated more actively were more likely to be satisfied with their decisions.

Limitations

Limitations of the current research included a potential selection effect for the behavior self-report data since only 66 of the 248 women in the study reported visiting a health care provider during the follow-up period.

An alternative explanation for the observed relationship between self-efficacy and behavior at follow-up may have been that those who were higher in self-efficacy immediately following the intervention were more likely to visit their health care providers. An analysis of variance however, showed that this was not the case. There was no significant difference in Time 2 self-efficacy between women who reported visiting their health care providers and women who did not visit a health care provider.

Another possible limitation of the study was the lack of a no-treatment control group. Although the increase in self-efficacy between pre- and post-intervention suggested that the Decision Support Intervention increased self-efficacy above baseline this finding would have been stronger if it could have been compared to a no-treatment control group which showed no increase in self-efficacy due to testing, history or regression toward the mean. A no-treatment group would have substantially increased costs however, and would have been of little practical value since the goal was to develop an intervention which was more effective than the standard treatment.

The study sample also limited the generalizability of the findings. Participants for this study were recruited primarily by newspaper advertisements and were self-selected volunteers. As noted in the description of the sample, study participants were more likely to be white, college-educated and have higher incomes than the population from which they were recruited.

Additionally, study participants were drawn from an urban and suburban Midwestern population which may limit generalization to rural populations and non-Midwestern populations. In spite of these limitations however, it was believed that the sample adequately represented the population of women who would be most likely to seek participation in educational programs on menopause.

Issues for Future Research

The findings from this study suggested that barriers limited midlife women's ability to actively participate in their health care. These factors limited the women's behavior in spite of their confidence in their skills and an intention to act. The barriers assessed included lack of access to information, conflicting medical advice, personal health state, payment options and their health care providers. Future research should include further assessment of the factors patients perceive as barriers to participation. Research is also needed to determine how women can be empowered to overcome identified barriers to effective participation in health care decisions.

As noted previously, the role-play intervention may have been less effective in changing self-efficacy than a more realistic modeling or participant modeling experience. Future studies should strive for realistic models and mastery experiences which involve health professionals in real or simulated health care encounters. Future efforts to increase self-efficacy should realistically describe potential barriers within the health care system and avoid excessively increasing expectations in the face of systemic barriers to participation.

It has been argued that extent of control in health care should vary according to the needs of the individual patient (Corcoran, 1988) and that it may be harmful to offer choices to individuals with low desire for control since they may experience more distress under choice conditions (Rokke, Absi, Lall & Oswald, 1991). Others have argued that choice may be necessary even when individual patients preferred less participation because society may demand consumeristic accountability (Beisecker & Beisecker, 1993). Furthermore, studies have found increased distress among individuals with a high desire for control and low feeling of control (Logan, Baron, Keeley, Law & Stein, 1991). Further study is needed to understand the complex relationship between desire for control of health care, participation in health care, clinical outcomes and patient satisfaction. Future research should study the circumstances under which patients choose to retain decision making autonomy and the circumstances under which they choose to delegate responsibility to professionals or intimate others. Special emphasis should be placed on identifying the antecedents to delegation of responsibility and the impact of relinquishment of control on clinical outcomes and satisfaction.

Conclusions and Recommendations

This dissertation discussed the dilemma of midlife women regarding the decision whether or not to take hormone replacement therapy and the relevance of patient participation issues to this problem. It was suggested that participation in health care may have an important impact on physical and psychological health and that empowering medical consumers to participate actively may have many advantages for patients. The theory of planned behavior and self-efficacy theory were offered as theoretical models for explaining observed differences in patient participation behavior. Three models of patient-health care professional interaction were described and critiqued for their potential impact on patient self-efficacy related to health care participation. It was suggested that decision support models, in which decision making rested with the consumer and the professional served as facilitator were most likely to promote self-efficacy regarding participation in health care.

A need for a decision support intervention to empower midlife women in their decision making regarding hormone replacement therapy was identified. It was hypothesized that women who participated in a decision support intervention and active participation role-play exercise would experience increased self-efficacy related to participation in health care and that this would lead to greater intention to participate actively, more active participation behavior and greater satisfaction with decision. A study was designed which compared three programs designed to aid women in their decision making regarding hormone replacement therapy. The three interventions studied were a decision support intervention, a lecture/discussion program and a written brochure. The variables measured included self-efficacy related to active participation in health care, perceived barriers to participation, outcome expectations regarding active participation behavior, subjective norms related to active participation in health care, intention to participate, participation behavior and satisfaction with decision. All scales used were found to have adequate internal consistency.

Self-efficacy was found to increase significantly following intervention in all three experimental conditions with the greatest increase occurring in the lecture/discussion condition. It was conjectured that the decision support intervention and role play failed to increase significantly more than the lecture/discussion intervention because the role play was not similar enough to the naturalistic situation and because both the lecture/discussion program and the decision support intervention included a question and answer period with a health professional which may have influenced self-efficacy.

Active participation in health care was found to be an intentional behavior influenced by perceived barriers. Active participation behavior was found to correlate significantly with self-efficacy at follow-up suggesting that behavior influenced self-efficacy rather than vice versa. Active participation behavior and self-efficacy were significant predictors of satisfaction with decision. The findings in this study suggested that self-efficacy related to participation in health care could be increased through intervention but that active participation in health care was influenced by the presence of external barriers to participation. The importance of the situational context in determining participation behavior was concluded to be critical to understanding and modifying participation behavior. Future interventions should therefore be directed at removing barriers to patient participation in health care. This will require intervention with the health care system itself, with health care professionals, with patients and with society overall. Some changes in the system, with health care professionals and with patients have already been advocated in the literature. These will be discussed below along with recommendations for intervention at the societal level.

It is recommended that interventions at the system level address barriers associated with institutional policies and procedures such as hospital rules and reimbursement restrictions. Giloth (1990) advocated the following system-level strategies to support patient involvement in care: 1) Change the physical environment of the health care setting to support patient education and involvement, 2) Make policy changes which support patient access to information 3) Change hospital rules to accommodate individual patient needs, 4) Develop programs to decrease health care staff stress, 5) Make patient involvement in decision making an integral part of the health care delivery process, 6) Increase patient and family responsibility for health care delivery, and 7) Help patients adapt health care regimens to their own lifestyles. Furthermore, it is recommended that changes be made in the current system of payment for health care services. Beisecker and Beisecker (1993) noted that regulations imposed by third-party payers may result in barriers in the patient-professional

relationship and may serve as a form of paternalism in which neither the patient nor the professional has complete decision making authority.

It is recommended that barriers which prevent health professionals from encouraging active patient participation also be addressed. Many barriers related to health care professionals have been identified in the literature (Anderson & Sharpe, 1991). These include risk of malpractice suits (Green, 1988), ethical considerations (Mower & Baraff, 1993), bureaucratic structure of the practice setting (Stevens, Diederiks, & Philipsen, 1992) and patient behavior (Levinson, Stiles, Inui, & Engle, 1993). Suggestions for addressing these barriers have included educating health care providers in communication skills (Marteau, Humphrey, Matoon, Kidd, Lloyd, & Horder, 1991) and teaching empathy skills (Brock & Salinsky, 1993) and reducing time pressures on health care providers (DiMatteo, Shugars, & Hays, 1993). It is recommended that future research study identify additional ways in which these barriers can be minimized and that intervention strategies be evaluated for effectiveness in promoting increased patient participation and satisfaction.

Barriers to active patient participation in health care have also been identified related to patients themselves. In a study of the factors influencing patient-physician communication, physicians most often attributed communication problems to the patient rather than to their own limitations (Levinson, et al., 1993). Communication problems identified related to the patient included lack of patient trust in the health care provider, patients with too many problems, patient lack of compliance with treatment, patient communication difficulties and demanding behavior by patients (Levinson, et al., 1993). Other factors which may limit patients in actively participating in the health care encounter include relatively less social power compared to health professionals (Navarro, 1983; Duran-Arenas & Kennedy, 1991), loss of control associated with illness and the patient role (Chipperfield, 1993; Logan, et al., 1991), emotional distress such as anxiety associated with illness, diagnosis and treatment (Weijts, Widdershoven & Kok, 1991), and sex discrimination (Bullough & Bullough, 1975; Wilcox, 1992). It is recommended that interventions to decrease patient-related barriers to participation be developed and disseminated.

The findings in this study suggested that active patient participation was related to intention to participate actively and perceived barriers to participation. The literature suggested that there have been extensive attempts to intervene with health care professionals and patients to improve communication and promote active patient participation and dissemination of these interventions may address some of the difficulties identified. In spite of these efforts however, both patients and health care professionals remained frustrated by poor communication in the health care setting (Anderson & Sharpe, 1991; Levinson, et al., 1993). Interventions aimed at society as a whole rather than at individual patients or health care professionals and consideration of the barriers facing health care providers and patients will be required to develop effective social interventions to promote active patient participation.

In order to address the societal barriers to patient participation it is recommended that future research develop interventions to modify the basic assumptions and expectations held by patients and health care professionals related to the nature of health, illness and social roles. One aspect of participation in health care which needs examination is the nature of health-related decisions. Like many health-related behaviors, hormone replacement therapy is prevention-oriented rather than treatment-oriented. Taking HRT has been found to have long-term health benefits as well providing short-term symptom-relief. These benefits must be weighed against known and unknown long-term risks such as endometrial cancer, and short-term discomforts such as side effects and resumption of cyclic bleeding. Furthermore, the HRT decision is a dilemma for health care providers as well as consumers since lack of research on women's health issues has resulted in a dearth of information from which to make decisions. Changing society to a more public health orientation rather than a disease or treatment orientation would encourage more research directed at understanding universal transitions such as menopause and promotion of wellness throughout the life-span. Increased understanding and knowledge related to healthy functioning would provide both health care providers and consumers with information needed to make informed decisions and would empower patients in maintaining their health.

It is also recommended that the influence of social role expectations for patients and health care professionals be redefined. Redefinition of these roles may occur through adoption of models of human behavior consistent with the active patient concept. Theoretical approaches likely to encourage development of active patient role expectations include cognitive-behavioral models (Beck, 1976), theories associated with feminist therapy (Greenspan, 1993) and the theory of micropolitics (Waitzkin, 1991). In cognitive-behavioral theory for example, affect and behavior were explained by the thoughts which preceded observed behaviors (Beck, 1976). Because this model of human behavior emphasized the rational, cognitive aspects of behavior it may promote recognition of patients' capacity for participation and encourage inclusion of the patient's stated concerns, values and preferences in decision making. Active patient behavior may also be facilitated by minimizing the social status differences between health care professionals and patients. Recognition of the similarity in needs and capacities of patients and professionals may promote a more equal relationship while acknowledging the special skills of professionals (Higgs, 1991).

Adoption of the principles of feminist therapy, which closely paralleled the decision support model of patient participation may contribute to greater patient participation and control in health care. In feminist therapy the patient was encouraged to actively question the professional and the professional's role was to nurture this strength in the patient (Greenspan, 1993). Application of this philosophy to the health care encounter may help to modify the social role expectations for patients and health care professionals. It is also recommended that the principles of micropolitics be applied to the health care encounter. In micropolitics the patient's social context was considered critical to understanding and healing. Health professionals were encouraged to examine their role in social control and empower patients through social change and modifications in medical discourse (Waitzkin, 1991).

Finally, although theory may provide a basis for future research, this study indicated that little was currently understood about the factors influencing patient participation in health care. Recommendations for identification and modification of factors influencing health care should begin with further research. Although both health professionals and patients have been held responsible for problems in the health care encounter, the influence of social factors limited the ability of individuals to modify the situation. Soliciting input and suggestions from patients and health care professionals regarding the strengths and weaknesses of the current social context is the first step toward understanding and promoting active patient participation in health care.

In summary, in order to address the difficulties present in the current health care system it will be necessary to modify the way in which health care professionals and patients view their roles in relation to the health care encounter. Accomplishing these goals will require consideration of the nature of health-related decisions and the barriers facing health care providers and patients, including system-level barriers, barriers specific to health professionals and patients and societal expectations. Recommendations included disseminating interventions already developed, developing interventions to address societal barriers and soliciting input from patients and health care providers regarding needed changes. Suggestions for modifying societal barriers included promoting a public health orientation among professionals and patients and encouraging adoption of models of human behavior which promoted respect for the concerns, values and preferences of the patient.

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APPENDICES

APPENDIX A

APPENDIX A
RECRUITMENT ADVERTISEMENTS

Women over 40

Learn more about Menopause and Hormone Replacement Therapy

Michigan State University is looking for women to participate in a study which will inform them about menopause and hormone replacement therapy. Women will attend three educational sessions at MSU in January on either Thursday evenings or Saturday mornings. Women will also provide additional data at intervals during the following 12 months.

Dates: Thursday, January 7, 14 & 21 from 7 - 8:30 pm
Saturday, January 9, 16 & 23 from 10-11:30 am

Call now for more information (517) 355-6744
Principal investigator Marilyn Rothert, RN, PhD, FAAN
Michigan State University
College of Nursing

APPENDIX B

APPENDIX B

POWER ANALYSIS CALCULATIONS

ANALYSIS OF VARIANCE

f = Effect Size Index

a_2 = Two-Tailed Significance Level

u = Numerator Degrees of Freedom; $u = k - 1$; where k = number of groups

N = Number of participants

β = Power

Large effect size: $f = .40$; Medium effect size: $f = .25$ (p. 355, Cohen, 1988)

$k = 3; u = 3 - 1 = 2; a_2 = .05$

From Table 8.3.13 (p. 314) Cohen (1988):

For medium effect size: $\beta = .80$; **N** = 156

For large effect size: $\beta = .80$; **N** = 63

Multiple Regression Analysis

f^2 = Effect Size Index

a_2 = Two-Tailed Significance Level

N = Number of Participants

λ = The noncentrality parameter of the noncentral **F** distribution = $f^2 (u + v + 1)$

u = Numerator Degrees of Freedom; u = number of independent variables

v = Degrees of Freedom for Error Variance = **N** – u – 1

β = Power

Cases 0 & 1: Test of $\mathbf{R}^2$ (See p. 415 Cohen, 1988). For 13 independent variables:

For Large Effect Size:

$f^2 = .35; R^2_{Y.B.A} = f^2/ 1 + f^2 = .35/21+.35 = .26; \mathbf{R} = .51$

$\mathbf{N} = 63; a_2 = .05; u = 13; v = 63 - 13 - 1 = 49$

$\lambda = .35 (13 + 49 + 1) = 22.05$

For $\lambda = .35; \beta = 77$

For $\lambda = .22; \beta = 81.5$

For $\lambda = .34; \beta = 86$

For $f^2 = .5; \lambda = 9.45 \quad \lambda = (.15)(63) = 9.45; \beta = 41$

For Medium Effect Size:

$f^2 = .15$; (See p. 413 Cohen, 1988) = $\mathbf{R} = .36$

$\mathbf{N} =156; a_2 = .05; u = 13; v = 156 - 13 - 1 = 142$

$\lambda = .15 (13 + 142 + 1) = 23.40$

From table 9.3.2 (pp. 420 – 423) Cohen (1988):

For 5 **IVs** with $\mathbf{N} = 156; 94 < \beta > 98$

For 13 **IVs** with $\mathbf{N} = 156; 81 < \beta > 92$

For 15 **IVs** with $\mathbf{N} = 156; 78 < \beta > 91$

For Small Effect Size:

$f^2 = .02$; (See p. 413 Cohen, 1988) = $\mathbf{R} = .02$

$\mathbf{N} =248; a_2 = .05; u = 13; v = 248 - 13 - 1 = 234$

$\lambda = .02 (13 + 234 + 1) = 4.96; 19 < \beta > 29$ (See p. 421 Cohen, 1988)

APPENDIX C

APPENDIX C

INTERVENTION OUTLINES

Outline of Intervention A

Session I

1. Introduction and informed consent forms (5 minutes)
    a. Importance of study and data
        i. "Participants are an important part of this study and we need your help"
    b. Discuss incentives to continue participation
2. Data Collection (30 minutes)
    a. Problem Significance Assessment
    b. Sociodemographic
    c. Perceptions (Menopause Problem Scale and Control Scale)
    d. Symptoms Instrument
    e. Symptom Management/Self-Care Instrument
    f. Knowledge Instrument
    g. Satisfaction with Health Care Provider Instrument (Part I)
    h. Satisfaction with Decision Instrument
    i. Health Care Self-efficacy Instrument
3. Distribute Brochures

Session III

1. Personal Plan Form and Activity Record Calendar (15 Minutes) (Clinician)
2. Data Collection (25 Minutes)
    a. Knowledge
    b. Satisfaction with Decision
    c. Health Care Self-Efficacy
    d. Barriers to Decision Scale
    e. Outcome Expectations Scale
    f. Subjective Norms Scale
    g. Behavioral Intentions Scale
3. Emphasize the importance of data collection and returning in six months
    a. Discuss incentives to return calendars and return in six months and one year

Outline of Intervention B
Session I

Bold denotes topics in knowledge instrument

1. Introduction and informed consent forms (5 minutes)
2. Data Collection (30 minutes)
    a. Problem Significance Assessment
    b. Sociodemographic
    c. Perceptions (Menopause Problem Scale and Control Scale)
    d. Symptoms Instrument
    e. Symptom Management/Self-Care Instrument
    f. Knowledge Instrument
    g. Satisfaction with Health Care Provider Instrument (Part I)
    h. Satisfaction with Decision Instrument
    i. Health Care Self-efficacy Instrument
3. Physical changes of menopause (20 Minutes) (Clinician)
    [Participants may follow along in the brochure]
    a. What is menopause?
        i. Definition of menopause
        ii. Menopause is a normal transition
        iii. Changes at midlife
        iv. Surgical menopause
    b. When does menopause occur?
        i. Average age of menopause is 50
    c. What happens to my body at menopause?
        i. Childbearing years
            (1) Ovary contains follicles which decrease in number over life-span
            (2) Two glands in the body to know about
                (a) Pituitary
                (b) Ovary
                    (i) Responds to the signals from the pituitary
                    (ii) Produces two primary hormones
                        1) estrogen
                        2) progesterone
            (3) Two hormones that drive the ovary to do its job
                (a) FSH
                (b) LH
            (4) Feedback cycle of hormonal changes during menstrual cycle

            (5) Hormonal changes at menopause
            (6) Feedback cycle of childbearing years interrupted
            (7) Levels of pituitary hormones rise
            (8) Decrease in production of estrogen and progesterone
        ii. Menstrual periods change
            (1) Pattern of change varies between women
        iii. Ovulation can occur and pregnancy can result even without a menstrual period
            (1) Should use birth control for one full year

4. Will I experience symptoms at menopause? (Clinician)
    a. Sheehy quote
    b. Hot flashes one of most common symptoms
        i. Related to estrogen deficiency
    c. 80% of women experience symptoms
    d. 20% of women seek help for symptoms
    e. Description of experience of hot flashes
    f. Estrogen reduces hot flashes in 95-96% of cases
    g. Other changes due to estrogen decrease
        i. breast
        ii. vaginal lining
            (1) lining becomes less thick
            (2) dryer, thinner, shorter
            (3) Can result in burning or stinging with urination
                (a) difficulty or pain with intercourse
            (4) Can result in increased chance of vaginal infections
    h. Other things which occur around the time of the menopause
        i. anxiety
        ii. weight gain
        iii. bloating
        iv. Not shown to be directly due to estrogen deficiency
5. Increased Risks at Menopause (Clinician)
    a. Two diseases that increase: Osteoporosis and heart disease
    b. Osteoporosis
        i. Definition
        ii. Around 50,000 women die per year as a result of osteoporotic fractures
        iii. Fracture may result in nursing home placement
        iv. Osteoporosis a calcium disease and protein disease
        v. Osteoporosis accelerates rate of development at menopause
        vi. Women most at risk for fractures:
            (1) Thin, white women who smoke and do not exercise regularly

- c. Heart Disease
    - **i. Major cause of death for men and women**
    - **ii. 390,000 women per year die of heart disease**
    - **iii. Heart disease in women tends to increase in rate of development around the time of the menopause**

6. Self-Care Strategies (10 Minutes) (Clinician)
    - a. For hot flashes:
        - i. Eat a good, healthy diet
            - (1) To help hot flashes decrease stimulatory types of foods such as spices
        - **ii. Wear layered clothing**
            - (1) Can take of layers if get hot
    - b. Skin (like the bones) gets thinner and dryer around the menopause
        - i. Natural skin lubricants like lanolin or other non-perfumed lubricants may help
    - c. Vaginal dryness
        - i. Use water-soluble lubricant
    - d. For many people these self-care strategies are enough to take care of the symptoms and signs that occur at the time of the menopause but don't do anything do anything about the long-term, killing complications of osteoporosis and coronary heart disease.

Intervention Outline B
Session II

7. Pros and Cons of Hormone Replacement Therapy (30 Minutes) (Clinician)
    a. Five areas to think about related to HRT (SCOBES)
        i. S--Symptoms (menopausal symptoms)
        ii. C--Coronary heart disease
        iii. O--Osteoporosis
        iv. B--Breast cancer
        v. E--Endometrial cancer
        vi. S--Side effects of HRT
    b. Definition of base rates
        i. Frequency of occurrence
        ii. Important because it addresses "double what?" "What are these relative to each other?"
    c. Two main regimens
        i. Estrogen-Only
            (1) Typical regimen
            (2) Whether it would be prescribed for you would depend on your personal history and medical examination
            (3) Side effects include:
                (a) headache
                (b) bloating
                (c) weight gain
                (d) breast tenderness
            (4) No resumption of cyclic bleeding with estrogen-only
            (5) No chance of a woman getting pregnant
        ii. Estrogen combined with Progesterone
            (1) Typical regimens
            (2) Side effects
                (a) More women experience side effects with combination therapy than with estrogen-only
                (b) Side effects similar to those experienced with estrogen:
                    (i) headache
                    (ii) bloating
                    (iii) weight gain
                    (iv) breast tenderness

d. Impact of Hormone Replacement Therapy on factors
  i. Symptoms
    (1) Recap of Base Rate Risk
      (a) **Hot flashes 80% of women experience them but only 20% seek help for them**
      (b) **Vaginal atrophy--becomes dryer and more easily injured and may cause difficulty with intercourse**
    (2) Effect of HRT
      (a) **Both ERT and PERT relieve hot flashes by about 90-95%**
      (b) **Both regimens relieve vaginal dryness**
      (c) Clinical data has not found that ERT or PERT affect other symptoms such as mood swings
  ii. Coronary Heart Disease
    (1) Recap of Base Rate Risk
      (a) **Most frequent killer of both men and women. 394,000 women die each year**
      (b) Heart disease occurs somewhat later in women than in men, however.
    (2) Effect of HRT
      (a) **Estrogen-only cuts risk in half**
      (b) Addition of progestogen has been questioned.
      (c) There are less data about the effect of progestogen. Most research has been done on .625 of estrogen
  iii. Osteoporotic Fractures
    (1) Recap of Base Rate Risk
      (a) **50,000 women die each year from complications of fractures.**
      (b) Fractures occur predominantly among women and increase greatly with age. By age 80, 1 out of every 3 women will have had a hip fracture. Of those hip fractures, 20% will result in death
    (2) Effect of HRT
      (a) **Risk is cut in half with ERT and PERT**

iv. Breast Cancer
  (1) Base Rate risk
    (a) 41,000 women die each year from breast cancer
    (b) Every woman over age 50 ought to have a mammogram every year
    (c) Breast cancer is usually treated with surgery, and/or chemotherapy
  (2) Effect of HRT
    (a) Do not have the bottom line on this
    (b) Some studies indicate an increased risk, some decreased risk, some no change in risk
      (i) Increase is usually 1.3 to 1.8 increased risk
  (3) Important to know the following when you read reports of studies:
    (a) What kind of estrogen
    (b) Dose
    (c) Duration of use

v. Endometrial Cancer
  (1) Base Rate Risk
    (a) Cancer of the uterus
    (b) 3,000 women die each year from endometrial cancer
    (c) Is related to hormone replacement therapy
    (d) Mortality related to endometrial cancer is smaller
    (e) Symptoms of endometrial cancer is bleeding
    (f) A woman who experiences bleeding after menopause should see her health care professional
    (g) Lower base rate
  (2) Effect of HRT
    (a) ERT increases risk 6-fold
    (b) PERT negates the increased risk. No increased risk
    (c) Diagnosed earlier
    (d) Occurrence increases but mortality has not

vi. Side effects
  (1) Experienced by more women more severely with PERT
  (2) Sequential PERT usually causes resumption of cyclic bleeding
  (3) Neither will allow you to become pregnant again

8. Question and Answer Period (10 Minutes) (Clinician)
9. Clusters Narrative (10 Minutes) (Social Scientist)
    a. Factors included in the study
        (1) Hot flashes
        (2) Osteoporosis
        (3) Endometrial Cancer
        (4) ERT vs PERT
    b. Women look at the pieces of information differently
    c. Three major groups of women
        i. Group I: 120 Women highly influenced by hot flashes
        ii. Group II: Were interested in hot flashes and osteoporosis about equally and were concerned about endometrial cancer.
        iii. Group III: (40) Hot flashes extremely important to them. Would not want to resume monthly bleeding.
    d. The reason for presenting this information is that you may see yourself in one of these groups (give or take a little). It gives you an idea of how some other women have weighed these factors
10. Risk Discussion (20 Minutes) (Social Scientist)
    a. Factors which can affect base rate risk
        i. Fracture
            (1) Weight-bearing exercise (at least 3 times per week for 20 minutes or more)
            (2) Diabetes Mellitus
            (3) Age
            (4) White/Non-white
            (5) Smoking
            (6) Hypertension
            (7) Calcium intake
            (8) Over/Underweight
            (9) Oophorectomy
        ii. Heart Disease
            (1) Family History
            (2) Age (over 50)
            (3) Smoking
            (4) Exercise (At least 3 times per week for 20 minutes or more)
            (5) Diabetes Mellitus
            (6) Hypertension

        iii. Endometrial Cancer Risk
            (1) Overweight (15 pounds or more)
            (2) Never pregnant
            (3) Previous difficulty getting pregnant
            (4) Irregular periods
            (5) Excessive menstrual bleeding

11. Assess personal values (10 Minutes) (Social Scientist)
    a. Factors to consider
        i. Menopausal symptoms
        ii. Fractures due to osteoporosis
        iii. Heart disease
        iv. Endometrial cancer
        v. Cyclic bleeding
        vi. Possible side effects
        vii. Other factors

Intervention Program B
Session III

1. Personal Plan Form and Activity Record Calendar (15 Minutes) (Clinician)
2. Communicating with Health Care Professionals (10 Minutes) (Social Scientist)
    - a. Two main aspects of effective communication:
        - i. Effective listening allows:
            - (1) Carry out health care provider's recommendations
            - (2) Help you understand information
                - (a) Example
        - ii. Effective information-giving and question-asking allows:
            - (1) Give info health care provider needs to give best care
            - (2) Get back answers that you understand
    - b. Preparing for the visit
        - i. Allows effective use of appointment time
        - ii. Allows you to assemble the information your health care provider will need
        - iii. Indicate if extra time is needed for a visit when the appointment is made
            - (1) Example
        - iv. See brochure for list of activities to prepare for visit
    - c. During the visit
        - i. At beginning say have questions
        - ii. Describe your symptoms specifically
            - (1) Example
            - (2) Describe:
                - (a) duration of the symptom
                - (b) when it occurs
        - iii. Say what you think may be the cause of your problem
        - iv. Listen carefully to questions
        - v. Answer the questions completely and directly
        - vi. Ask the questions you have prepared ahead of time
            - (1) Example
        - vii. Write down the answers to questions and information you will need later
            - (1) Example
        - viii. If your health care provider makes a recommendations and you know right off that this is something that you won't be able to do.
            - (1) Examples

- d. After the visit
  - i. Review the visit after you leave the office
    - (1) When you get home, ask yourself if your questions were answered
      - (a) If yes, carry out the recommendations
      - (b) If your goals weren't met you can:
        - (i) Call your health care provider and ask for further information or clarification
        - (ii) If you decide that you need to see a specialist, you can call up and ask for a referral
        - (iii) Ask your friends for some suggestions of referrals to other health care providers.

3. Data Collection (25 Minutes)
   - a. Knowledge
   - b. Satisfaction with Decision
   - c. Health Care Self-Efficacy
   - d. Barriers to Decision Scale
   - e. Outcome Expectations Scale
   - f. Subjective Norms Scale
   - g. Behavioral Intentions Scale

Outline of Intervention C
Session I

Bold denotes topics in knowledge instrument

1. Introduction and informed consent forms (5 minutes)
2. Data Collection (30 minutes)
    - a. Problem Significance Assessment
    - b. Sociodemographic
    - c. Perceptions (Menopause Problem Scale and Control Scale)
    - d. Symptoms Instrument
    - e. Symptom Management/Self-Care Instrument
    - f. Knowledge Instrument
    - g. Satisfaction with Health Care Provider Instrument (Part I)
    - h. Satisfaction with Decision Instrument
    - i. Health Care Self-efficacy Instrument
3. Physical changes of menopause (20 Minutes) (Clinician)
   [Participants may follow along in the brochure]
    - a. What is menopause?
        - i. Definition of menopause
        - ii. Menopause is a normal transition
        - iii. Changes at midlife
        - iv. Surgical menopause
    - b. When does menopause occur?
        - **i. Average age of menopause is 50**
    - c. What happens to my body at menopause?
        - i. Childbearing years
            - (1) Ovary contains follicles which decrease in number over life-span
            - (2) Two glands in the body to know about
                - (a) Pituitary
                - (b) Ovary
                    - (i) Responds to the signals from the pituitary
                    - (ii) Produces two primary hormones
                        - 1) estrogen
                        - 2) progesterone
            - (3) Two hormones that drive the ovary to do its job
                - (a) FSH
                - (b) LH
            - (4) Feedback cycle of hormonal changes during menstrual cycle

            - (5) Hormonal changes at menopause
            - (6) Feedback cycle of childbearing years interrupted
            - (7) Levels of pituitary hormones rise
            - (8) Decrease in production of estrogen and progesterone
        - ii. Menstrual periods change
            - (1) Pattern of change varies between women
        - **iii. Ovulation can occur and pregnancy can result even without a menstrual period**
            - **(1) Should use birth control for one full year**

4. Will I experience symptoms at menopause? (Clinician)
    - a. Sheehy quote
    - **b. Hot flashes one of most common symptoms**
        - **i. Related to estrogen deficiency**
    - c. 80% of women experience symptoms
    - **d. 20% of women seek help for symptoms**
    - e. Description of experience of hot flashes
    - f. Estrogen reduces hot flashes in 95-96% of cases
    - g. Other changes due to estrogen decrease
        - i. breast
        - ii. vaginal lining
            - **(1) lining becomes less thick**
            - **(2) dryer, thinner, shorter**
            - (3) Can result in burning or stinging with urination
                - (a) difficulty or pain with intercourse
            - **(4) Can result in increased chance of vaginal infections**
    - h. Other things which occur around the time of the menopause
        - i. anxiety
        - ii. weight gain
        - iii. bloating
        - iv. Not shown to be directly due to estrogen deficiency
5. Increased Risks at Menopause (Clinician)
    - a. Two diseases that increase: Osteoporosis and heart disease
    - b. Osteoporosis
        - i. Definition
        - **ii. Around 50,000 women die per year as a result of osteoporotic fractures**
        - iii. Fracture may result in nursing home placement
        - iv. Osteoporosis a calcium disease and protein disease
        - **v. Osteoporosis accelerates rate of development at menopause**
        - **vi. Women most at risk for fractures:**
            - **(1) Thin, white women who smoke and do not exercise regularly**

- c. Heart Disease
  - **i. Major cause of death for men and women**
  - **ii. 390,000 women per year die of heart disease**
  - **iii. Heart disease in women tends to increase in rate of development around the time of the menopause**
- 6. Self-Care Strategies (10 Minutes) (Clinician)
  - a. For hot flashes:
    - i. Eat a good, healthy diet
      - (1) To help hot flashes decrease stimulatory types of foods such as spices
    - **ii. Wear layered clothing**
      - (1) Can take of layers if get hot
  - b. Skin (like the bones) gets thinner and dryer around the menopause
    - i. Natural skin lubricants like lanolin or other non-perfumed lubricants may help
  - c. Vaginal dryness
    - i. Use water-soluble lubricant
  - d. For many people these self-care strategies are enough to take care of the symptoms and signs that occur at the time of the menopause but don't do anything do anything about the long-term, killing complications of osteoporosis and coronary heart disease.
- 7. Pros and Cons of Hormone Replacement Therapy (30 Minutes) (Clinician)
  - a. Five areas to think about related to HRT (SCOBES)
    - i. S--Symptoms (menopausal symptoms)
    - ii. C--Coronary heart disease
    - iii. O--Osteoporosis
    - iv. B--Breast cancer
    - v. E--Endometrial cancer
    - vi. S--Side effects of HRT
  - b. Definition of base rates
    - i. Frequency of occurrence
    - ii. Important because it addresses "double what?" "What are these relative to each other?"

c. Two main regimens
  i. Estrogen-Only
    (1) Typical regimen
    (2) Whether it would be prescribed for you would depend on your personal history and medical examination
    (3) Side effects include:
      (a) headache
      (b) bloating
      (c) weight gain
      (d) breast tenderness
    (4) No resumption of cyclic bleeding with estrogen-only
    (5) No chance of a woman getting pregnant
  ii. Estrogen combined with Progesterone
    (1) Typical regimens
    (2) Side effects
      (a) More women experience side effects with combination therapy than with estrogen-only
      (b) Side effects similar to those experienced with estrogen:
        (i) headache
        (ii) bloating
        (iii) weight gain
        (iv) breast tenderness
d. Impact of Hormone Replacement Therapy on factors
  i. Symptoms
    (1) Recap of Base Rate Risk
      (a) Hot flashes 80% of women experience them but only 20% seek help for them
      (b) Vaginal atrophy--becomes dryer and more easily injured and may cause difficulty with intercourse
    (2) Effect of HRT
      (a) Both ERT and PERT relieve hot flashes by about 90-95%
      (b) Both regimens relieve vaginal dryness
      (c) Clinical data has not found that ERT or PERT affect other symptoms such as mood swings

- ii. Coronary Heart Disease
    - (1) Recap of Base Rate Risk
        - **(a) Most frequent killer of both men and women. 394,000 women die each year**
        - (b) Heart disease occurs somewhat later in women than in men, however.
    - (2) Effect of HRT
        - **(a) Estrogen-only cuts risk in half**
        - (b) Addition of progestogen has been questioned.
        - (c) There are less data about the effect of progestogen. Most research has been done on .625 of estrogen
- iii. Osteoporotic Fractures
    - (1) Recap of Base Rate Risk
        - **(a) 50,000 women die each year from complications of fractures.**
        - (b) Fractures occur predominantly among women and increase greatly with age. By age 80, 1 out of every 3 women will have had a hip fracture. Of those hip fractures, 20% will result in death
    - (2) Effect of HRT
        - **(a) Risk is cut in half with ERT and PERT**
- iv. Breast Cancer
    - (1) Base Rate risk
        - **(a) 41,000 women die each year from breast cancer**
        - (b) Every woman over age 50 ought to have a mammogram every year
        - (c) Breast cancer is usually treated with surgery, and/or chemotherapy
    - (2) Effect of HRT
        - (a) Do not have the bottom line on this
        - (b) Some studies indicate an increased risk, some decreased risk, some no change in risk
            - (i) Increase is usually 1.3 to 1.8 increased risk
    - (3) Important to know the following when you read reports of studies:
        - (a) What kind of estrogen
        - (b) Dose
        - (c) Duration of use

- v. Endometrial Cancer
  - (1) Base Rate Risk
    - (a) Cancer of the uterus
    - **(b) 3,000 women die each year from endometrial cancer**
    - **(c) Is related to hormone replacement therapy**
    - (d) Mortality related to endometrial cancer is smaller
    - (e) Symptoms of endometrial cancer is bleeding
    - **(f) A woman who experiences bleeding after menopause should see her health care professional**
    - (g) Lower base rate
  - (2) Effect of HRT
    - **(a) ERT increases risk 6-fold**
    - **(b) PERT negates the increased risk. No increased risk**
    - (c) Diagnosed earlier
    - (d) Occurrence increases but mortality has not
- vi. Side effects
  - (1) Experienced by more women more severely with PERT
  - **(2) Sequential PERT usually causes resumption of cyclic bleeding**
  - (3) Neither will allow you to become pregnant again

Intervention Outline C
Session II

1. Question and Answer Period (10 Minutes) (Clinician)
2. Clusters Narrative (10 Minutes) (Social Scientist)
    a. Aspects to combine into decision
        i. Your risk
        ii. What's important to you
    b. Factors included in the study
        (1) Hot flashes
        (2) Osteoporosis
        (3) Endometrial Cancer
        (4) ERT vs PERT
    c. Women look at the pieces of information differently
    d. Three major groups of women
        i. Group I: 120 Women highly influenced by hot flashes
        ii. Group II: Were interested in hot flashes and osteoporosis about equally and were concerned about endometrial cancer.
        iii. Group III: (40) Hot flashes extremely important to them. Would not want to resume monthly bleeding.
    e. The reason for presenting this information is that you may see yourself in one of these groups (give or take a little). It gives you an idea of how some other women have weighed these factors
3. Personal Risk Assessment (20 Minutes) (Social Scientist)
    a. Complete forms
        i. Bar length represents chance of dying <u>compared to other factors</u>
        ii. Bar length shows the chance of this being your cause of death (not necessarily soon)
        iii. Questions on risk assessment represent factors which can modify base rate
        iv. The risk assessment is simply a guide; estimates
    b. Transfer to the relevance chart
4. Problem Significance Assessment (10 Minutes) (Social Scientist)
5. Relevance Chart (15 Minutes) (Social Scientist)
6. Scenarios (30 Minutes) (Clinician)
    a. Case 1
    b. Case 2
7. Decision (Clinician)

Session III

1. Personal Plan Form and Activity Record Calendar (15 Minutes) (Clinician)
2. Communicating with Health Care Professionals (10 Minutes) (Social Scientist)
    - a. Two main aspects of effective communication:
        - i. Effective listening allows:
            - (1) Carry out health care provider's recommendations
            - (2) Help you understand information
                - (a) Example
        - ii. Effective information-giving and question-asking allows:
            - (1) Give info health care provider needs to give best care
            - (2) Get back answers that you understand
    - b. Preparing for the visit
        - i. Allows effective use of appointment time
        - ii. Allows you to assemble the information your health care provider will need
        - iii. Indicate if extra time is needed for a visit when the appointment is made
            - (1) Example
        - iv. See brochure for list of activities to prepare for visit
    - c. During the visit
        - i. At beginning say have questions
        - ii. Describe your symptoms specifically
            - (1) Example
            - (2) Describe:
                - (a) duration of the symptom
                - (b) when it occurs
        - iii. Say what you think may be the cause of your problem
        - iv. Listen carefully to questions
        - v. Answer the questions completely and directly
        - vi. Ask the questions you have prepared ahead of time
            - (1) Example
        - vii. Write down the answers to questions and information you will need later
            - (1) Example
        - viii. If your health care provider makes a recommendations and you know right off that this is something that you won't be able to do.
            - (1) Examples

- d. After the visit
    - i. Review the visit after you leave the office
        - (1) When you get home, ask yourself if your questions were answered
            - (a) If yes, carry out the recommendations
            - (b) If your goals weren't met you can:
                - (i) Call your health care provider and ask for further information or clarification
                - (ii) If you decide that you need to see a specialist, you can call up and ask for a referral
                - (iii) Ask your friends for some suggestions of referrals to other health care providers.

3. Communicating with Health Care Provider Role Play (15 Minutes) (Social Scientist)
    - a. Instructions:
        - i. For those of you who are playing health care providers, remember you have a schedule to keep and patients in the waiting room but you are seeing one of your regular patients.
        - ii. For those of you who are playing patients, you have called ahead and informed the receptionist you want to make an appointment to discuss menopause
    - b. Afterwards:
        - i. For those who were playing health care providers, how did it go? How did it work to have this patient in here asking you questions?
        - ii. For those who were patients, how did it go?
4. Data Collection (25 Minutes)
    - a. Knowledge
    - b. Satisfaction with Decision
    - c. Health Care Self-Efficacy
    - d. Barriers to Decision Scale
    - e. Outcome Expectations Scale
    - f. Subjective Norms Scale
    - g. Behavioral Intentions Scale

APPENDIX D

APPENDIX D

MEASURES

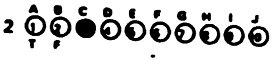
ID # ____________

DECISION MAKING IN MENOPAUSE STUDY

Mark your answer for each question on the answer sheet provided. These sheets will be scored by machine so **it is very important that you completely darken in your answer choice** in the proper location on the answer sheet with the pencil provided. Do not leave any stray pencil marks on the sheet outside of your answer space and make sure to completely erase any marks you may make as a result of changing your answer to a question.

For example, consider this question:
The first month of the year is:
1 = March
2 = July
3 = January
4 = October

To choose January, you should darken in 3 on your answer sheet as is done below.



At the top of each page is a reminder to check to be sure you are filling in the correct row on your answer sheet for the questions.

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DECISION MAKING IN MENOPAUSE STUDY
BARRIERS TO PARTICIPATION IN HEALTH CARE DECISIONS

Some people want to help make decisions about their health care but can not. Other factors affect how much input they can have in decisions. These questions are about how much you feel that these factors affect your ability to participate in health care decisions.

How much do these factors limit your participation in medical decisions? Use the scale below:

1	2	3	4	5	
Not at All		**Somewhat**		**A Great Deal**	6 = NOT APPLICABLE

24. **How much does your doctor (or regular health care practitioner) limit your participation in medical decisions?**

25. **How much do your payment options (such as health insurance) limit your participation in medical decisions?**

26. **How much does your health state or personal risk factors limit your participation in medical decisions?**

27. **How much does lack of access to accurate information limit your participation in medical decisions?**

28. **How much does conflicting medical advice limit your participation in medical decisions?**

29. **How much do other aspects of the health care system limit your participation in medical decisions? Please specify:______________________________**

30. **How much do other factors limit your participation in medical decisions? Please specify:______________________________**

DECISION MAKING IN MENOPAUSE STUDY
OUTCOME EXPECTATIONS SCALE

These statements are about patient involvement in health care decisions in general. "Patient input" means information, opinions or other involvement given by the patient. These statements are about the outcome of patient participation, that is, How likely is it that patient participation will result in the outcomes described? Please answer questions 31-37 using the following response scale:

1	2	3	4	5
Extremely Unlikely	Unlikely	Neither Likely Nor Unlikely	Likely	Extremely Likely

Patient participation in medical decisions and choices results in:

31. Medical procedures that are unnecessary for the patient

32. Medical procedures that are harmful for the patient

33. The wrong medications for the paient

34. The right medical tests and examinations for the patient

35. The right treatment for the patient

36. The right medical decisions for the patient

37. The best medical care

Outcome Values Scale

Please use the following scale to answer questions 38-44. For each outcome, indicate how good or bad it would be for you:

1	2	3	4	5
Extremely Bad	Bad	Neither Bad Nor Good	Good	Extremely Good

38. Medical procedures that are unnecessary for me

39. Medical procedures that are harmful for me

40. The wrong medications for me

Check your answer sheet. You should now be filling in row 41

Please use the following scale to answer questions 41-44. For each outcome, indicate how good or bad it would be for <u>you</u>:

1	2	3	4	5
Extremely Bad	Bad	Neither Bad Nor Good	Good	Extremely Good

41. The right medical tests and examinations for me

42. The right treatment for me

43. The right medical decisions for me

44. The best medical care

DECISION MAKING IN MENOPAUSE STUDY
SUBJECTIVE NORMS QUESTIONNAIRE

Some people think that the decision to take hormone replacement therapy should be made by the clinician while other people think that the decision should be made by the patient. Indicate how you believe each of the following people think the decision should be made. Use the scale below to answer questions 45-49. (Clinician means your doctor or regular health care practitioner).

1	2	3	4	5
Clinician	Clinician After Considering Patient's Opinion	Clinician and Patient Together Equally	Patient After Considering Clinician's Opinion	Patient

6 = NOT APPLICABLE

45. Your doctor (or regular health care practitioner) thinks the decision should be made by:

46. Your spouse, partner or significant other thinks the decision should be made by:

47. Your parents, relatives and children think the decision should be made by:

48. Your friends, peers and classmates think the decision should be made by:

49. Other people you think influence your decision (Please specify:_____________________) think the decision should be made by:

MOTIVATION TO COMPLY

Please use the following scale to answer questions 50-54 below.

1______2______3______4______5 6 = NOT APPLICABLE
Not at All Very Much

50. How much do you want to do what your doctor (or regular health care practitioner) wants you to.

51. How much do you want to do what your spouse, partner or signifant other wants you to do?

52. How much do you want to do what your parents, relatives and children want you to do?

53. How much do you want to do what your friends, peers or classmates want you to do?

54. How much do you want to do what the other persons you listed above want you to do? (Please specify:_______________________________)

DECISION MAKING IN MENOPAUSE STUDY
BEHAVIORAL INTENTIONS QUESTIONNAIRE

To what extent do you INTEND or plan to do the following activities related to your next visit to your doctor (or regular health care practitioner)? Please use the following scale to answer questions 55-62.

1	2	3	4	5
Not At All				Completely

55. Carefully consider and understand my values related to the tradeoffs of hormone replacement therapy or other care.

56. Gather the information I need to make an informed decision about hormone replacement therapy or other care.

57. Carefully consider my personal risks related to hormone replacement therapy or other care.

58. Ask for an extended appointment to discuss my concerns about my health care.

59. Prepare for my visit by thinking about the questions I want to ask, write them down and bring the list with me to the visit.

60. At the beginning of the visit, tell my doctor/practitioner that I have questions I would like to discuss.

61. During my visit, ask the questions I had prepared, repeat the answers to be sure I understand them and ask for clarification if necessary.

62. After my visit, review the visit, follow the treatments or recommendations agreed upon and call my doctor/practitioner if I have additional questions or unexpected side effects.

63. Regarding the decision whether or not to take hormone replacement therapy, how do you INTEND or plan that the decision will be made? Choose one. (Clinician means your doctor or regular health care practitioner).
1 = I intend to have my clinician make the decision, using all that's known about hormone replacement therapy.
2 = I intend to have my clinician make the decision but strongly consider my opinion.
3 = I intend that my clinician and I will make the decision together, on an equal basis.
4 = I intend to make the decision myself but stongly consider the clinicians'opinion.
5 = I intend to make the decision myself, using all I know or learn about hormone replacement therapy

ID #__________

DECISION MAKING IN MENOPAUSE STUDY
HEALTH CARE SELF-EFFICACY MEASURE

Below are 8 situations you might experience as a patient. On a scale of 1 to 10, circle the number which best describes how confident you would feel in your ability to handle the situation <u>if you had to</u>.

1 2 3 4 5 6 7 8 9 10
Not at all Confident Extremely Confident

HOW CONFIDENT ARE YOU--

1. --That when you need medical care you can provide important input about what will be done to you?

1 2 3 4 5 6 7 8 9 10
Not at all Confident Extremely Confident

2. --In your ability to understand any medical procedures which might be done to you?

1 2 3 4 5 6 7 8 9 10
Not at all Confident Extremely Confident

3. --That when you need medical care, your input would help you get the best care?

1 2 3 4 5 6 7 8 9 10
Not at all Confident Extremely Confident

4. --That once a health professional has begun doing a medical procedure with you, you can ask important questions about the procedure?

1 2 3 4 5 6 7 8 9 10
Not at all Confident Extremely Confident

5. –That you would know how to help your health care provider decide what medical procedures you should get?

1	2	3	4	5	6	7	8	9	10
Not at all Confident									Extremely Confident

6. –That you can ask your health care provider important questions about your health after a medical exam before you are told?

1	2	3	4	5	6	7	8	9	10
Not at all Confident									Extremely Confident

7. –That you would be able to understand information about what a medical procedure would do to you?

1	2	3	4	5	6	7	8	9	10
Not at all Confident									Extremely Confident

8. –That, given many choices about what would be good for your health, you could make the best choice?

1	2	3	4	5	6	7	8	9	10
Not at all Confident									Extremely Confident

DECISION MAKING IN MENOPAUSE STUDY
SATISFACTION WITH DECISION MAKING PROCESS INSTRUMENT

You have been considering whether to consult your health care provider about hormone replacement therapy. Answer the following questions about your decision. Please indicate to what extent each statement is true for you **AT THIS TIME** by circling your answer.

1. I am satisfied that I am adequately informed about the issues important to my decision.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

2. The decision I made was the best decision possible for me personally.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

3. I am satisfied that my decision was consistent with my personal values.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

4. I expect to successfully carry out (or continue to carry out) the decision I made.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

5. I am satisfied that this was my decision to make.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

6. I am satisfied with my decision.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

UNDERSTANDING MY DECISION

7. This decision is hard for me to make.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

8. It's clear what choice is best for me.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

9. I'm unsure what to do in this decision.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

10. I know <u>all</u> the possible choices open to me in protecting my health after menopause.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

11. I understand the risks and benefits of taking hormone replacement therapy.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

RESTRICTIONS

12. My health state restricted my decision related to hormone replacement therapy.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

13. My health state restricted my decision related to calcium intake.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

14. My health state restricted my decision related to exercise.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

15. On a scale of 1 to 10 with 1 = No confidence at all and 10 = complete confidence, circle the number which indicates your confidence in the correctness of your decision. 1 signifies no confidence at all. 10 signifies complete confidence; 2 through 9 indicate some middle level of confidence.

---

1 2 3 4 5 6 7 8 9 10

No Confidence at All

Complete Confidence

ID #__________

Behavior Self-Report

Please answer the following questions <u>if you have visited your health care provider since completing the Decision Making in Menopause Program or brochure</u>. If you have not visited your health care provider since completing the program, please check here: ____ *and skip these questions.*

To what extent did you do the following activities related to your last visit to your doctor (or regular health care practitioner)?

1. **I carefully considered and understood my <u>values</u> related to the tradeoffs of hormone replacement therapy or other care.**

1__________2__________3__________4__________5
Not At All **Completely**

2. **I gathered the information I needed to make an informed decision about hormone replacement therapy or other care.**

1__________2__________3__________4__________5
Not At All **Completely**

3. **I carefully considered my <u>personal risks</u> related to hormone replacement therapy or other care.**

1__________2__________3__________4__________5
Not At All **Completely**

4. I asked for an extended appointment to discuss my concerns about my health care.

1 2 3 4 5
Not At All Completely

5. I prepared for my visit by thinking about the questions I wanted to ask, writing them down and bringing the list with me to the visit.

1 2 3 4 5
Not At All Completely

6. At the beginning of the visit, I told my doctor/practitioner that I had questions I would like to discuss.

1 2 3 4 5
Not At All Completely

7. During my visit, I asked the questions I had prepared, repeated the answers to be sure I understood them and asked for clarification if necessary.

1 2 3 4 5
Not At All Completely

8. After the visit, I reviewed the visit, followed the treatments or recommendations agreed upon and called my practitioner if I had additional questions or experienced unexpected side effects.

1 2 3 4 5
Not At All Completely

9. **Which of the following choices best describes how the decision about whether or not you would take hormone replacement therapy <u>was actually made</u>? (Clinician means your doctor or other health care practitioner). (Circle One).**

   1 = **The clinician made the decision, using all that's known about hormone replacement therapy.**
   2 = **The clinician made the decision but strongly considered my opinion.**
   3 = **The clinician and I made the decision together, on an equal basis.**
   4 = **I made the decision, but strongly considered the clinician's opinion.**
   5 = **I made the decision using all I know and learned about hormone replacement therapy.**
   6 = Not Applicable. **I am not yet experiencing menopause.**

APPENDIX E

Appendix E

Scale Means and Standard Deviations

Scale	n	Mean	S.D.
Self-Efficacy T_1	244	7.6	1.67
Self-Efficacy T_2	248	8.1	1.45
Self-Efficacy T_3	184	8.1	1.31
Barriers	247	2.32	.77
Outcome Expectations	248	18.5	3.60
Subjective Norm	243	10.5	3.67
Behavioral Intention	248	4.4	.60
Behavior Self-Report	67	3.8	.83
Satisfaction with Decision T_3	184	4.0	.63

APPENDIX F

APPENDIX F

Calculation of Correction for Unreliability

$$r_{xy_{true}} = \frac{r_{xy\,obt}}{\sqrt{r}_{xx}\,\sqrt{r}_{yy}}$$

where:

$r_{xy_{true}}$ = True correlation

$r_{xy\,obt}$ = Observed correlation

$\sqrt{r}_{xx}$ = Reliability of measure x

$\sqrt{r}_{yy}$ = Reliability of measure y

From : Edwards, A. L. (1954). Statistical methods for the behavioral sciences.
New York: Holt, Rinehart and Winston.

APPENDIX G

APPENDIX G

COMPUTATIONS FOR REGRESSION

From Cohen & Cohen (1983); p. 329:

$$\hat{Y} = B_w w + B_c c + B_e e + B_{wc} wc + B_{we} we + A$$

Where:

w = A quantitative variable (Self-Efficacy at Time 1)

c, e = A set of contrast-coded variables representing the variance in a nominal variable with 3 experimental groups (Contrast 1, Contrast 2)

wc, we = A set of variables representing the variance due to the interaction between the contrast-coded experimental group and the quantitative variable (Interaction 1, Interaction 2)

A = Constant

Calculations:

Equation 1

$$\hat{Y} = .57(w) + .15(c) + 1.12(e) - .03(wc) - .13(we) + 3.79$$

where:

$\hat{Y}$ = Self-Efficacy at Time 2
w = Self-Efficacy at Time 1
c = Contrast 1 [Group C (+1) against Groups A (–.5) and B (–.5) pooled]
e = Contrast 2 [Group B (+1) against Group A (–1)]
wc = Interaction 1 [Product of Self-Efficacy at Time 1 and Contrast Variable 1]
we = Interaction 2 [Product of Self-Efficacy at Time 1 and Contrast Variable 2]
A = Constant

Equation 1 Reordered:

$$\hat{Y} = .57(w) - .03(wc) - .13(we) + .15(c) + 1.12(e) + 3.79$$

$$= [.57 - .03(c) - .13(e)]w + .15(c) + 1.12(e) + 3.79$$

Substituting coding for Experimental Group:

$$\hat{Y}_A = [.57 - .03(-.5) - .13(-1)]w + .15(-.5) + 1.12(-1) + 3.79$$

$$= .715(SE_{T_1}) + 2.595$$

$$\hat{Y}_B = [.57 - .03(-.5) - .13(+1)]w + .15(-.5) + 1.12(-1) + 3.79$$

$$= .455(SE_{T_1}) + 4.835$$

$$\hat{Y}_C = [.57 - .03(+1) - .13(0)]w + .15(+1) + 1.12(0) + 3.79$$

$$= .540(SE_{T_1}) + 3.940$$

APPENDIX H

APPENDIX H

Significance Test for Correlated *r*′ s

Correlations (n)

	Self-Eff 1	Self-Eff 2	Self-Eff 3
Self-Eff 2	.66 (65)		
Self-Eff 3	.50 (65)	.52 (67)	
Behavior	.10 (65)	.05 (67)	.34 (67)

Correlation: Behavior & Self-Efficacy Time 2 = r_{xy} = .05; n=67

Correlation: Behavior & Self-Efficacy Time 3 = r_{vy} = .34; n=67

Correlation: Self-Efficacy Time 2 & Self-Efficacy Time 3 = r_{xv} = .52; n=66

$$|R| = 1 - r^2_{xy} - r^2_{vy} - r^2_{xv} + 2r_{xy}\,r_{vy}\,r_{xv}$$

$$\bar{r} = \frac{r_{xy} + r_{vy}}{2} \qquad t = \frac{(r_{xy} - r_{vy})\sqrt{(n-1)(1+r_{xv})}}{\sqrt{2\left(\frac{n-1}{n-3}\right)|R| + \bar{r}^{\,2}(1-r_{xv})^3}}$$

$$|R| = 1 - (.05)^2 - (.34)^2 - (.52)^2 + 2(.05)(.34)(.52) = .63$$

$$\bar{r} = \frac{.05 + .34}{2} \qquad t = \frac{(.05 - .34)\sqrt{(67-1)(1+.52}}{\sqrt{2\left(\frac{67-1}{67-3}\right).63 + (.2)^2(1-.52)^3}} = -2.5$$

From: Cohen, J., & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum. Pp. 56–57.