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Factors Related to the Selection of a Menopausal Management Option

by

Tracy Leigh Salmon 

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Science

in

Family Life Education

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ABSTRACT

Selecting a menopausal management option can be a difficult choice for a woman as there are numerous medical and non-medical options from which to choose. Furthermore, each of these options have inherent risks and benefits associated with their use. This study was designed to explore factors which may have a relationship to the menopausal management options selected by a woman. The specific factors examined in this study were health locus of control orientation and information use. It was found that women use a variety of information sources to help them manage their menopausal experience and that women with a powerful others health locus of control orientation are more likely to have the selection of their primary menopausal management option influenced by their doctor. Furthermore, it appears that women who place a great deal of importance on information received from their doctors are more likely to select a medical management option.

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CHAPTER 1
STATEMENT OF THE PROBLEM

Menopause is a significant event experienced by all women who reach mid-life. The term menopause technically refers to the last menstrual period a woman experiences (Utian, 1991), but is often used, as in this present study, to refer to the period of time proceeding and following the last menstrual cycle (Coney, 1991; Kaufert & Gilbert, 1986; Lock, Kaufert, & Gilbert, 1988). During menopause, a woman produces lower levels of estrogen which can result in unpleasant physical symptoms such as hot flashes/flushes and vaginal dryness (Harper, 1990). Such discomforts may lead a woman to seek out ways to manage her menopausal experience. Within this research, management of menopause refers to the control or alleviation of symptoms associated with the decline of estrogen production. One intervention commonly used to help manage such symptoms is hormone therapy.

Hormone therapy is designed to replace a woman's changing levels of estrogen and is available in two key formulas; estrogen alone and a combination of estrogen and progesterone. The use of estrogen only is referred to as estrogen replacement therapy (ERT) while to the use of estrogen-progesterone is known as hormone replacement therapy (HRT). Hormone therapy is a popular option to help manage menopause as not only is it effective in reducing many of the symptoms associated with menopause, it also offers many added benefits. Hormone therapy, for example, is undoubtedly the most effective method for controlling the common menopausal symptom of hot flashes (Coney, 1991; Dennerstein, Burrows, Wood & Hymer, 1980; Lichtman, 1991; Roberts, 1991). Furthermore, this option has been demonstrated to be effective in reducing vaginal dryness and discomfort (Andrews, 1995; Campbell & Whitehead, 1977), reducing the risk of cardiovascular disease (Andrews, 1995; Henderson, Paganini-Hill, & Ross, 1988; Sitruk-Ware & de Palacios, 1989) and preventing

osteoporosis (Christiansen & Riis, 1990; Ettinger, 1987; Gambrell & Greenblatt, 1981; Genant, Baylink, & Gallagher, 1989).

Although hormone therapy may be one of the most effective methods for managing some menopausal symptoms, not all women wish to use this method. Reasons for avoiding the use of hormone therapy are multiple and often unique to each individual. Examples of such reasons include the suggestion that hormone therapy may have risks as well as benefits associated with its use. Estrogen therapy, for example, has been found to be related to an increased level of endometrial cancer (Andrews, 1995; Roberts, 1991; Ryan, 1982) while the use of estrogen-progesterone therapy has been found to be related to an increased risk of gall bladder disease (Boston Collaborative Drug Surveillance Program, 1974). While research results are not as consistent, hormone therapy may also be associated with an increased risk of breast cancer (Andrews, 1995; Colditz, Egan & Stampfer, 1993; Steinberg, Thacker, Smith, Stroup, Zack, Flanders, & Berkelman, 1991). Furthermore, some women are cautious about embracing hormone therapy as it has been suggested that except for oral contraceptives, no other drug has been so widely prescribed with such little background information about who should use it, or for how long (Utian, 1988). Other possible reasons for not using hormone therapy include that some women find the continuation of cyclical bleeding associated with the use of HRT to be a nuisance (Andrews, 1995), and that some women view menopause and its associated discomforts as natural developmental events not requiring the use of medical interventions.

The fact that not all women are comfortable with the use of hormone therapy is evidenced by one study of 2500 Canadian women which found that of the 34% of women who reported hot flushes to their doctors only 15% had been prescribed hormones for such hot flushes (Kaufert & Gilbert, 1986). Furthermore, another study reported that only 15 to 25% of women who are eligible to use hormone therapy choose to do so and that 20 to 30% of those who are prescribed hormone therapy never fill

their prescription (Ravnikar, 1987). Women, who for whatever reason are uncomfortable with the use of hormone therapy have turned to non-medical approaches to managing menopausal symptoms. Non-medical approaches to managing menopause include the use of vitamins, herbal remedies, exercise and dietary changes as well as simply allowing nature to "take its course" (Boston Women's Health Book Collective, 1992). These options, however, are not always as effective as hormone therapy at reducing menopausal symptoms such as hot flushes. Furthermore, many of these non-medical options for managing menopause lack rigorous scientific investigation into their effectiveness and safety.

So how does a woman choose between using a medical or non-medical option to help her manage her menopausal experience? To date, very little research has focused on this question. Considering that the risks and benefits of hormone therapy vary from person to person (Greenwood, 1984), it is surprising that not more is known about how women decide whether or not this medical option is the right choice for their situation. What little we do know about how women select a menopausal management option suggests that women feel ill informed about the variety of menopausal management options they can obtain (Lack & Holloway, 1992; Leiblum & Swartzman, 1986; Logothetis, 1991), and that they are confused about the safety and effectiveness of these various choices (Swartzman & Leiblum, 1987). How women manage to select a menopausal management option deserves further study in light of these feelings of confusion and ill preparation as most women will live a third of their life in a post-menopausal state (Birkenfeld & Kase, 1991). In addition the option a woman uses can have a significant impact on her health and quality of life during these years.

Within this study factors which may be related to the selection of a primary menopausal management option are studied in order to gain an increased understanding of how such decisions are made. The specific factors examined in this research are information use and health locus of control orientation. Information use was examined

due to the suggestion that women feel they do not have enough information about the menopausal management options available, and because information use is viewed as a key step in the decision making process (Carroll & Johnson, 1990). A woman's health locus of control orientation was examined as this personality factor has been suggested as affecting both health behavior (Bundek, Marks, & Richardson, 19 `3; Wallston & Wallston, 1982) and information use (Wallston, Maides, & Wallston, 1976; Wallston & Wallston, 1982). A better understanding of how such factors are related to the selection of a menopausal management option may improve the ability of health providers and health educators to assist women in the process of choosing such an option.

Statement of the Problem

Women may currently choose from a wide variety of medical and non-medical options designed to help manage menopause. Unfortunately, many women are confused and ill informed about these options which may make it difficult to select the option which best suits their needs. Because the menopausal management option selected by a woman may have a significant impact on her health and quality of life, this researcher proposes to survey mid-life women in order to explore factors which may affect her decision. The specific research questions which will be examined in this study include the following:

1. What information sources do women use to help them select a menopausal management option ?
2. How does the personality variable of health locus of control orientation relate to the sources of information used by a women ?
3. Is there a relationship between sources of information used, health locus of control orientation, and the menopausal management option selected by a woman?

CHAPTER 2
REVIEW OF THE LITERATURE

In this chapter the historical developments which have led to today's variety of menopausal management options as well as the risks and benefits associated with some of these options will be reviewed. A discussion of information use in decision making and how the personality trait of health locus of control may impact what information sources are used in the decision making process follows.

Recent History in the Development of Menopausal Management Options

Until the latter half of this century, relatively little was known about menopause. A reasonable explanation for the lack of information in this area is that until recently few women lived to an age where they would experience menopause. Life expectancy for women in the year 1900, for example, was 48.3 years (Swartzman & Leiblum, 1987). Ageism and sexism have also been suggested as possible explanations for a lack of earlier scientific inquiry into this area (Swartzman & Leiblum, 1987). In the 1900's, however, three key events led to an explosion of information about menopause. These three events were the discovery of sex hormones, the publication of the book Feminine Forever, and the discovery of the link between estrogen replacement therapy and endometrial cancer. Besides increasing the amount of information about menopause, these events also set the foundation for providing present day women with the opportunity to select from a wide variety of options to help alleviate menopausal symptoms. The following discusses each of these key events in more detail.

One of the key reasons for the increase of information and interest in the area of menopause can be traced to the discovery of sex hormones in the early 1900's (Formanek, 1990). In 1929, a pure form of estrone from the urine of pregnant women

was isolated and crystallized (Butenandt, 1929 as cited by Utian, 1980). From this discovery the sex endocrinology paradigm was developed which provided a theoretical framework and methodology for understanding menopause and the role estrogen plays in this experience (Bell, 1990). This paradigm stimulated research in the area of menopause and one of the ideas to be developed from this increase in research was the suggestion that menopausal symptoms could be alleviated by administering estrogen (van Keep, 1990).

The use of estrogen to alleviate menopausal symptoms, known as estrogen replacement therapy (ERT), was first proposed in 1932 (van Keep, 1990). Few women, however, used this management option until the publication of the book Feminine Forever (Wilson, 1966). In this book the author suggested that all psychological and physical symptoms women experienced during menopause could be directly attributed to their depleting levels of estrogen and that these symptoms could therefore be cured by simply replacing this lost hormone (Swartzman & Leiblum, 1987). Estrogen replacement therapy gained popularity with Wilson's book for two main reasons. First, Wilson was one of the first individuals to state unequivocally that menopause was not a natural process but rather a deficiency disease similar to diabetes (Swartzman & Leiblum, 1987). Using estrogen to compensate for this deficiency seemed a logical choice and estrogen sales therefore increased. Second, Wilson's book encouraged the use of ERT by the claim that it would help women maintain a youthful appearance (Estok & O'Toole, 1991; Swartzman & Leiblum, 1987). This claim encouraged many women to begin using ERT as youth was, and still is, highly valued in North American and European countries (Bowles, 1990).

The impact of Wilson's book is evidenced by the fact that it sold over 100 000 copies within the first seven months of its publication (Coney, 1991). Furthermore, over 300 articles based on Wilson's book appeared in a variety of women's magazines between 1960 - 1970 (Coney, 1991). Further proof of the impact of this book is

demonstrated by examining estrogen sales before and after this publication. During the 10 years after the publication of Feminine Forever, the population of women over the age of 50 rose by 25%, yet estrogen sales rose 187% (Swartzman & Leiblum, 1987). This massive increase of estrogen sales coupled with the widespread acceptance of the deficiency disease model of menopause by medical professionals has caused some to suggest that menopause became a medicalized event in the mid 1900's (Coney, 1991). Medicalization refers to the process by which an experience comes under medical influence and control (Bowles, 1990; Kaufert, & Gilbert, 1986). The publication of this book seemed to promote this process as it supported and encouraged the use of estrogen replacement therapy as the ultimate solution to alleviating menopausal symptoms.

Using estrogen replacement therapy to alleviate menopausal discomforts remained a prevalent option until 1975. During this year two studies published in the New England Journal of Medicine demonstrated a link between the use of estrogen replacement and an increased risk of endometrial cancer. The first study compared 317 women who had adenocarcinoma of the endometrium with a matched control group of women who had other gynecologic neoplasms such as cervical cancer (Smith, Prentice, Thompson, & Herrmann, 1975). Upon examining the use of estrogen among the two groups, it was found that 152 women in the adenocarcinoma of the endometrium group had used estrogen while only 52 of the 317 women in the control groups had used estrogen (Smith, Prentice, Thompson & Herrmann, 1975). This finding led the researchers to suggest that the unadjusted risk of endometrial cancer was increased by 4.5 times for the women who had used estrogen replacement therapy in comparison to those women who did not use estrogen (Smith, Prentice, Thompson, & Herrmann, 1975). An even higher relative risk of 7.5 was calculated based on an examination of pairs discordant for estrogen use (Smith, Prentice, Thompson, & Herrmann, 1975). The second study suggesting a link between the use of estrogen replacement and

endometrial cancer examined 94 women who had been diagnosed with endometrial cancer (Ziel & Finkle, 1975). The researchers compared the use of estrogen among the 94 women in the patient sample with the use of estrogen among the women in 188 matched control group sample. Based on this comparison, the authors reported a 7.6 times greater risk for developing endometrial cancer for the women who used estrogen compared to the women who did not (Ziel & Finkle, 1975).

Although there appears to be an increased risk of endometrial cancer with the use of estrogen replacement therapy, it should be noted that the author of recent article which examined mortality due to estrogen use found that death from endometrial cancer did not increase proportionately to the increased risk of developing such cancer associated with estrogen use (Lobo, 1995). Specifically, this author reported that the use of estrogen results in an excess mortality of 63 women per 100 000 estrogen users (Lobo, 1995). Explanations for the disproportionate number of increased deaths in comparison to the number of increased cases of endometrial cancer associated with estrogen use include the suggestion that cancers associated with the use of estrogen are not as aggressive as naturally occurring cancers and that women who use estrogen replacement see their doctors more regularly resulting in earlier detection and earlier treatment (Lobo, 1995).

This reported link between estrogen replacement therapy and cancer had two significant effects. First, the popularity of prescribing and using estrogen dropped significantly. Sales of estrogen supplements, for example, dropped 34% between 1975 and 1979 (Swartzman & Leiblum, 1987). Furthermore, Premarin, the most popular form of ERT, went from the second most prescribed drug in 1975 to the 25th most prescribed drug by 1979 (Swartzman & Leiblum, 1987). The second significant effect that this cancer link had was to increase the clinical scrutiny of the risks and benefits of ERT (Swartzman & Leiblum, 1987) and give individuals an opportunity to re-examine the medicalized deficiency disease view of menopause.

With women and medical professionals questioning whether or not the use of estrogen replacement therapy was a wise course of action, individuals revisited the view of menopause and its associated discomforts as natural processes not requiring medical intervention. Those supporting this view argued, for example, that since no attempts are made to alleviate the problems associated with puberty by suppressing hormone production why should hormones be artificially supplemented at menopause (Gannon & Ekstrom, 1993)? Instead of estrogen replacement therapy, the non-medical approach to menopause promoted changes in lifestyle centering on diet, exercise and vitamin use to help alleviate menopausal symptoms (c.f. Boston Women's Health Book Collective, 1992; Coney, 1991; Greenwood, 1984; Notelovitz, 1988). The end of the 1970's therefore saw women being lobbied to give up their previous panacea of ERT in order to embrace a more "natural" approach to menopause.

Although some individuals chose to view menopause as an event not requiring medical intervention, a treatment oriented view of menopause remained fairly prevalent. This treatment oriented view was strengthened by the latest significant events in the history of hormone therapy. These most recent events include the discovery that adding progestogen to ERT reduced the risk of endometrial cancer to slightly below normal levels (Andrews, 1995; Gambrell, 1978; Hammond, Jelovsek, Lee, Creasman & Parker, 1979; Roberts, 1991; Weinstein, Bewtra, & Gallagher, 1990), and the fact that the use of estrogen-progestogen therapy, referred to as hormone replacement therapy (HRT), appeared to reduce a woman's risk of suffering from osteoporosis (Andrews, 1995; Christiansen & Riis, 1990; Ettinger, Genant, & Cann, 1985; Gambrell & Greenblatt, 1981; Genant, Baylink, & Gallagher, 1989; Horsman, Jones, Francis, & Nordin, 1983; Lindsay, 1987). In fact, it has been suggested that the use of hormone therapy can reduce the number of deaths caused by osteoporotic fractures by 563 lives per every 100 000 women using hormone therapy (Lobo, 1995). The push

towards using ERT was therefore replaced with the promotion of using of using HRT to help alleviate menopausal symptoms.

In the 1990's, therefore, women have the opportunity to select from a variety of medical and non-medical options for managing menopause. This choice, however, may not be an easy one as each option has benefits and risks associated with its use. The following is a brief discussion of some of the risks and benefits associated with some of the options from which women can choose.

Benefits and Risks Associated With ERT and HRT Use

There is no question that both ERT and HRT offer significant advantages to their users. The most significant benefit for a woman selecting either of these options for managing their menopausal experience is the relief that both ERT and HRT can provide from hot flashes/flushes. Hot flashes have been shown to affect 68% - 92% of menopausal women (Harper, 1990) with up to 68% of affected women experiencing hot flashes on a daily basis (Thompson, Hart, & Durno, 1973). Hot flushes which accompany the hot flash can be more than a minor inconvenience as evidenced by one study which found that over 48% of women who had hot flushes said that they felt acute physical discomfort while a further 20% of those surveyed reported that they felt embarrassed by their hot flushes (McKinlay & Jeffreys, 1974). Interestingly, although many women experience hot flashes/flushes, only a small proportion of such women seem to report such symptoms to their doctors. One study, for example, found that only 34% of the 2500 women it surveyed reported hot flushes to their doctor (Kaufert & Gilbert, 1986). Of those women who do speak to their doctor and get a prescription for ERT or HRT, approximately 80% find that their hot flashes/flushes are reduced by such methods (Coney, 1991) and no other therapy has been found to be as effective in reducing the incidence of hot flashes/flushes (Lichtman, 1991).

The second significant benefit offered by ERT and HRT is the prevention of osteoporosis (Andrews, 1995; Christiansen & Riis, 1990; Ettinger, Genant, & Cann 1985; Gambrell & Greenblatt, 1981; Genant, Baylink, & Gallagher, 1989; Horsman, Jones, Francis, & Nordin, 1983; Lindsay, 1987; Nachtigall, Nachtigall, & Nachtigall, 1979; Roberts, 1991). The first long term double blind study to report that hormone therapy could reduce the risk of osteoporosis was published in 1979. Within this study the authors reported that HRT protected a woman against post menopausal bone loss for at least ten years (Nachtigall, Nachtigall, & Nachtigall, 1979). More recent studies supporting the link between hormone use and reduction in risk of osteoporosis include one which found that using estrogen for at least 6 years reduced the risk of hip fracture by 50% (Christiansen & Riis, 1990), and a retrospective study which found that women who had used estrogen had half as many vertebral fractures and half as many wrist fractures compared to women who had not been using estrogen (Ettinger, 1987).

Another benefit of using HRT is that women who develop breast cancer while using HRT have a better prognosis than women who do not use HRT and develop breast cancer (Bonnier, Romain, Giacalone, Laffargue, Martin, & Piana, 1995). Two explanations have been proposed for this increase in survival rate (Bonnier, Roman, Giacalone, Laffargue, Martin, & Piana, 1995). First, women using HRT usually see their doctors more regularly, resulting in earlier detection of breast cancers. Second, it has been found that women on HRT tend to develop more easily treated differentiated cancers rather than locally advanced cancers.

Further benefits of using ERT or HRT include that users often find they get more sleep, are less irritable, worry less, and experience fewer headaches (Andrews, 1995; Coney, 1991; Dewhurst, 1976; Schiff, Regestein, Schinfield, & Ryan, 1980; Wiklund, Berg, Hammar, Karlberg, Lindgren, & Sandin, 1992). It has been suggested that these benefits can be attributed to the reduction of hot flushes experienced by users of ERT and HRT. It has been hypothesized that the reduction of

hot flushes allows women to gain more sleep as they are not awakened by the cold sweats which often accompany hot flushes, and this increase in sleep results in an elevated mood (Coney, 1991; Dewhurst, 1976; Schiff, Regestein, Schinfield, & Ryan, 1980). Use of ERT and HRT has also been found to be very effective in reducing vaginal dryness which is often experienced by menopausal women (Andrews, 1995; Coney, 1991). A recent study has also found that HRT use reduces the risk of colon cancer by at least 30% (Newcomb & Storer, 1995). Furthermore, a meta analysis of studies examining the effect of ERT on cardiovascular health has found that ERT reduces low density lipids while increasing high density lipids which can help prevent cardiovascular disease (Sitruk-Ware & de Palacios, 1989).

Although ERT and HRT offer many advantages, there are risks and side effects associated with using these options to help manage menopausal symptoms. As mentioned earlier, one of the greatest risks of using ERT is the dramatic increase in the rate of endometrial cancer associated with its use (Andrews, 1995; Coney, 1991; Lichtman, 1991; Roberts, 1991; Smith, Prentice, Thompson, & Herrmann, 1975; Ziel & Finkle, 1975). Other risks associated with ERT use include the effect that estrogen has on the liver which can lead to a greater risk of gall bladder disease (Boston Collaborative Drug Surveillance Program, 1974; Dewhurst, 1976). A potentially negative side effect associated with HRT is the continuation of cyclical bleeding (Andrews, 1995; Coney, 1991; Dewhurst, 1976; Roberts, 1991). This continuation of cyclical bleeding may be accompanied by the typical side effects associated with menstruation such as fluid retention, swollen and tender breasts, nausea and premenstrual syndrome (Coney, 1991). A further possible negative consequence of using either ERT or HRT is the fact that using these methods tends to lead to more medical intervention being necessary (Boston Women's Health Book Collective, 1992; Coney, 1991). A woman with an intact uterus using ERT, for example, may need to undergo endometrial biopsies to check for endometrial cancer.

Other possible risks associated with ERT and HRT use which have yet to be confirmed include a possible increase in the rate of breast cancer among users. Studies finding no significant link between breast cancer and ERT/HRT use include a 1988 meta analysis of 23 studies (Armstrong, 1988) and a 1991 meta analysis of 28 studies (Dupont & Page, 1991). Although these meta analyses seem to suggest that the use of hormone therapy does not increase a woman's risk of breast cancer, other studies have found an increased risk of breast cancer among women using ERT or HRT. For example, a 1991 meta analysis of 16 studies found that users of ERT had an increased risk of breast cancer if they used ERT for at least five years (Steinberg, Thacker, Smith, Stroup, Zack, Flanders, & Berkelman, 1991). This increase jumped to a 30% increased risk of breast cancer for women who used ERT for more than 15 years (Steinberg et al., 1991). A 1993 meta analysis of 31 studies also supports the possibility of a link between ERT/HRT use and breast cancer (Colditz, Egan, & Stampfer, 1993). The authors of this study found a significant relationship between use of ERT/HRT for more than ten years and an increased risk of breast cancer.

Risks and Benefits of Non-medical Options for Managing Menopause

Non medical options for managing menopausal symptoms also have risks and benefits associated with their use. Non medical options for managing the most common menopausal symptom of hot flashes/flushes include exercise, layering of clothing, and dietary changes. A Swedish study examining the effect of regular exercise on hot flashes found that women who exercised 3.5 hours a week had a reduced frequency and severity of hot flashes compared to women who did not exercise regularly (Hammar, Berg, & Lindgren, 1990 as cited by Murray, 1994). Furthermore, using exercise to help control hot flushes not only seems to be somewhat effective, but also offers the benefit of improved cardiovascular health. Furthermore, weight bearing exercise has been found to be effective in reducing the risk of osteoporosis. Other non

medical options used to control hot flashes/flushes are acupuncture and vitamin E. Early studies of vitamin E use suggested that this method was effective in reducing hot flushes (Ferguson, 1948 as cited by Blatt, Wiesbader, & Kupperman, 1953) but more recent studies have found that vitamin E is no more effective than a placebo (Lauritzen, 1973 as cited by Lichtman, 1991). Combining hesperdin, a flavonoid found in citrus fruit, with vitamin C can also provide relief from hot flushes but may cause one's perspiration to discolor clothing (Smith, 1964 as cited by Murray, 1994). Ferulic acid found in grains and rice bran oil have also been found effective in reducing hot flushes (Murase & Iishima, 1963 as cited by Murray, 1994) and offers the added benefit of lowering cholesterol levels (Yoshino, Kazumi, Amano, Tateiwa, Yamasaki, Takashima, Iwai, Hatanaka, & Baba, 1989).

Besides exercise and dietary changes other non medical options for managing menopausal symptoms include the use of herbal remedies. Plant based medicines such as angelica, licorice root, chasteberries and black cohosh, for example, have been suggested as being effective for alleviating hot flushes and other menopausal symptoms (Murray, 1994). Although there have been no significant negative side effects reported with the use of herbal remedies to help manage menopausal symptoms, it should be noted that there has been very little information about the risks and benefits of herbal remedies reported in the scientific literature. The lack of studies demonstrating a link between the use of herbal remedies to help manage menopausal symptoms and negative side effects may therefore falsely suggest that such interventions are completely safe. One study examining herbal remedies conducted by Health Canada, for example, has found that there are potential problems associated with such products (Sheikh, 1995). These problems include the presence of non-declared prescription drugs, the inadequacy of labeling, and the possibility that some herbal remedies may be contaminated by micro organisms during shipping (Sheikh, 1995).

A further potential problem with the use of herbal remedies to help manage menopause is that the herbal industry, unlike the pharmaceutical industry, is not closely regulated. This means that products are not assessed for purity, quality and/or strength (Kaye, 1995). A recent study by Consumer Report, for example, found that within ten different brands of ginseng, the concentration of the active ingredient ginsenoside varied from 0.4 mg per capsule to 23.2 mg per capsule (Consumer Report, 1995). Such information, however, is not required to be printed on the label, and users of herbal products may not realize the potency of the product they are using. A woman using herbal remedies to manage menopausal symptoms is faced with a confusing situation in which she may unwittingly ingest too much of a substance which may prove to be harmful, or ingest too little of a substance for it to be helpful in alleviating symptoms.

In conclusion, women trying to select safe and effective options to help manage their menopausal experience have a wide variety of options from which to choose. Options for managing hot flashes/flushes, for example, range from simply layering lighter articles of clothing to beginning the use of ERT or HRT. This wide variety has led many women to believe that they are not only ill informed about what options are available but also particularly confused about the risks and benefits associated with these alternatives (Lack & Holloway, 1992; Leiblum & Swartzman, 1986; Logothetis, 1991; Swartzman & Leiblum, 1987). The fact that women may be poorly informed about their menopausal management options is significant as information may be a key factor affecting not only which management option is chosen but also affecting the quality of such a choice. The importance of information use in the decision making process is reviewed in the following section.

Information Use in Decision Making

Although there have been many theories and models to help explain decision making, almost all include the search for information as an integral step in this process (Carroll & Johnson, 1990). One decision making model which has particularly focused on the use of information in the decision making process is the Consumer Information Processing (CIP) framework. The CIP approach to studying decision making was developed in the late 1970's and is based on the concept that individuals are information processors (Bettman, 1979). This theoretical framework is composed of six key elements including (a) processing capacity, (b) motivation, (c) attention, (d) decision processes, (e) learning processes and its most central element, (f) information acquisition and evaluation (Bettman, 1979). In regards to information acquisition, this framework acknowledges that individuals can gather information through two different search strategies (Bettman, 1979). The first strategy that individuals engage in when gathering information to assist in the decision making process is an internal search; an individual searches their memory for any pertinent information. If unable to retrieve a sufficient amount of information through an internal search, individuals will then engage in an external search which involves searching their environment for any applicable information.

One external source traditionally used by women to gather information about menopause was their mothers. Since very little was written about menopause until the latter half of this century (Swartzman & Leiblum, 1987), this source of information was likely a particularly important one. Recent studies, however, have suggested that mothers may have been a poor source of information for many women. One study, for example, found that only 28% of the women it surveyed gathered information about menopause from their mothers and that one quarter of the women surveyed said they knew nothing about their mother's menopausal experience (Mansfield & Voda, 1993). One reason for the lack of information received from mothers included the fact that this

subject was considered to be taboo and was therefore never discussed (Mansfield & Voda, 1993). Furthermore, by the time many of the woman in this study began to enter menopause, their mothers were no longer alive (Mansfield & Voda, 1993). With the proliferation of writings on the topic of menopause that has occurred in the later half of this century (Swartzman & Leiblum, 1987), women now have a greater array of external sources of information from which to learn about menopause and menopausal management options. The following discusses how information from external sources can affect the decision making process.

A significant amount of research in the consumer choice literature examining external information use has focused how the amount of information affects the quality of the decision made. There is some evidence from early studies that suggest that if individuals were given too much information they could experience information "overload" leading to poorer decisions being made (Jacoby, Kohn, & Speller, 1974). It has been proposed that individuals can experience information overload since humans have a limited ability to process information (Bettman, 1979; Jacoby, Speller, & Berning, 1974; Lindsay & Norman, 1972). Too much information, therefore, can lead to individuals paying less attention to information (Jacoby, Speller, & Kohn-Berning, 1974) or to using heuristics to simplify information processing (Bettman, 1979). Such strategies can lead to less than optimal decisions being made.

More recent studies, however, have suggested that the more information an individual has, the more likely they are to make better decisions. One study which examined how amount of information affected an individual's decision making ability involved the selection of a blanket and slow cooker from a panel of such products (Sproles, Geistfeld, & Badenhop, 1978). In this study participants were either given five or ten pieces of information about each option from which they could choose. After viewing the information about each product, participants were asked to select which blanket and slow cooker they would be most likely to purchase. Results from

this study indicated that it was only when participants had all ten pieces of information about each option were they able to select the slow cooker and blanket which were rated by Consumer Report as being the best option available (Sproles, Geistfeld, & Badenhop, 1978). Furthermore, this study found that when individuals classified as low on consumer sophistication were given all ten pieces of information they were able to make the same quality of decisions as those participants rated as highly sophisticated consumers (Sproles, Geistfeld, & Badenhop, 1978).

Besides improving quality of decisions, amount of information has also been found to affect an individual's subjective feelings about the decisions they make. Specifically, a positive relationship has been found between amount of information and feelings of satisfaction about decisions made while a negative relationship has been found between amount of information and feelings of confusion during the decision making process (Jacoby, Speller, & Kohn-Berning, 1974). Information, therefore, seems to be an important component in the decision making process as it enables a wide range of individuals to improve the decisions they make and also increases an individual's comfort in the decision making process.

Information Use in Health Decisions

Information use has also been found to affect health decision making. Such decision making usually involves greater levels of personal risk and uncertainty than consumer choices (Schwartz, 1994). Specifically, the type, amount and source of information used has been found to be related to the health decisions individuals make. One study examining 100 individuals with breast cancer, for example, found that the more information a woman had about the benefits of the various treatment options available to her, the less likely she was to accept her doctor's treatment recommendations (Siminoff & Fetting, 1991). The influence that information has in health decision making was further supported by another study examining decision

making regarding breast cancer (Pierce, 1993). Within this study 48 women were interviewed to determine what factors affected the treatment options they selected. Analysis indicated that information seeking behavior was one of the five variables which explained the differences in the treatment options each woman chose (Pierce, 1993).

A study examining decision making regarding method of childbirth has also found information to be influential in the decision making process (Murphy & Harvey, 1989). This study interviewed 50 women who had recently given birth and who had previously had a cesarean in order to discover what factors influenced whether they attempted a vaginal delivery or elected to have a repeat cesarean. The authors discovered that information source was a possible factor influencing which birth method was chosen. Specifically, these authors found that although women who chose a vaginal delivery and those who chose a cesarean both rated their health care provider as the most influential source of information, the women who chose a vaginal delivery were more likely to also indicate that other sources of information such as friends or the media influenced their decision (Murphy & Harvey, 1989).

Information Use in Decisions Regarding Menopausal Management

Recent research has suggested that information use may also impact decision making regarding the selection of a menopausal management option. One study examining information use in the selection of a menopausal management option provided 256 women with an information sheet which outlined the risks and benefits associated with hormone therapy (Schmitt, Gogate, Rothert, Rovner, Holmes, Talarcyzk, Given, & Kroll , 1991). These women were then presented with 16 different case scenarios and asked how likely they would be to use hormone therapy in each situation. Analysis demonstrated that one factor which influenced the participants' decisions regarding hormone use was the scenario information they focused on

(Schmitt et al., 1991). One group of participants, for example, tended to primarily consider information regarding hot flashes and indicated that they would be likely to use hormone therapy in situations where hot flashes existed. A second distinguishable group of participants focused on information regarding the risk of osteoporosis and indicated that they would use hormone therapy when such a risk was high. A third group based their decision regarding the use of hormone therapy on information about the risk of side effects associated with its use, while the last distinguishable group of women chose hormone therapy only if they were provided with information suggesting that the risk for cancer was low.

Although this study seems to suggest that information can impact decisions made regarding menopausal management options, it has two serious flaws. First, only the information sheet provided by the researchers and the information in the scenarios were considered to be operating in this study. It is quite possible that some of the women involved in this study had pre-existing knowledge and attitudes about using hormone therapy which may have also influenced their responses. The second significant weakness of the study was that the participants were asked to make decisions regarding the use of hormone therapy in fictitious scenarios which may not adequately reflect the type of choice making which occurs in real life.

One study examining decision making apropos of the selection of menopausal treatment options addresses these weaknesses as it surveyed women about their actual decisions regarding the use of hormone therapy (Logothetis, 1991). In this study, 252 menopausal women completed questionnaires which not only asked them about their use of hormone therapy but also inquired about their beliefs about the risks and benefits associated with hormone therapy. Findings from the study suggest that whether or not a woman chooses to use hormone therapy is largely dependent on her perceptions of its benefits weighed against its risks (Logothetis, 1991). Women who had never used hormone replacement therapy or had discontinued its use, for example, viewed

hormone replacement therapy as having more barriers than benefits while those women who were currently using hormone replacement therapy believed it offers more benefits than side effects. This study, therefore, seems to suggest that type of information a woman has about hormone therapy can impact the decision she makes regarding its use.

If it is true that information is important in the process of making sound health choices (Rudd & Glanz, 1990) and that its use may help explain why an individual chooses a particular treatment option, what factors might determine the type and quantity of information an individual seeks out when making health decisions such as the selection of a menopausal management option? The CIP theoretical framework acknowledges that many factors can affect an individual's search for and use of external information sources. Specifically, this theory contains two propositions which state that the source from which information will be sought as well as the degree of external information search are influenced by individual differences (Bettman, 1979). One individual difference which may help to explain why people seek out and use different information sources is locus of control (Rotter, 1966). The following briefly outlines the development of this construct and reviews studies which suggest that this factor may influence the use of health information.

Development of the Locus of Control Construct and Scale

Locus of control is a personality construct which developed out of social learning theory (Rotter, 1954). Social learning theory attempts to explain human behavior by integrating concepts from both reinforcement and cognitive theories. This theory suggests that how an individual reacts to a situation depends on whether they believe that their actions will result in a particular outcome and the value that the person places on this outcome. The concept of locus of control was developed to help explore and measure the expectations a person may have regarding the relationship between

their actions and receiving a particular reinforcement. The originator of this construct, Rotter, viewed locus of control as occurring in two forms; internal and external (Rotter, 1954). A person with an internal locus of control believes that reinforcements are contingent on their actions while a person with an external locus of control views reinforcements as being a result of luck, chance, fate or due to the actions of others (Rotter, 1954).

Although the first attempt to create a scale to measure locus of control was part of a 1955 doctoral dissertation (Lefcourt, 1966), it was not until Rotter himself designed the I-E scale (Internal - External scale) in 1966 that the concept of locus of control gained widespread popularity. This instrument was designed to predict a person's behavior in most situations, not in a specific situation, and the scale therefore surveyed a wide range of areas where locus of control may affect a person's behaviour (Rotter, 1975). This scale quickly gained popularity, and by 1975 over 600 articles on locus of control had been published (Rotter, 1975).

Development of a Health Specific Locus of Control Measure

From Rotter's original I-E scale, researchers interested in health issues began to develop a scale which focused on measuring locus of control beliefs related directly to health behavior. The interest in designing such a measure developed out a belief that an instrument designed to directly tap a person's belief about the relationship between their behavior and their health would be a better predictor of one's actual health behaviors than Rotter's general I-E scale (Lau & Ware, 1981). The first attempt to design such a scale was undertaken in 1971 (Wallston & Wallston, 1982). Unfortunately, many of the items on this scale confounded expectancy statements with motivational statements and only a few items actually measured the construct of health locus of control (Wallston & Wallston, 1982). The second and much more successful attempt to create

a health locus of control measure occurred five years later and resulted in the Health Locus of Control (HLC) scale (Wallston, Wallston, Kaplan, & Maides, 1976).

Development of a Multidimensional Health Locus of Control Measure

Although the HLC scale proved to be a better predictor of health behavior than Rotter's original I-E scale, only two years went by before major revisions to the scale began to occur. The main motivation for the revisions to this scale came from Levenson's 1974 study on locus of control (Cooper & Fraboni, 1988). In Levenson's study, he argued that locus of control beliefs are not unidimensional. Instead, he conceptualized external locus of control as being composed of two separate components; external control due to chance/fate and external control due to powerful others (Levenson, 1974). Levenson argued that separating external control into two distinct sub-scales would further improve prediction of behavior by locus of control scales.

Collins (1974) also questioned the unidimensionality of the locus of control concept. Like Levenson, he too argued that the external aspect of the locus of control dimension may be composed of different components. Unlike Levenson, however, Collins proposed that an external locus of control orientation may be composed of four elements; belief that the world is unjust, belief that the world is difficult, belief that the world is controlled by chance, and belief that the world is politically unresponsive (Collins, 1974). Levenson's and Collins' ideas were supported by Rotter himself when he found that in his research that some externally oriented individuals behaved as expected but that other similarly categorized individuals behaved more like internally oriented individuals. One possible explanation he proposed for this discrepancy was that there could be different types of external locus of control (Rotter, 1975).

Based on Collins' and Levenson's ideas, two multidimensional health locus of control scales were developed. The first scale to be developed, named the

Multidimensional Health Locus of Control (MHLC) scale, perceived external locus of control as being composed of the two dimensions as suggested by Levenson; chance/fate and powerful others (Wallston, Wallston, & DeVellis, 1978). The second multidimensional scale to measure health locus of control was created by Lau and Ware in 1981. This scale differed from the MHLC scale as it conceptualized health locus of control as being composed of four sub scales; self control over health, provider control over health, chance health outcomes, and general health threat.

Research Supporting the Predictive Value of the HLC and MHLC Scales

Research using both the MHLC and HLC scales has for the most part supported the predictive value of these measures. Studies looking at adherence to health activities have found individuals who value health and who score high on internal health locus of control to be more committed to such health behaviors. People who scored high on internal health locus of control, for example, tended to remain in a physical activity program more than did individuals scoring low on internal health locus of control items (Dishman, Ickes, & Morgan, 1980). Renal dialysis patients who valued health highly and scored high on the internal health locus of control component of the MHLC scale paid more attention to their diet and avoided weight gain when compared with those individuals who scored low on this component (Levin & Schulz, 1980 as cited in Wallston & Wallston, 1982). Furthermore, women who scored high on internal health locus of control have also been found to practice breast self examinations more regularly (Bundek, Marks, & Richardson, 1993; Redeker, 1989) and to be more likely to practice effective birth control (Lundy, 1972; MacDonald, 1970) than women with external orientations.

Besides specific health care behaviors, individuals with a high internal health locus of control have also tended to participate more actively in more general health care behaviors such as taking more responsibility for their own health, eating more

nutritious food, exercising regularly and protecting themselves from accidents (Krantz, Baum, & Wideman 1980; Strickland, 1978; Speake, Cowart, & Pellet, 1989). Individuals who scored high on internal health locus of control, for example, have been found to be more likely to assert themselves during a physical, and to ask for specific medication (Krantz, Baum, & Wideman 1980). Similarly, such individuals are also more likely to use seat belts and are more likely to practice preventative dental care (Williams, 1972).

The predictive ability of health locus of control has also been examined in regards to outcomes of people's efforts to quit smoking and lose weight. Overall, individuals with high internal health locus of control scores are more successful at limiting their smoking behavior or quitting smoking altogether when in a treatment program (Kaplan & Cowles, 1978). Studies on weight loss have found that individuals with a high internal health locus of control who also score high on health value tended to lose more weight in programs based on self motivation and self reward. Those with a high external locus of control tended to achieve greater weight loss if they were in a program based on extrinsically imposed reinforcement (Saltzer, 1978; Wallston, Wallston, Kaplan, & Maides, 1976).

Relationship Between Health Locus of Control and Information Use

Besides health behavior, a relationship has also been found between information use and one's health locus of control orientation. The earliest study on information use and locus of control was conducted by Seeman and Evans in 1962. These researchers found that tuberculosis patients who scored high on the internal dimension of Rotter's I-E scale tended to know more about their condition than patients who scored low on internal locus of control. Furthermore, those patients with a high internal locus of control score were more dissatisfied with their medical care when in wards where it was difficult to get information about their condition (Seeman & Evans,

1962) suggesting that internally oriented individuals desire more information about issues affecting their health. The next studies examining information use and locus of control found that those individuals with an internal locus of control were better at actively gathering information (Davis & Phares, 1967) and were also better at actually using information in a problem solving situation (Phares, 1968).

More recent studies using the MHLC and HLC scales have continued to find a relationship between locus of control and information use. One study examining information use and health locus of control was performed as part a validation study for the Health Locus of Control scale (Wallston, Wallston, Kaplan, & Maides, 1976). In this study 88 college students recruited from an introductory psychology class completed questionnaires which included the HLC scale and a measure of health value. Participants then read about the health risks associated with hypertension and completed a difficult quiz about this condition. This quiz was designed to point out to participants the gaps in their understanding about hypertension. After completing this quiz, participants were presented with a list of 16 pamphlets about hypertension and were asked which they would like to read to learn more about this condition. The authors found that those participants who valued health highly and who scored high on the internal health locus of control sub scale chose to read more pamphlets than all other participants. This same study was replicated using 97 college students of which one third were recruited from psychology classes while the other two thirds were recruited through telephone solicitation. This replication supported the earlier finding that individuals who value health and who score high on internal health locus of control chose a significantly greater number of pamphlets (Wallston, Maides, & Wallston, 1976).

Although the two studies on hypertension described above suggest that individuals with an internal health locus of control orientation tended to desire more health information, neither of these studies examined information seeking in vivo. To

determine if health locus of control orientation affects actual health information seeking behavior, a similar study was undertaken with 121 individuals participating in a hypertension screening clinic occurring in a shopping mall (Toner & Manuck, 1979). These individuals first had their blood pressure measured and then completed a questionnaire containing a modified version of the HLC scale. After completing the questionnaire, participants were directed to a table displaying 12 different pamphlets about hypertension and were told to take any that they were interested in. A research assistant stood by the table and unobtrusively noted how many pamphlets each participant took. Because age was considered to be a relevant factor in this study, a median split was performed and the sample was divided into a younger and older group. Analysis of this data demonstrated that older internally oriented individuals took significantly more pamphlets than older externally oriented individuals. For the group of younger participants, however, no significant difference was found between internal and external individuals in regards to the number of pamphlets taken. A possible reason for the lack of significant findings with the younger group may be that this group did not view hypertension as a serious threat to their health, especially if they had just been informed that their blood pressure was normal.

Two other studies finding a relationship between health locus of control and information use include one which examined patients on renal dialysis (Sproles, 1977 as cited by Wallston & Wallston, 1982). The author of this study found that those patients with a high internal health locus of control score tended to know more about their condition and were also more interested in participating in an educational program to learn more about their condition. The second study involved elderly Hispanic women (Bundek, Marks & Richardson, 1993). In this study, 270 women completed questionnaires that included four questions which examined how likely they were to attend to health information and also completed a shortened version of the MHLC scale. It was found that the likelihood of attending to health information was correlated with

scores on the internal health locus of control sub scale at the 0.001 level. Furthermore, scores on the internal health locus of control sub scale accounted for 17.5% of the variance regarding how much attention an individual devoted to health information. In conclusion, the majority of studies examining locus of control and information use have found a significant relationship between scores on internal locus of control and an increased interest in obtaining health information.

Research Failing to Support Predictive Ability of HLC & MHLC Scales

Although there has been much research supporting the predictive ability of the MHLC and HLC scales, not all research has supported their usefulness. One study trying to replicate earlier studies in which a relationship between health locus of control and exercise was reported failed to find any significant relationship between scores on these scales and the amount of exercise done (Laffery & Isenberg, 1983). There are also many studies that have found no relationship between scores on the MHLC sub scales and the preventative health behaviors mothers encourage among their children (Wallston & Wallston, 1982). Researchers trying to differentiate those who are successful at practicing birth control have also found no significant relationship between HLC scores and birth control use (Seeley, 1976). A study examining treatment program outcomes for patients with osteoporosis also found no significant differences in improvements based on their health locus of control orientation (Gold, Smith, Bales, Lyles, Westlund, & Drezner, 1991).

In a review done by two of the creators of the MHLC scale, they reported that six separate studies, including two nationwide surveys, have failed to find any meaningful relationships between scores on this scale and various health behaviors (Wallston & Wallston, 1982). Two large studies that also failed to find a relationship between health locus of control and health behavior included one study done with a

sample of 660 insurance employees and one that studied over 2200 Welsh men (Wallston, 1992).

Studies which have not shown health locus of control to have any predictive power over an individual's health behavior have led some authors to suggest that the construct has limited value (Calnan, 1989) and has contributed to less interest in health locus of control (Marshall, 1991). Although interest in health locus of control may have declined since the early 1980's, many researchers continue to use the construct and some have proposed several explanations to help clarify why some studies show a significant correlation between health behaviors and health locus of control while others do not.

Possible Explanations for Equivocal and Negative Findings

One of the key reasons proposed to explain the discrepancy in results with the health locus of control construct is the fact that not all studies have included a measure of health value. As discussed earlier, social learning theory suggests that how an individual reacts to a particular situation depends on whether they believe that their actions will result in a particular outcome and the value the person places on the particular outcome. The lack of a measure to examine health value in studies that have tried to prove the predictive ability of health locus of control may therefore be a major flaw suggesting a lack of understanding of the theoretical background of the construct (Rotter, 1975; Wallston, 1991). This explanation is supported when one considers that health locus of control is better able to predict health behavior when a person's health value score is taken into account (Wallston, 1991).

Although a direct measure of health value increases the predicative ability of health locus of control, the lack of such a measure may not preclude the use of health locus of control as a predictor of health behavior for two reasons. First, previous studies which have also excluded a measure of health value have still been able to find

significant relationships between health locus of control and health behaviors (c.f. Bundek, Marks, & Richardson, 1993; Toner & Manuck, 1979) Second, it has been suggested that health tends to be universally valued quite highly which may make a health value measure unnecessary (Rokeach, 1973).

Another possible reason to explain the equivocal results is based on the correspondence principle. This principle suggests that an attitude measure can best predict behavior when there is a match between the level of generality of the attitude measure and the behavior. To date, much research on health locus of control has tried to use the construct to predict specific health behaviors when in fact the measure was designed to predict general health behaviors. This mismatch may explain why the measure have not always been successful in predicting behavior (Birkimer, Johnston, & Dearmond, 1993; Lewis, Morisky, & Flynn, 1978). This explanation has been supported by one study that examined weight loss and health locus of control (Saltzer, 1978). In this study, the researcher administered Rotter's I-E scale, a ten item health locus of control measure and a four item weight locus of control scale. Only the four item locus of control scale related directly to weight predicted weight loss and no significant relationship was found between amount of weight loss and scores on the more general I-E or HLC scales.

Further explanations to account for the inconsistent support for the health locus of control measures include the possibility that research in the area has failed to take into account recent theoretical developments related to the scale (Strickland, 1989). The most significant theoretical development related to locus of control is the notion that internal locus of control may also be multidimensional (Marshall, 1991). Currently the MHLC and Lau-Ware scales separate external control into multiple dimensions but treat internal locus of control as unidimensional. Marshall (1991) has proposed that internal health locus of control is composed of four distinct sub-scales; self-mastery, illness management, illness prevention and self-blame. He has further suggested that it is the

self-mastery component of internal locus of control that has the power to predict health behavior. Marshall has suggested that an individual's self-mastery score is key to predicting a person's health behavior as individuals not only have to recognize that their health is dependent on their actions (which is what current internal locus of control scales measure), but must also believe that they are capable of performing actions which will affect their health. Marshall's study designed to test this theory supported the importance of self mastery as it were scores on the self-mastery component of his locus of control scale that best predicted health and well being (Marshall, 1991).

A further theoretical development that may help to explain why research using health locus of control has not always found significant results is based on a modified version of social learning theory (Wallston, 1992). This modified version of social learning theory combines ideas from both Rotter's social learning theory and Bandura's work on self-efficacy (Bandura, 1977) and proposes that health behavior is determined by the construct of perceived control rather than locus of control. Wallston argues that it is not enough for a person to value health highly and feel responsible for their health to make a person engage in health behaviors. Instead, he agrees with Marshall's (1991) idea that a person must also feel that they actually can perform a particular health behavior. It is therefore proposed that perceived control replace locus of control as the one of the key variables in social learning theory (Wallston, 1992).

Although Wallston admits that health locus of control may not be the perfect construct to predict health behavior he argues that locus of control not be totally cast aside as a useful construct (Wallston, 1992). Instead, he suggests that one should view locus of control as one factor that may contribute to a person's sense of perceived control along with the constructs of self efficacy, mastery, and perceived competence. If locus of control is a part of the larger construct of perceived control, it would still have predictive power although this power would be somewhat limited.

Summary

Due to recent historical developments, present day women have a wide variety of medical and non-medical menopausal management options from which to choose. Unfortunately, selecting from these options can be a difficult task as each option offers inherent risks and benefits which cannot always be determined with certainty for each individual. Although the selection of a menopausal management option can have a significant effect on a woman's health and well-being during her menopausal years, relatively little is known about how such a decision is made. What is known suggests that information use can be a significant factor affecting her final decision. Since researchers have suggested that locus of control orientation may modify information use, a conceptual model examining how locus of control and information use may affect the selection of a primary menopausal management option is outlined in the following chapter.

CHAPTER 3

CONCEPTUAL MODEL

The following chapter briefly reviews the key ideas presented in the previous chapter. Based on these ideas, a conceptual model to help explore what factors may influence decision making in regards to menopausal management is outlined. The chapter concludes with a discussion of research questions derived from this proposed model.

The previous chapter has noted that women may choose from a variety of options to alleviate menopausal discomforts. These options, although numerous, can be broadly classified into two categories; medical and non-medical. Medical options for managing menopause would include the use of ERT and HRT as use of these options require a woman to interact with medical professionals, specifically a physician, in order to obtain the prescription necessary for obtaining these options. Non-medical options for managing menopause would therefore include those options which do not require the involvement of medical personnel (e.g., use of herbal remedies).

Simplifying the various options into these two categories, however, does not completely simplify the decision making process for women trying to choose a way to alleviate menopausal discomforts for two key reasons. First, as discussed earlier, selecting from these two broad categories is difficult as the options contained within each of these approaches have inherent risks and benefits associated with their use. Second, even when a woman has decided upon using one of these two broad approaches, she still must choose from a variety of alternatives within the approach she has selected. A woman who has decided to use a medical approach to alleviate menopausal discomforts, for example, must still collaborate to some degree with her physician to decide between ERT and HRT, to choose a preferred dosage and to select in what form she wishes to administer this choice (e.g., pills, patches, creams). It should be noted that the degree of collaboration between a woman and her doctor in

making such decisions may range from a woman basically allowing her physician to make such decisions for her to a woman making such choices with little or no assistance from her doctor.

As it has been suggested that individuals use information to help reduce uncertainty in the process of making complicated decisions (Rogers, 1983), it seems reasonable to assume that many women will use information to assist them in choosing a menopausal management option. As discussed earlier, research on information use in decision making has found that the amount of information (Jacoby, Speller, & Kohn-Berning, 1974; Siminoff & Fetting, 1991; Sproles, Geistfeld & Badenhop, 1978) and source of information (Murphy & Harvey, 1989) can affect the choices that individuals make. Furthermore, information use has been found to affect the particular decision women make when selecting a menopausal treatment option (Logothetis, 1991; Schmitt et al., 1991). Based on these findings and the conceptualization of menopausal management options as being simplified into two broad categories, the relationship between information use and the selection of a menopausal management option is shown in Figure 1.

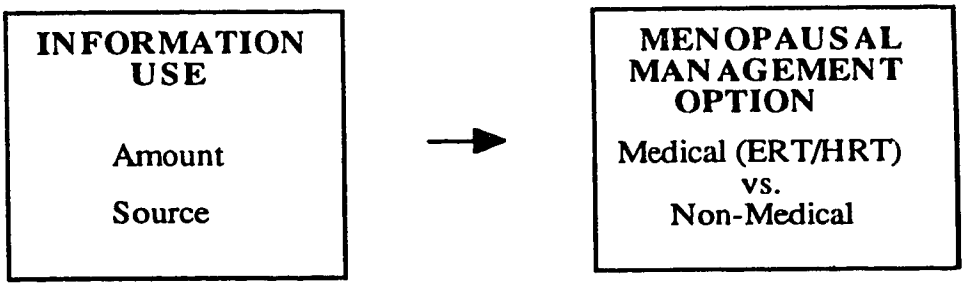


Figure 1. Proposed relationship between information use and the selection of a menopausal management option.

It appears that information can affect decisions made about health issues such as selecting a menopausal management option but it should also be noted that individual differences can in turn affect information use (Bettman, 1979). One of these individual differences discussed in the previous chapter is health locus of control orientation.

Specifically, it has been found that individuals with an internal locus of control tend to prefer to gather more information about issues affecting their health (Toner & Manuck, 1979; Wallston, Wallston, Kaplan, & Maides, 1976; Wallston, Maides, & Wallston, 1976).

Besides amount of information, health locus of control may also be related to what sources of information are used in decision making about health issues. As discussed earlier, both scales designed to measure health locus of control conceptualize external health locus of control as being composed of distinct sub scales. In the case of the MHLC scale, which will be used in this study, external control is viewed as including a belief in control by powerful others (Wallston, Wallston, & DeVellis, 1978). An examination of the statements which compose the powerful others sub scale (see Appendix B) reveals that many of these statements focus on the degree to which individuals believe that health care professionals are responsible for their health. Because this scale suggests that the more external an individual is the more they depend on health care professionals, this author proposes that scores on the powerful other sub scale of external health locus of control may be related to the likelihood that an individual will depend on health professionals as an information source. Integrating the relationship of health locus of control into Figure 1 results in the following figure.

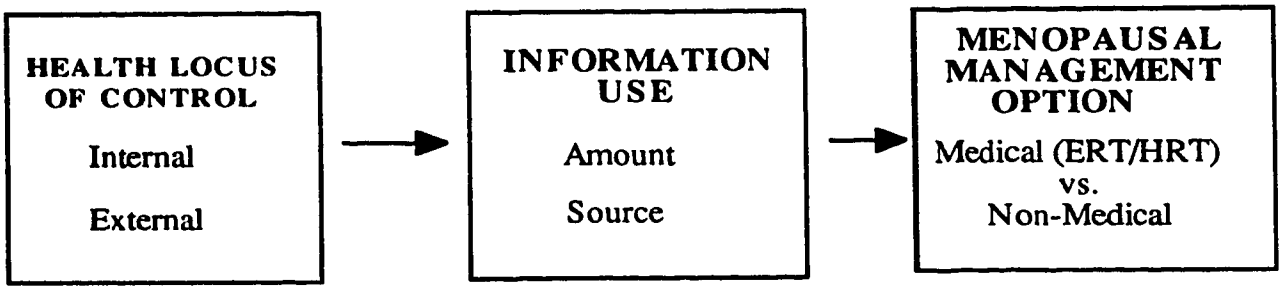


Figure 2. Incomplete relationship proposed between health locus of control, information use, and the selection of a menopausal management option.

Because previous studies examining health locus of control without considering information use have found differences in health behaviors based on locus of control orientations, it is proposed that health locus of control may also have a relationship with the selection of a menopausal management option. The final proposed model to be explored in this research, therefore, is shown in Figure 3.

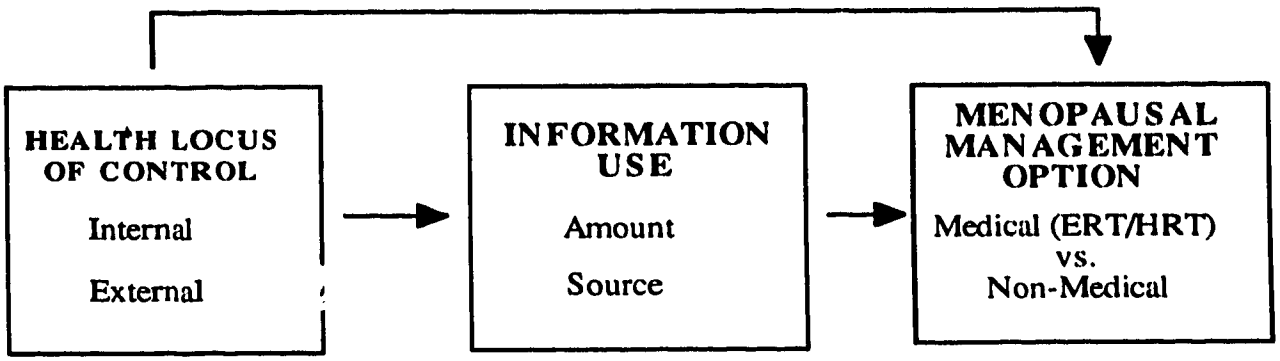


Figure 3. Complete relationship proposed between health locus of control, information use, and the selection of a menopausal management option

It should be noted that decision making is a complex process and many models and theories have been proposed to help explore the variety of factors which are believed to affect this process (c.f. Abelson & Levi, 1985; Einhorn & Hogarth, 1981; Slovic, Fischhoff, & Lichenstein, 1977) The model proposed above, addressing only two factors thought to be related to the selection of a menopausal management option, is therefore a simplification of such a process. This simplification was necessary as an examination of all the factors which may impact the selection of a menopausal management option was beyond the scope of this research.

Research Questions to be Tested

Based on the model proposed in Figure 3 the following research questions will be explored in this research:

1. What sources of information do women use to help them select an option to manage their menopausal experience? Does this differ if the woman has experienced a hysterectomy?

2. How is a woman's health locus of control orientation related to the number of information sources she uses when selecting an option to manage menopause?

3. How is a woman's health locus of control orientation related to the level of influence her doctor has on the selection of a menopausal management option?

4. Is a woman's rating of her physician as being a highly influential source of information related to the primary menopausal management option she selects?

5. Is the number of information sources a woman uses when selecting a primary menopausal management option related to the menopausal management option selected?

6. Is a woman's health locus of control orientation significantly related to the primary menopausal management option she selects?

7. Which variables in the proposed model are influential in the selection of a primary menopausal management option?

CHAPTER 4

METHODS

In order to address the research questions discussed in the previous chapter, this study used a survey design to examine the proposed model. The following chapter includes a discussion of the participants involved in the study, the instruments used to measure key variables and also reviews the procedures involved in data collection. The chapter concludes with a brief overview of how data were analyzed.

Participants

Participants involved in this study were drawn from a larger study examining women's mid-life decision making patterns. From this larger study of 290 women, 142 participants were eligible to participate in this research. Eligibility was based on the criteria that a woman had to have either made a decision regarding the menopausal management option she was going to use in the future or had to have already begun using an option to manage her menopausal experience. Participation was restricted to these two groups of women who had selected a menopausal management option as this decision was one of the model's key dependent variables.

For purposes of analysis, the sample of 142 women eligible for this project was divided into two sub samples. One sub sample included only women who had not had their ovaries removed (N=130) while the other sub sample included women who had a total abdominal hysterectomy and bilateral salpingo oophorectomy (N=12). This division was necessary as women who have both their ovaries removed experience a sudden and severe decline of hormone levels rather than the gradual decline of hormone production experienced by women undergoing natural menopause (Logothetis, 1991). This sudden decline in hormone production can result in more severe menopausal

discomforts which could have a confounding affect on the option such women choose to help manage their menopausal experience.

Non-probabilistic sampling procedures were use to recruit participants for the larger study on mid-life decision making. Participants were recruited in a number of ways including word of mouth, posters placed in retail outlets (see Appendix C), advertisements in a local community newspaper (see Appendix D), and notices placed in selected women's newsletters (see Appendix E).

Measures

Three key variables were examined in this study: 1. health locus of control, 2. kind of information sources used and 3. selected menopausal management option. In addition, menopausal discomfort was examined as this factor was conceptualized as a possible confounding variable affecting the selection of a menopausal management option. The following describes the instruments used to measure each of these variables.

Health locus of control

As discussed in the review of the literature, there are three scales currently available for measuring health locus of control; 1. the Health Locus of Control (HLC) scale, 2. the Lau-Ware scale and 3. the Multidimensional Health Locus of Control (MHLC) scale. This study used the MHLC scale to measure the variable of health locus of control for two reasons. First, unlike the HLC scale, the MHLC scale conceptualizes external locus of control as being multidimensional and it has been suggested that use of a multidimensional scale helps to improve prediction of health behavior (Levenson, 1974). Second, although the Lau-Ware scale is also multidimensional, the MHLC scale was selected as it has been found to be more reliable than the Lau-Ware scale (Marshall, Collins, & Crooks, 1990). The following

discusses the development of this scale as well as information about the scale's reliability, validity, and scoring procedures.

The MHLC scale is based on a view of external locus of control as being composed of the two dimensions; chance/fate and powerful others. This scale was developed by writing items that were thought to reflect the three dimensions of health locus of control. These three dimensions were internal, chance/fate and powerful others health locus of control. A total of 81 items were created and a sample of adults waiting at an airport was randomly sampled. Using a six point criteria, a total of six pairs of statements for each of the three sub-scales were selected. Pairs were selected so that two forms of the scales (A and B) could be created. The scale is answered on a six point Likert like scale ranging from strongly agree to strongly disagree. There are no reversed items on this scale and scores for each of the sub scales are obtained by simply adding the numerical values indicated for each statement within the sub scale. Individual's scores on each sub scale can range from 6 to 36 with low totals on a sub scale indicating a high level of that form of health locus of control orientation.

According to its creators, alpha reliabilities of this scale range from .67 to .77 but when both forms A and B are combined, alpha reliability increases to a range of .83 to .86 (Wallston, Wallston, & DeVellis, 1978). An intercorrelation matrix of the MHLC scale to test the construct validity of the scale found that internal health locus of control and powerful other health locus of control are statistically independent. Furthermore, internal health locus of control is negatively correlated with the other dimension of external control; chance health locus of control. Powerful others health locus of control and chance health locus of control are, however, positively correlated as would be expected as both are types of external control. An initial assessment of the predictive validity of the scale was also positive. Health status correlated positively with internal health locus of control, negatively with chance health locus control but did

not correlate with powerful others health locus of control (Wallston, Wallston, & DeVellis, 1978).

Other studies examining the Wallston MHLC scale have also supported its psychometric properties. One study examined the validity of the MHLC scale's three sub scales with a population voluntarily involved in a health promotion program (Casey, Kingery, Bowden, & Corbett, 1993). Results from this study demonstrated support for all three scales. A study examining inpatient alcoholics also supported the three distinct scales of this measure (Russel & Ludenia, 1983). The three components of this scale have also been supported when the instrument is used with school children (Thompson, Butcher, & Berenson, 1987), health professionals (Eachus, 1990) and individuals in a pain rehabilitation program (Buckelew, Shutty, Hewett, Landon, Morrow, & Frank, 1990). Besides construct validity, most studies examining the MHLC scale's reliability have indicated acceptable levels of reliability. For example, a recent review of the scale states that reliability coefficients have been acceptable with internal consistency coefficients ranging from .67 to .86 and test-retest correlations ranging from .73 to .80 (Oberle, 1991).

Although most studies support the sub scale structure and reliability, some studies have not endorsed this measure. Winefield's 1982 study of medical and dental students, for example, found support for the internal and powerful others scales but not for the chance health locus of control dimension. A second study whose results question the validity of the scale's three dimensions examined psychiatric staff attending a back care program and found that the powerful others and chance scales were not completely distinctive (Cooper & Fraboni, 1988). A study examining college students also found the alpha coefficient reliability to be .53 to .64, which is significantly lower than those typically reported in the literature (Birkimer, Johnston, & Dearmond, 1993). Although this measure seems to be suitable for a large range of

individuals, it seems that it should be used with caution when sampling health professionals and college student populations.

Within this research, form A of the internal health locus of control (IHLC) sub scale and form B of the powerful others health locus of control (PHLC) sub scale were used to measure the variable of health locus of control orientation (Appendix F). Although it would have been preferable to use both forms A and B for each of the sub scales as this increases the measure's reliability, space limitations on the questionnaire required that only one form of each sub scale be used to measure this variable. Form A of the IHLC sub scale and form B of the PHLC sub scale were selected as prior use of these forms reported higher alpha reliabilities for each sub scale, .77 and .72 respectively (Wallston, Wallston, & DeVellis, 1978). The chance health locus of control (CHLC) sub scale was not used in this study since the researcher was more interested in how the PHLC form of external locus of control affected menopausal management decisions and because less support has been found for the CHLC sub scale (Winefield, 1982). It should be noted that the creators of the MHLC scale suggest that studying only one or two of the scale's dimensions may be appropriate in certain situations (Wallston, Wallston, & DeVellis, 1978).

Information sources

Because there has been no measure specifically designed to measure information sources used in making menopausal management decisions, the researcher designed a question to discover what information sources are used when making such decisions. The following is a description of the procedures used in designing this measure. First, a review of both the PsychInfo data base from 1984 to 1996 and the Medline data bases from 1976 to 1996 were used to find any previous research (reported in English) which would indicate what sources of information women use when making menopausal management decisions. Only one study was found. This

study, which interviewed 14 women, reported that the following sources of information were used in the process of choosing a menopausal management option: doctors, friends, relatives, journals, magazines, books, and pamphlets (Lack & Holloway, 1992). Because only one article was found, the literature search was widened to include any studies which indicated what information sources women use to learn about menopause in general. This search found four additional studies which indicated that women turn to friends, books, magazines, television, newspapers, their mother, doctors and relatives for general information about menopause (Abraham, Perz, Clarkson & Llewelly-Jones, 1995; Mansfield, Theisen, & Boyer, 1992; Mansfield & Voda, 1993; Roberts, 1991). Based on these studies and discussions with colleagues, a list of possible menopausal management sources was developed.

Once this list was created, it was included in a pilot questionnaire completed by 16 women. In this pilot, women were asked to report any other sources that they used to gather information about managing menopause. The final list included 23 sources of information and allowed women to add up to two additional sources of information in case any key sources were missed (see Appendix G). Women indicated what information sources they used to help them manage their menopausal experience by placing a check mark beside any information source they used. The total number of sources of information a woman used in choosing a menopausal management option was calculated by tallying the number of check marks for each participant.

Besides discovering what and how many sources of information a woman used to help manage her menopausal experience, how sources of information may be related to the primary option a woman selects to manage her menopausal experience was also explored in this study. Specifically, the relationship between level of importance attributed to information received from one's doctor and the menopausal management option selected was examined. One question was used to measure how important a woman thought the information she received from her physician was in her decision

making about how to manage menopause. This one question read as follows: " How influential was information received from your doctor in making your decision about what to use to manage your menopausal experience?" Participants answered this question using a five point Likert scale ranging from "not at all influential" to "very influential".

Menopausal management option

Two questions were used to assess whether or not a woman chose to use a medical or non-medical option to manage her menopausal symptoms. The first question asked participants to check the boxes beside which menopausal management option(s) they were using or planning to use from a list of 13 possible options. These options included the use of hormone therapy, regular exercise, diet changes, herbal supplements, clothing changes, drug therapy other than hormones, relaxation training, biofeedback, vitamin supplements, mineral supplements as well as avoiding heavy work, using nothing at all and a category listed as "other" (see Appendix H). It should be noted that although this research was primarily interested in whether a woman selected a medical or non-medical menopausal management option, women were asked to indicate which specific options within these two approaches they were going to use for possible secondary analysis.

The second question followed immediately after the one described above and asked women which of the above options that they checked was or would be their primary option to manage their menopausal experience (see Appendix H). This question was asked as some of the women may have indicated a combination of methods in the earlier question and the researcher wished to discover if medical or non-medical options were considered to be the primary management option. A woman, for example, may have indicated that she planned on using hormone therapy and ginseng to manage her menopausal experience but when pressed to indicate which one of these options would be her main means to reduce menopausal discomforts, she would have

to choose between a medical and non-medical option. Responses to this second question were therefore used in data analysis.

Menopausal discomfort

Because severity of menopausal symptoms could be a factor affecting the decision women make regarding what menopausal management option to use, a scale assessing such symptoms was included in this study to ensure that this factor did not confound results. The scale used to measure the severity of menopausal symptoms was the International Health Foundation's Index of Menopausal Symptoms as described by Kaufert and Syrotuik (1981). According to these authors, this measure contains 11 items and is scored on a five point Likert scale ranging from "experience this symptom all the time" to "experience this symptom none of the time" (see Appendix I). Severity of menopausal discomforts is obtained by simply adding the numerical value for each of the items.

Although this scale is not well validated, it was chosen as it is a succinct yet comprehensive scale which includes the core menopausal symptoms outlined in the clinical literature (Kaufert & Syrotuik, 1981). This scale was also chosen as it contains most of the significant items from two prominent earlier menopausal symptom scales, the Blatt Menopausal Index (Blatt, Weisbader, & Kupperman, 1953) and the Checklist of Menopausal Symptoms (Neugarten & Kraines, 1965) which allows for comparison with previous research in this area (Kaufert & Syrotuik, 1981). Furthermore, it has been suggested that this list may become the standard instrument used to measure menopausal discomforts in the future (Kaufert & Syrotuik, 1981).

Procedure

As discussed earlier, participants were solicited through posters, snowball sampling, advertisement and newsletters. If a woman was interested in participating in the study, she was informed to contact the researcher by phone or by mail in order to

obtain more information about the study and/or to be mailed a package containing a questionnaire and an information sheet about the study. A total of 450 questionnaire packages were mailed out to interested participants. Of these packages, 290 were returned resulting in a response rate of 63.4%. The questionnaire within these packages contained the measures and questions discussed above, questions to assess demographic information, and a variety of other questions pertaining to the larger study from which the sample for this research was drawn. The information sheet contained in the package outlined the purpose of the study and also provided instruction to the participants (Appendix J). Participants were required to complete the questionnaire and return it to the researcher in a pre addressed stamped envelope which was also provided in the package. Formal written consent was not obtained for this study as implied consent was assumed for those individuals who chose to complete and return the questionnaire. Ethics approval for this study was obtained from the Faculty of Agriculture, Forestry and Home Economics ethics committee following the principles for research ethics approval established by the University of Alberta.

Data Analysis

Frequency counts, correlations and regression procedures were used to answer the research questions proposed in this study. Correlation procedures were used to answer many of the research questions as this statistical technique is able to measure and describe a relationship between two variables and is also appropriate for use in theory verification (Gravetter & Wallnau, 1985). Multiple regression was used to explore the last research question as this technique allowed several components of the model to be tested simultaneously. The samples and specific statistical techniques used to address each question were as follows.

Question 1: What sources of information do women use to help them select an option to manage their menopausal experience? Does this differ if the woman has

experienced a hysterectomy ? was addressed by examining the frequency count of individual information sources used by women in the total sample as well as for women in the two sub samples. A descriptive profile of information sources was also developed by combining the frequencies of similar information sources.

Question 2: How is a woman's health locus of control orientation related to the number of information sources she uses when selecting an option to manage menopause? and Question 3: How is a woman's health locus of control orientation related to the level of influence her doctor has on the selection of a menopausal management option? were addressed by using basic correlational procedures to assess the relationships between the variables indicated in each question. As these two questions were not directly concerned with the selection of a menopausal management option, responses from the entire sample were used to answer these questions.

Question 4: Is a woman's rating of her physician as being a highly influential source of information related to the primary menopausal management option she selects?, Question 5: Is the number of information sources a woman uses when selecting a primary menopausal management option related to the menopausal management option she selects?, and Question 6: Is a woman's health locus of control orientation significantly related to the primary menopausal management option she selects? were addressed through the use of point biserial correlation. This particular correlational technique was used as it is designed to examine the relationship between a dichotomous variable (i.e., medical vs. non-medical management option) and a continuous variable (Huck, Cormier, & Bounds, 1974). Since the selection of a primary menopausal management option was examined in each of these questions, only the responses from the sub sample of women who had <u>not</u> had their ovaries removed were analyzed for these three questions.

The last research question, "Which variables in the proposed model are influential in the selection of a primary menopausal management option ?", was

addressed through the use of multiple regression. The specific paths examined in this analysis are outlined in Figure 4. Only responses from the women who had not had their ovaries removed were used in this analysis. It should be noted that although some would question using regression procedures when one has a dichotomous endogenous variable (i.e., medical vs. non-medical) it has been suggested that regression is robust enough to compensate for such a situation (Duncan, 1975). A more detailed discussion of the participants involved in this study as well as the results of the tests of the research questions are presented in the following chapter.

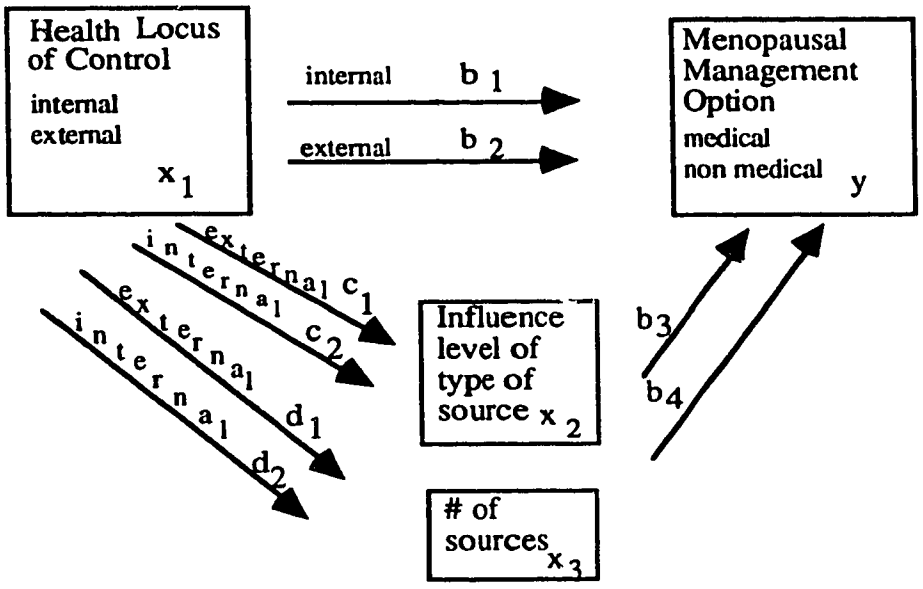


Figure 4. Expansion of the proposed model indicating the various relationships examined through the use of regression.

CHAPTER 5

RESULTS

The following chapter contains a description of the participants involved in this study and the results obtained from the analysis of the data. A description of the sample will be presented first followed by the results for each research question.

Description of Sample

A total of 142 women of the 290 who participated in the larger study on women's mid-life decision making were eligible for this study. Of these 142 women, 12 had previously had a hysterectomy involving the removal of ovaries. Separating the women who had undergone a total abdominal hysterectomy and bilateral salpingo oophorectomy from the entire sample of 142 participants created two sub samples. The first sub sample contained women whose ovaries were still intact (N=130) while the second sub sample contained participants whose ovaries were removed (N=12).

The age of participants of the 142 women involved in the current study ranged from 40 to 64 years with a mean of 50.4 years and a mode of 50 years. The women involved in the study were well educated with the majority of participants having some university training (see Appendix K). The majority of participants worked full time outside the home (see Appendix K) and most indicated that their total family income was above $50 000 (see Appendix L). Most of the participants in this study were married (see Appendix L) and the majority lived in a city (see Appendix M). Furthermore, most of the women involved in this research had moderate or liberal religious beliefs (see Appendix M). These majority of participants also rated their overall health as being either better than average or much better than average compared to other women their age (see Appendix N). Questions asking participants to rate specific areas of their health and well being on a five point scale ranging from poor to

excellent supported participants' overall health ratings. Over 84% of the women in the current study, for example, rated their physical health at or above the level of "good", over 90% indicated that their sexual well being was at or above the level of "good", and over 87% rated their emotional well being at or above the level of "good".

Tests of Research Questions

The following describes the results obtained for each research question proposed in this study.

Question 1

The first research question posed in this research was "What sources of information do women use to help them select an option to manage their menopausal experience? Does this differ if the woman has experienced a hysterectomy?" The pattern of information sources used that emerged was a multi-source one. This was supported by a relatively high mean number of sources being mentioned; 7.3. The median number of sources used was 7 while the range was 0 to 19. Reviewing these individual sources, books were the most widely used source of information while the family doctor was the second most frequently reported source of information (See Table 5.0).

By grouping these individual sources into eight broader categories of written materials (books, magazines, pamphlets, newspapers and newsletters), medical tests (mammogram and bone density test), media (TV documentary, TV talk show, other TV show, videotapes), family members (husband, daughter, sister, mother, other family members), health professionals (family doctor, gynecologist, pharmacist, dietitian, nurse), friends, workshop and other, the profile shown in Table 5.1 emerged. For the majority of the categories, the ranks assigned by both the sample of women with intact ovaries and the sample of women who had previously undergone a bilateral salpingo oophorectomy were either identical or differed by only one place value. Both sub

samples, for example, indicated that written materials were the information source type they used most frequently followed by the use of information from health professionals. Furthermore, both sub samples indicated that friends, workshops and other were the three least used categories of information sources. One difference to emerge between the two groups was that women who had previously had a total abdominal hysterectomy and bilateral salpingo oophorectomy ranked family members as their third most commonly used source of information while those women whose ovaries were intact ranked family members as their fifth most commonly used source of information.

Question 2

The second research question examined in this study asked "How is a woman's health locus of control orientation related to the number of information sources she uses when selecting an option to manage menopause?" Correlations were calculated to determine if there was a statistically significant relationship between number of information sources used and an internal or powerful others health locus of control orientation. Neither of the correlations proved to be statistically significant. Specifically, the correlation between an internal health locus of control and number of information sources used was $r\ (138) = -0.12\ (p > 0.05)$ while the correlation between powerful others external health locus of control and number of information sources used was $r\ (137) = -0.08\ (p > 0.05)$. It therefore appears that a woman's health locus of control orientation has no significant relationship with the number of information sources she will use in the process of selecting a menopausal management option.

Table 5.0.
Frequency of Information Sources Used[a]

Information Source	Sub Sample 1[b] Freq.	%	Sub Sample 2[c] Freq.	%	Total Sample Freq.	%
Books	106	81.5	7	58.3	113	79.6
Family doctor	94	72.3	7	58.3	101	71.1
Mammogram	85	65.4	7	58.3	92	64.8
Magazines	85	65.4	6	50.0	91	64.1
Friends	70	53.8	7	58.3	77	49.3
Newspapers	57	43.8	3	25.0	60	42.3
Pamphlets	57	43.8	7	58.3	64	45.1
Television documentary	55	42.3	3	25.0	58	40.8
Gynecologist	47	36.2	5	41.7	52	36.6
Workshop	46	35.4	2	16.7	48	33.8
Bone density test	41	31.5	1	8.3	42	29.6
Sister	22	16.9	4	33.3	26	18.3
Husband	21	16.2	4	33.3	25	17.6
Television talk shows	18	13.8	3	25.0	21	14.8
Mother	19	14.6	2	16.7	21	14.8
Newsletter	21	16.2	1	8.3	22	15.5
Videotapes	19	14.6	2	16.7	21	14.8
Other	18	13.8	3	25.0	21	14.8
Pharmacist	15	11.5	3	25.0	18	12.7
Dietitian	18	13.8	0	0.0	18	12.7
Nurse	11	8.5	0	0.0	11	7.7
Other family member	11	8.5	0	0.0	11	7.7
Daughter	7	5.4	2	16.7	9	6.3
Other TV shows	6	4.6	0	0.0	6	4.2

[a] Respondents could respond more than once.

[b] Women whose ovaries are intact N=130.

[c] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy N=12.

Table 5.1.
Rankings of Categories of Information Sources Used[a]

Category of Information	Sub Sample 1[b] Freq.	Rank	Sub Sample 2[c] Freq.	Rank	Total Sample Freq.	Rank
Written materials	326	1	29	1	350	1
Health professionals	185	2	18	2	200	2
Medical tests	126	3	8	4*	134	3
Media	98	4	8	4*	106	4
Family	80	5	12	3	92	5
Friends	70	6	7	6	77	6
Workshop	46	7	2	8	48	7
Other	18	8	3	7	21	8

[a] Respondents could respond more than once.
[b] Women whose ovaries are intact N=130.
[c] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy N=12.
* These two items tied for fourth place

Question 3

The third research question posed in this study was "How is a woman's health locus of control orientation related to the level of influence her doctor has on the selection of a menopausal management option?" Again correlations were calculated based on responses from the total sample to assess the relationship that a woman's health locus of control orientation may have. Although the correlation between internal health locus of control and level of influence attributed to doctors in this decision was not significant $r(111) = 0.09$ ($p > 0.05$), the correlation between powerful others health locus of control and influence level attributed to physicians was statistically significant $r(113) = -0.27$ ($p < 0.01$). This indicates that women with an internal health locus of control orientation are not particularly influenced by information received from their doctor when choosing a menopausal management option while women with an external health locus of control orientation are more likely to have their decision influenced by information provided by their doctor.

Question 4

The fourth research question addressed in this study asked "Is a woman's rating of her physician as being a highly influential source of information related to the primary menopausal management option she selects" Information from the sample of participants whose ovaries were still intact was used to answer this question. Responses from the women who had previously undergone a bilateral salpingo oophorectomy were excluded from analysis for this research question as well as questions five through seven as such women may be more likely to experience a sudden decrease in hormone production (Logothetis, 1991) which may impact the menopausal management option a woman selects.

Another variable also perceived by this author as a possible confound impacting the selection of a primary menopausal management option was the level of menopausal discomfort experienced by a woman. This author believed that high levels of menopausal discomfort may have been related to the selection of a medical menopausal management option as such options have been found to be more effective than non-medical options at alleviating certain menopausal symptoms (Lichtman, 1991). A point biserial correlation was calculated to determine the relationship between scores on the Index of Menopausal Symptoms and the primary menopausal management option selected by a woman in order to determine if the level of menopausal discomfort was a possible confound affecting the selection of a primary menopausal management option. The correlation between these two factors proved to be statistically insignificant r_{pb} $(121) = 0.06$ $(p > 0.05)$ and scores on the Index of Menopausal Symptoms were therefore not considered to be a possible confound affecting the results for questions four through seven.

A point biserial correlation was also calculated to assess the relationship between the primary menopausal management option selected and level of influence a woman attributed to information received from her doctor. This correlation proved to

be statistically significant as high scores on the scale assessing level of influence of information received from doctors were associated with women selecting ERT/HRT as their primary menopausal management strategy r_{pb} (90) = 0.34 ($p < 0.01$).

Question 5

The calculation of a point biserial correlation using the responses from participants whose ovaries were still intact was performed to examine the research question which asked "Is the number of information sources a woman uses when selecting a primary menopausal management option related to the menopausal management option selected?" The correlation between number of information sources used and primary menopausal management option selected was not statistically significant $r_{pb}(113) = 0.12$ ($p > 0.05$). The number of information sources a woman uses to assist her in making such a decision, therefore, seems to have no relationship with the selection of a medical or non-medical management option.

Question 6

Responses from the sub sample of participants whose ovaries were still intact were also used to examine the research question which asked "Is a woman's health locus of control orientation significantly related to the primary menopausal management option she selects?" Again, point biserial correlations were used to determine the relationship between these factors. No significant relationship was found between the selection of a primary menopausal management option with scores on the internal health locus of control orientation $r_{pb}(113) = -0.06$ ($p > 0.05$) or scores on the powerful others component of the MHLC scale r_{pb} (113) = -0.13 ($p > 0.05$). It therefore appears that health locus of control orientation has no direct relationship with the primary menopausal management option selected by a woman.

Question 7

The last research question addressed in this study asked "Which variables in the proposed model are influential in the selection of a primary menopausal management option?" Stepwise regression was used to determine which factors do in fact seem to have a relationship with the selection of a medical or non medical menopausal management option. Figure 5 shows the reduced model which was suggested by the standardized beta coefficients calculated from the stepwise regression analysis. This reduced model indicates that of the factors proposed in the current model, only external health locus of control orientation and influence level of information received from doctors have any relationship with what menopausal management option a woman selects. Specifically, it appears that an external health locus of control orientation has an indirect relationship with what primary option is selected. This indirect relationship is mediated by the level of influence a woman assigns to information received from her doctor.

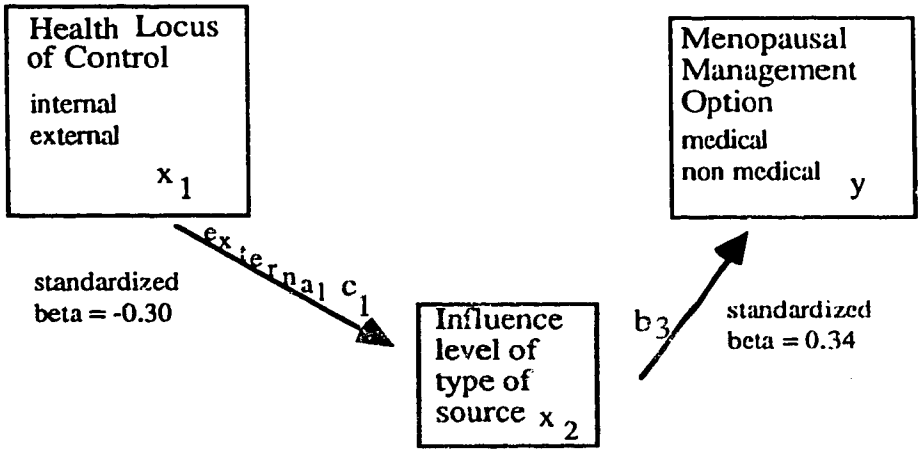


Figure 5. Reduced model of factors affecting the selection of a primary menopausal management option supported by stepwise regression.

Summary

Results obtained from this study suggest that although women use a variety of information sources to help them select a way to manage their menopausal experience, health locus of control as measured by the MHLC scale has no relationship with how many of these sources a woman uses. Furthermore, health locus of control orientation has no direct relationship with whether a woman selects a medical or non-medical option as her primary means for controlling her menopausal experience. Health locus of control orientation, however, does seem have an indirect relationship with what menopausal management option is selected. Specifically, women who score high on powerful others external health locus of control orientation tend to rate information received from their physician as being highly influential. Attributing a great deal of importance to information received from a physician is, in turn, associated with a woman choosing a medical option to alleviate menopausal discomforts. These results are discussed in more detail in the following chapter.

VI

DISCUSSION

This chapter will include a discussion of the results obtained from data analysis related to each research question addressed in this study. Each research question will be addressed in turn and will include a discussion of the results in terms of previous research findings. A discussion of ideas for future research as well as implications for practice follow.

Information Sources

The results obtained from this study indicate that women gather information to help them manage their menopausal experience from a variety of sources. It therefore appears that women may actively seek information and that many are not passive or uniformed decision makers in the process of selecting a menopausal management option. The variety of sources reported in this study are similar to the sources reported in previous research (c.f. Abraham, Perz, Clarkson, & Llewelly - Jones, 1995; Lack & Holloway, 1992; Mansfield, Theisen, & Boyer, 1992; Mansfield & Voda, 1993; Roberts, 1991). Within this current study, books and a woman's doctor were rated as the two most common sources of information used by women making menopausal management decisions.

Previous research examining sources of information women use regarding menopause and menopausal management options have also indicated books and doctors as key sources of information. Few other studies, however, have indicated the rank order of information sources used by women. Studies which have indicated the rank order of sources used include one study which surveyed 505 women. Within this study, it was found that friends were rated as the most frequently used source of information followed by books, magazines, mother, physician/health professionals and other family members (Mansfield & Voda, 1993). The authors of one other study also indicating the rank order of information sources used indicated that the media was the

most common information source used followed by doctors, friends and family members (Gallop Poll as cited by Furman, 1995). A further study which indicated the rank order of information sources used by women to gather knowledge about menopause found that of the 99 women surveyed, popular media was listed as the most frequently used information source followed by physician, family members, professional journals/conferences and books (Mansfield, Theisen, & Boyer, 1992).

A possible explanation for the low ranking of doctors in the Mansfield and Voda study and the low ranking given to doctors in the current study may be that the earlier study asked women "Where do/did most of your ideas about menopause come from?" while the current study specifically asked where women gather information to help them manage their menopausal experience. Based on these studies, it appears that women may prefer to get basic information about menopause from more personal sources (i.e., friends) while they may be more likely to view doctors as being useful sources from which to gather specific information relating to menopausal management options. Women may be less likely to see their doctors for general information about menopause as it has been suggested that women are uncomfortable seeing their doctors unless they are ill (Lack & Holloway, 1992) or because they view doctors as being uncomfortable discussing menopause with them (Mansfield & Voda, 1993). Speaking to a physician about management options, however, may be more acceptable to women as they are discussing specific medically oriented information rather than general information.

The finding that 71.1% of the participants in the current study used their doctors as a source of information to help them manage their menopausal experience was surprising for two reasons. First, other studies have suggested that many women do not discuss their menopausal experience with their physician. A study of 2500 Canadian women, for example, found that only 54% of the women it surveyed had discussed their menopausal status with their doctor (Kaufert & Gilbert, 1986).

Second, other studies examining sources used by women gathering information about menopause have not found as high of a percentage of respondents listing physicians as a source of information used. Only 36% of the women in a recent Gallop Poll survey of 833 women, for example, indicated that they used information from their doctor (Furman, 1995). A possible explanation for the high percentage of women indicating that their family doctor was a source of information which was found in the present study may be due to the non-representative sampling techniques employed in this research. As mentioned earlier, many of the women involved in this study were highly educated and fairly affluent. Furthermore, many of the women involved in this research were employed within health fields (e.g., nurses, pharmacists, dental hygienist). These factors may have led the women involved in the current research to either see their doctors more regularly or to be more comfortable in discussing their menopausal experience with their physician.

A further explanation for the high percentage of women using doctors as a source of information to help them manage their menopausal experience may be due to the high number of women in the present study who used books as an information source. More and more books on the topic of menopause and menopausal management have been entering the market over the past ten years. Many of these books promote the idea of a woman working collaboratively with her physician in selecting ways to manage her menopausal experience (c.f. Beckerson & Nuefeld, 1994; Furman, 1995). Perhaps the women involved in this research had read such books and had incorporated the ideas presented within them. A further possible reason for the high number of women turning to their doctors to gather information about menopause may be traced to the influence and acceptance of a medicalized deficiency disease model of menopause.

Women who had previously had a total abdominal hysterectomy and bilateral salpingo oophorectomy had similar information use profiles as women whose ovaries

were intact. Both groups rated written materials and health professionals as being their first and second most frequently used sources of information. One difference that emerged between the two groups was that women whose ovaries were intact ranked family members as slightly more important sources of information than women who had previously undergone a bilateral salpingo oophorectomy. As the sample size of women who had undergone a bilateral salpingo oophorectomy was quite small (N=12), this may not be significant. As the two samples were similar in the demographic factors examined in this study, it was not surprising that these two groups of women had similar information use profiles.

Health Locus of Control and Number of Information Sources

No significant relationship was found between either internal or powerful others health locus of control orientations and the number of information sources used by a woman to help manage her menopausal experience. As it had previously been suggested that individuals with an internal health locus of control were more likely to seek out and use more sources of information (Bundek, Marks, & Richardson, 1993; Toner & Manuck, 1979; Wallston, Maides, & Wallston, 1976; Wallston, Wallston, Kaplan, & Maides, 1976) the lack of a relationship between internal health locus of control and the number information sources used was unexpected.

Two possible explanations may account for the lack of relationship in this study. First, a direct measure of health value was not included in this study. The lack of such a measure may have affected the predictive ability of scores on the health locus of control scales as such scores are supposed to only be effective in predicting behavior for individuals who also value health highly (Wallston, 1991). A second possible explanation is that although the current study was able to assess the number of various categorical sources of information a woman may use to help her manage her menopausal experience, this study did not assess how many pieces of information were

used within each category. A woman, for example, may have indicated that she used books as a source of information but we do not know how many books she used. It is therefore possible that while both internally and externally health locus of control oriented individuals use a similar variety of information sources, internally oriented individuals may actually use more information if they gather a greater number of resources within each source type.

Health Locus of Control Orientation and Influence Level of Doctor

Based on the analysis of responses from the women participating in this study it appears that an internal health locus of control orientation has no significant relationship with the amount of influence a doctor has on a woman's selection of a menopausal management option. It was expected that women with an internal health locus of control orientation would be less likely to depend heavily on information received from their doctor for three reasons. First, the very nature of the items on the scale suggest that individuals scoring high on this scale would tend to assume greater responsibility for their own health. Second, previous research has found that those with an internal health locus of control believe themselves to be better problem solvers (Heppner & Petersen, 1982). Third, it has been found that individuals with an internal locus of control orientation are more trusting of their own judgments than individuals with an external orientation (Lefcourt, 1982). It was believed that these three factors would increase the likelihood of women with a high internal health locus of control orientation making relatively independent decisions regarding the selection of a primary menopausal management option.

Having a powerful others health locus of control orientation, however, does appear to be related to the degree of influence a doctor has on a woman's decision. Specifically, it was found that a high levels of a powerful others health locus of control orientation were linked with a greater degree of influence being attributed to information

received from physicians. These results support the findings of an earlier study examining women's information gathering during their pregnancies. The author of this study reported that pregnant women with a powerful others health locus of control orientation were more likely to rate physicians as important sources of information (Aaronson, 1988).

The relationship found between a powerful others health locus of control orientation and higher levels of influence being attributed to information provided by a physician was not surprising for two reasons. First, it has been suggested that individuals with a powerful others health locus of control orientation feel less responsibility for their own health and are less likely to be motivated to be active in health decision making (Murphy & Harvey, 1989). Second, the powerful others health locus of control scale is based on the concept that individuals scoring high on this scale would view others in positions of power or authority as being responsible for their health and well being. Since doctors have traditionally been viewed as figures of authority (Haug & Lavin, 1979) it seems logical that individuals with a powerful others health locus of control orientation would be more likely to defer decision making to their doctor and would in turn rely heavily on information or advice received from their physician.

Relationship Between Physician Influence and Primary Management Option Selected

Responses from the participants involved in the present research indicated a relationship between the level of influence being attributed to physicians and the selection of a medical menopausal management option. Specifically, the higher the level of influence attributed to information given by a physician, the more likely a woman was to use ERT or HRT. While this study did not obtain data about the specific recommendations made by the physician, this finding may reflect a medicalized view of menopause which leads to doctors suggesting the use of medication to manage

this experience. The promotion of the use of hormone therapy by physicians is evidenced within the recent guidelines published by the American College of Physicians. Within these guidelines, it is stated that doctors should suggest to all menopausal women that they consider preventative hormone therapy (Anonymous, 1992). The tendency for doctors to suggest the use of hormone therapy is also evidenced by the finding that of 833 women surveyed in a recent Gallop Poll, less than 2 % reported that their doctor recommended non-hormonal options for managing menopause (Randal, 1993).

A possible alternative interpretation of these results may be that women who wish to use ERT/HRT are more likely to see their doctors as they would need to obtain a prescription to begin using such an option. During such a visit, a woman would have the opportunity to ask their doctor for more information about such options. A woman planning to use a non-medical option to manage her menopausal experience, however, would not need a prescription to begin using such a management option and may be less likely to make an appointment with her physician to discuss management strategies. Doctors, therefore, may be more likely to be considered important sources of information by women who choose to use medical management options simply because such women are more likely to speak to their doctors about this issue.

Relationship Between Number of Information Sources and Management Option Selected

No significant relationship was found between number of information sources used and the menopausal management option selected by a woman. This suggests that women selecting either a medical or non-medical menopausal management option use a similar number of information sources in the process of making such a decision.

Relationship Between Health Locus of Control and Management Option Selected

Based on responses provided by participants in the current study, no direct relationship was found between a woman's health locus of control orientation and the menopausal management option selected. This is consistent with other studies examining health locus of control orientation on health behavior that have also found no significant relationship between this factor and health behavior (Laffery & Isenberg, 1983; Seeley, 1976; Wallston, 1992; Wallston & Wallston, 1982). The absence of a relationship between these two factors, however, may be due to several reasons. First, there may actually be no direct relationship between health locus of control and the specific menopausal management option selected. A second possible explanation may be that this research was unable to detect a relationship between health locus of control orientation and the selection of a primary menopausal management option without addressing a woman's health value. As discussed earlier, health locus of control is best able to predict behavior when an individual's health value is taken into consideration as a person's health value moderates the relationship between their health locus of control orientation and their health behavior (Wallston, 1992). The lack of such a measure in this study therefore may have hindered the possibility of detecting a relationship between scores on the health locus of control sub scales and the selection of a menopausal management option.

Another possible reason for no direct relationship being found between health locus of control and the selection of a menopausal management option may be due to the correspondence principle as discussed in chapter 2. As may be recalled, the MHLC scale was designed to measure general health behavior but is often used, as in this study, to predict specific health behaviors. Saltzer's 1978 study on weight loss demonstrated that while more general locus of control scales were unable to predict weight loss, her weight specific health locus of control scale was able to predict the amount of weight an individual would lose. Based on Saltzer's findings, this author

suggests that designing a locus of control scale specific to menopause may help to predict the selection of a specific menopausal management option.

A last explanation for the lack of a direct relationship between health locus of control and the selection of a menopausal management option may be due to the fact that many factors besides health locus of control likely impact such decisions. As it has been suggested that health locus of control has relatively weak predictive power (Wallston, 1991), other factors which are related to the specific management option selected may obscure the predictive relationship between health locus of control and management option selected. Two other factors suggested by the literature which may have more of an impact on the selection of a primary menopausal management option than health locus of control orientation include a woman's philosophical orientation towards menopause and her previous health history.

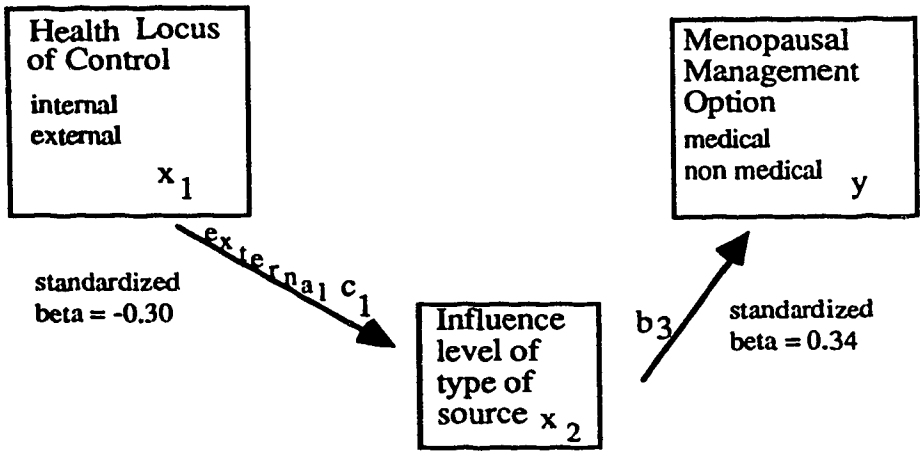
A relatively recent study suggesting that how a woman views menopause may have a significant relationship with the menopausal management option she selects was conducted by Logothetis in 1991. Within this study Logothetis developed a philosophical orientation towards menopause (POM) scale designed to determine the degree to which a woman viewed menopause as a medical or natural developmental event. In her research, Logothetis found that a woman's score on this scale accounted for a large degree of the variance between those women who chose to use ERT and those who did not (Logothetis, 1991). It is likely that a woman's philosophical orientation towards menopause would have a greater relationship with the primary menopausal management option selected than health locus of control orientation as a woman who views menopause as disease would likely choose to use hormone therapy regardless if she had an internal or external health locus of control orientation. It may be interesting, however, to discover if health locus of control has any relationship with a woman's view of menopause to see if this factor is one of the variables which lead

some women to perceive menopause as a disease while others view the experience as a natural event.

The idea that a woman's personal health history may be another factor which has a significant relationship with the selection of a primary menopausal management option was suggested by a study which examined how women weigh information when making a decision about the use of hormone therapy (Rothert, Rovner, Holmes, Schmitt, Talarcyzk, Kroll, & Gogate, 1990). The researchers who conducted this study found that the women they surveyed could be divided into four groups based on whether they tended to focus on information about hot flashes, osteoporosis, side effects associated with hormone therapy or risk of cancer associated with hormone therapy. The fact that the women chose to focus on different pieces of information suggests that women consider their own health risks and health preferences when choosing a menopausal management option. It is therefore more likely that a woman with a history of osteoporosis in her family than one without such history may begin to use hormone therapy regardless of her health locus of control orientation.

Variables of the Proposed Model Which Were Supported

Based on step wise regression of the total proposed model, only the following components were found to receive statistical support:



Based on this reduced model it appears that information provided by doctors has a mediating relationship for individuals with an external health locus of control with the primary menopausal management option selected by such women. Specifically, it was found that women who have an external health locus of control were more likely to rate their doctor as being a highly influential source of information. In turn, those who rated their doctor as an important source of information were more likely to choose a medical menopausal management strategy. Because information from doctors seems to have a great deal of influence on women with an external health locus of control orientation, doctors may have to be particularly careful that they provide an accurate and balanced view of the various options available for managing menopause to their patients. Such a balanced view will help to ensure that patients have sufficient information to make an informed choice.

The influence doctors may exert over an individual has been noted for many years. Although the doctor patient relationship has been changing from one of patient passivity to one of patient participation since the 1970's (Reeder, 1972), the results from the present research suggest that doctors may still maintain a great deal of influence over health decisions for certain women. A possible reason for this continued influence may be that most people do not want or expect to be completely autonomous in making such decisions (Gauthier & Krassen-Maxwell, 1991). Reasons for the lack of desire to be totally independent in making health decisions include that most people, especially women with their multiple roles and responsibilities, do not have the time to investigate various treatment options and therefore depend on doctors to do such investigating for them (Gauthier & Krassen-Maxwell, 1991).

Although some may suggest that women who allow themselves to be highly influenced by information provided by their doctor are being passive in their health decision making, this may not necessarily be true. Gauthier and Krassen-Maxwell

(1991) have suggested that there may two forms of self-determinism expressed by patients making health care decisions. The first form, referred to as deliberate self-determinism, refers to individuals who make specific health care decisions for themselves after a careful consideration of information provided by their doctor and any other sources they may choose to use (Gauthier & Krassen-Maxwell, 1991). This form of self-determinism is what most individuals would likely view as active participation in decision making. The second form, deferred judgment self-determination, refers to individuals who choose not to make health care decisions for themselves and who choose to accept the recommendations of their doctors without question (Gauthier & Krassen-Maxwell, 1991). Although such patients may appear to be passively involved in health care decisions, they may actually have actively decided upon such a course of interaction with their physician. Whether the women in this study who scored high on the powerful others health locus of control orientation were active in selecting the degree of influence they attributed to information provided by their physician is unknown.

Limitations

The generalizability of the findings obtained is limited in that non-probabilistic sampling procedures were used. As mentioned earlier, the women in this study tended to be highly educated, relatively affluent and in good health. Furthermore, the participants in this study had actively made a decision regarding the management of their menopausal experience. The results of this study, therefore, can only be generalized to similarly highly educated, affluent, and healthy women who are also active in the decision making process regarding menopausal management. Furthermore, the survey design of this study was only able to retrospectively examine participants' current decisions regarding the selection of a menopausal management option. This study, therefore, was unable to illuminate the decision making process

involved in the selection of a menopausal management option. For example, this study did not illuminate how women weigh and evaluate information from various external sources or how such information is integrated with their personal health history or preferences.

A further limitation of this study is that it did not include a direct measure of health value. A measure of how much a person values their health has been suggested as being necessary to enhance the predictability of the concept of health locus of control as the locus of control construct is conceptualized as only predicting behaviors in situations where the reinforcement (i.e., health) is valued (Rotter, 1975; Wallston, 1991). Although a direct measure of health value would be preferable, the lack of such a measure may not preclude the use of health locus of control as a predictor of health behavior for two reasons. First, previous studies which have also excluded a measure of health value have still been able to find significant relationships between health locus of control and health behaviors (c.f. Bundek, Marks & Richardson, 1993; Toner & Manuck, 1979) Second, it has been suggested that health tends to be universally valued quite highly which may make a health value measure unnecessary (Wallston, 1991).

Evidence suggesting that the women who participated in this study value health highly is demonstrated by examining responses to questions assessing basic health behaviors. Responses to these questions indicated that the women in this study tended to engage in health promoting behaviors and avoid negative health behaviors. For example, only 7% of participants indicated that they smoked while over 80% of participants indicated that they have a physical at least once every two years and over 69% of respondents exercised at least three times a week. It therefore appears that the women involved in this study do value their health and that health locus should have been able predict their health behaviors even though a direct measure of health value is absent.

A further limitation of this study is that it did not consider the possible curvilinear relationship which may exist between information load and menopausal decision making. Within this research, amount of information was examined as a linear variable. Authors of previous studies, however, have noted that there is a point of information saturation at which an individual can no longer adequately process information (Abelson & Levi, 1985; Tversky & Kahneman, 1974). The construction of the question regarding sources of information used, however, only permitted an assessment of the number of categorical sources of information used and did not permit analysis of the actual amount of information used within each of these categories. The construction of this question, therefore, made an examination of the curvilinear relationship between amount of information and menopausal management option selected impossible.

Implications

The fact that written materials, especially books, were the most common information sources about menopausal management options used by the women in this study emphasizes the importance that authors and journalists have in the educational process. Such individuals, therefore, must ensure that their writings are accurate and balanced in order to assist women in making sound health decisions. The importance of the family doctor as a source of information about menopausal management options also places great responsibility on such professionals to also provide accurate and balanced information.

Although doctors may be a common and highly influential source of information used by women selecting a primary menopausal management option, several problems have been reported with information provided by doctors. First, it has been found that doctors do not always discuss non-medical menopausal management options with their patients or address many of their patients' greatest

concerns (Furman, 1995). Furthermore, it has been found that doctors are often unable to explain things in non-technical language (Miles, 1991) and that they do not always spend enough time with patients discussing various treatment options (Waitzkin, 1984).

Due to the importance that some women place on information received from their doctor, it is recommended that doctors pay more attention to the communication process as suggested by Waitzkin (1984). Specific recommendations for doctors to follow for improving the communication and relationship between themselves and their patients have been outlined by Joos and Hickman (1990) and include items such as providing written information, using shorter words and sentences, presenting important information first and checking to ensure that their patients have understood what they have been told. Furthermore, it is suggested that doctors use open questions to better understand a patient's point of view and elicit a patient's desires and expectations.

Although many women may be highly influenced by information provided by their physician when selecting a menopausal management option, it is important to ensure that women are also active in this process as it has been suggested that " . . . medicine is far too important to be left to the doctors" (Dr. D. Gould as cited by Cooper, 1990 p. 165). Efforts should be made to ensure that women are able to work collaboratively with their doctor in selecting a menopausal management option as it has been suggested that no one recommendation is applicable to all women and that each woman must therefore make a personal decision regarding what menopausal management option to use (Logothetis, 1991). In order for a collaborative relationship to develop between a woman and her doctor, it may be important to help women ensure that they choose a physician who has a style which is compatible with their needs and preferences Ensuring that there is a collaborative relationship between a woman and her doctor is important as although the information provided by doctors can be very informative to women in the process of selecting a management option, it is also

important for a woman to understand her menopausal experience from a non medical view if she is to be able to select a management option which best suits not only her physical needs but also her preferences and psychological needs.

Promoting women's involvement in the decision making process surrounding the selection of a menopausal management option may also be important in light of previous research on the effects of depriving individuals of control over decisions in their lives. For example, one study has found that students who were allowed to choose the passage that they had to memorize for a class were more satisfied with their passages than those students who were assigned a section of text (Liem, 1975 as cited by Janis and Mann, 1977). It is therefore possible that women who have the opportunity to be actively involved in the selection of a menopausal management option will be more satisfied with their choice than women who are simply prescribed a management method. Furthermore, it has been found that of a group of women who had undergone a therapeutic abortion, those women who reported that they felt that the decision was not truly their own or that they were coerced into the procedure had a higher reported incidence of post abortion illness (Janis & Mann, 1977). Based on this finding it is possible that women who have less control over the selection of a menopausal management option may experience more negative side effects.

Family life educators may therefore be able to assist women to select the menopausal management option which best suits their needs by engaging in the following actions. First, family life educators may be able to create and implement programs designed to educate physicians and other health care providers on ways to improve their communication with patients and to give health providers a better understanding of the concerns and issues facing mid-life women. Second, family life educators can design programs whose goals are to share accurate and balanced information about menopausal management options with women in an effort to ensure that women are properly informed about their options. However, as it appears that

woman are able to access multiple sources of information about menopause, family life educators must do more than simply provide information on menopausal management options to women. Family life educators, for example, should also instruct women on how to critically evaluate the information about menopause in light of their own health history and preferences. As part of this process, family life educators may need to provide an opportunity for women to reflect on what their preferences in regards to menopausal management are.

Another goal for programs designed by family life educators may be to help women improve the relationships they have with health professionals. Although some individuals who subscribe to the view of menopause as a natural event not requiring any medical intervention may question the importance of improving such relationships, there is little doubt that health professionals such as doctors can be a very important information source for women in the process of choosing a menopausal management option. Health professionals, for example, can administer tests designed to measure a woman's risk of osteoporosis and also help a woman assess her level of risk for breast cancer and cardiovascular disease. As such information may have a significant impact on what menopausal management option may be best for a woman, it is important that a woman be able to access such information. By helping women to improve their ability to communicate with their doctors (e.g., how to ask effective questions) and by helping them to interact within the health care system, family life educators can help ensure that women are able to access such key pieces of information.

Directions for Future Research

One of the greatest limitations of this study was the fact that it was designed as a survey questionnaire which limited the examination of the process involved in the selection of a menopausal management option. A qualitative examination of the process involved in selecting a menopausal management option would not only address

the following gaps in knowledge but would also be better able to determine the other variety of factors which may impact this decision making process.

Although the current study has provided some insight into what information sources are used by women in the process of trying to manage menopause, more specific knowledge about the use of information in such decisions is required. For example, although the women in this study reported using a fairly high number of different information sources, we do not know if the women were satisfied with the quality or amount of information provided by each source type. Many of the women in the current study, for example, indicated that they used books but we do not know if there is particular information that women would like to see included or excluded from such items.

Other areas for future examination include what strategies women use to gather information about menopausal management options. Although previous studies have suggested that such information is difficult to find (Furman, 1995) many of the women in this study were able to access a wide array of information sources to help them manage their menopausal experience. An understanding of what factors enabled some of the women in this study to access a variety of sources on menopausal management may help other women improve their ability to gather such information.

Within this study, it was reported that doctors are a highly influential source of information for certain women. Furthermore, it was reported that the information provided by a doctor has a significant relationship with the menopausal management option selected by a woman. This suggests that a better understanding of the interaction between doctors and their patients as well as what information they provide to their patients may be necessary. Areas to explore may include what variety of menopausal management options doctors discuss with their patients as well as whether physicians give an equal discussion of both the benefits and risks of the options they present. Furthermore, whether or not doctors promote a collaborative relationship

between themselves and women who are trying to select a menopausal management option is uncertain as is how this collaborative relationship may be promoted or hindered.

As health locus of control orientation had no direct relationship with the selection of a primary menopausal management option, future research may wish to focus on what other factors might have an impact on this decision. As noted earlier, a woman's philosophical orientation towards menopause and her personal health history may impact this decision, but are there any other key factors affecting what a woman chooses to use? As how satisfied a woman is with the menopausal management option she selects is ultimately more important than what option she selects, future research should explore what factors determine a woman's level of satisfaction with the menopausal management option selected.

As we approach the end of the 1990's, therefore, there is still much work to be done to meet the challenge that "It is time that midlife women become informed, empowered consumers of the health care system, understanding what is happening to their bodies, making decisions about self care and negotiating therapeutic strategies that are appropriate for them." (Rothert, Padonu, Holmes-Rovner, Kroll, Talarczyk, Rovner, Schmitt, & Breer, 1994 p. 463)

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Appendix A

Letter of Permission to Use and Reproduce Items from the MHLC Scale

VANDERBILT UNIVERSITY SCHOOL OF NURSING
HEALTH CARE RESEARCH PROJECT
Station 17
Vanderbilt University Medical Center
Nashville, Tennessee 37232-8300
Telephone (615) 322-2520
Fax (615) 343-7711

To: Fellow Health Researcher

From: Kenneth A. Wallston, Ph.D.

Re: The Multidimensional Health Locus of Control (MHLC) Scales

Thank you for your recent inquiry about our MHLC scales. Enclosed you will find copies of all three forms of the MHLC (Forms A, B, & C) along with scoring instructions for the forms.

Forms A & B are the "general" health locus of control scales that have been in use since the mid-late 1970's (and were first described in Wallston, Wallston, & DeVellis, 1978, Health Education Monographs, 6, 160-170.) Each of these two "equivalent" forms contain three 6 item subscales: internality; powerful others externality; and chance externality. In the past 15+ years, forms A/B have been used in nearly a thousand studies and have been cited in the literature hundreds of times.

Form C is a relatively new version of the scale that we first started to develop in 1987. Form C is designed to be "condition-specific" and can be used in place of Form A/B when studying people with an existing health/medical condition. [The way you make this happen is to replace the word "condition" in each item with whatever condition (e.g., arthritis, diabetes, pain, etc.) your subjects have.] Like Forms A/B, Form C also has 18 items, but, instead of a single 6 item powerful others subscale, Form C has two, independent 3 item subscales: doctor, and other people.

We consider all three forms of the MHLC to be "in public domain." That means that you are free to use the scales in your research (and to alter them for your research in any way you choose) without obtaining our explicit permission. We do ask, however, that you cite the scales correctly if/when you use them[1]. If you profit monetarily from the use of our scales, we expect that a suitable contribution would be made to "The Vanderbilt Health Care Research Project." If you are a student, you have our permission to include a copy of our scale(s) in the appendix to your thesis or dissertation; otherwise, it would be unethical to publish these scales without obtaining our explicit written permission to do so.

I have recently written and copyrighted a manual for the use of the MHLC scales. It is not necessary for you to purchase a copy of this manual in order to use the scales, but, if you would like to purchase a copy, please send a check for $10.00 (US) made out to "Vanderbilt University" to: Health Care Research Project; School of Nursing; Vanderbilt University Medical Center; Nashville, TN 37240.

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Appendix B

Items From the Powerful Others Component of the MHLC Scale (Forms A and B)

Form A

1. Having regular contact with my physician is the best way for me to avoid illness.
2. Whenever I don't feel well, I should consult a medically trained professional.
3. My family has a lot to do with my becoming sick or staying healthy.
4. Health professionals control my health.
5. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.
6. Regarding my health, I can only do what my doctor tells me to do.

Form B

1. If I see an excellent doctor regularly, I am less likely to have health problems.
2. I can only maintain my health by consulting health professionals.
3. Other people play a big part in whether I stay healthy or sick.
4. Health professionals keep me healthy.
5. The type of care I receive from other people is what is responsible for how well I recover from an illness.
6. Following doctor's orders to the letter is the best way for me to stay healthy.

Note. From " Development of the Multidimensional Health Locus of Control (MHLC) Scales," by K. A. Wallston, B. S. Wallston, and R. DeVellis, 1978, Health Education Monographs, 6, p. 164. Reprinted with permission.

Appendix C

Copy of Poster Used to Solicit Participants

Choices & Changes

Research Subjects Wanted

Who? Women between the ages of 40 and 60

Why? For a survey study of mid life choice making on issues such as

- menopause
- childbearing
- work issues
- health issues
- relationship issues

How? To receive more information and to have a questionnaire sent to you contact:

Dr. D. Kieren
3-38 Assiniboia Hall
University of Alberta
492 - 5770

(all responses confidential)

Appendix D

Text From Advertisements Placed in Local Community Newspaper to Solicit Participants

The following advertisement appeared in The Edmonton Examiner on July 28, 1996

Research Participants Wanted

Women, 40 to 60 years of age, are needed to answer a questionnaire about making choices related to menopause, childbearing, work, relationships, and health. For more information and a questionnaire, please phone Dianne Kieren (492-5770) at the University of Alberta.

Appendix E

Text From Advertisements Placed in Various Newsletters to Solicit Participants

The following advertisement appeared in the University of Alberta's Academic Women's Association Newsletter and the May 1996 edition of the Women's Wellness Newsletter.

Dianne Kieren and Paula Brook are looking for women between the ages of 40 and 60 who would be willing to take part in a study about how women handle midlife issues. They are studying how women make choices about midlife issues including menopause, childbearing, work issues, relationship issues, health issues etc.

If you are willing to share your experiences, please phone Dianne (492-5770) or Paula (492-7949). Leave a message with your name and address and they will send you a questionnaire. Respondents will be identified by a code number for coding purposes and your confidentiality will be protected.

Your help would be greatly appreciated!!

Appendix F

Form A of the Internal Health Locus of Control Scale and Form B of the Powerful Others Health Locus of Control Scale with Accompanying Instructions

Instructions
Rate the extent to which you agree or disagree with the statements below using the following scale.

strongly agree	agree	slightly agree	slightly disagree	disagree	strongly disagree
1	2	3	4	5	6

Form A of the Internal Scale

1. If I get sick, it is my own behavior which determines how soon I get well again.
2. I am in control of my health.
3. When I get sick, I am to blame.
4. The main thing which affects my health is what I myself do.
5. If I take care of myself, I can avoid illness.
6. If I take the right actions, I can stay healthy

Form B of the Powerful Others Scale

1. If I see an excellent doctor regularly, I am less likely to have health problems.
2. I can only maintain my health by consulting health professionals.
3. Other people play a big part in whether I stay healthy or sick.
4. Health professionals keep me healthy.
5. The type of care I receive from other people is what is responsible for how well I recover from an illness.
6. Following doctor's orders to the letter is the best way for me to stay healthy.

Note. From " Development of the Multidimensional Health Locus of Control (MHLC) Scales," by K. A. Wallston, B. S. Wallston, and R. DeVellis, 1978, Health Education Monographs, 6, p. 164. Reprinted with permission.

Appendix G

Final List of Information Sources Provided to Participants

2-24. Please check the information sources you are using or will use to help manage your menopausal experience. (check all that apply)

a.____ books
b.____ videotapes
c.____ newspapers
d.____ magazines
e.____ television talk show
f.____ television documentary
g.____ other TV shows
h.____ family doctor
i.____ gynecologist
j.____ nurse
k.____ pharmacist
l.____ pamphlets
m.____ dietitian
n.____ husband
o.____ daughter
p.____ mother
q.____ sister
r.____ other family member
s.____ friends
t.____ bone density test
u.____ mammogram
v.____ workshop
w.____ newsletter
x. Other _____
(please specify)
y. Other _____
(please specify)

Appendix H

Questions used to Assess the Primary Menopausal Management Option Selected

2-22. **Which of the following methods are you using or are you planning to use? (check all that apply)**

using	plan to use	
☐	☐	a. none
☐	☐	b. hormone therapy
☐	☐	c. regular exercise
☐	☐	d. nutritional/diet changes
☐	☐	e. ginseng or other herbal supplements
☐	☐	f. clothing fabric, style changes and layering
☐	☐	g. avoiding heavy work
☐	☐	h. drug therapy other than hormones
☐	☐	i. relaxation training
☐	☐	j. biofeedback
☐	☐	k. vitamin supplements
☐	☐	l. mineral supplements (e.g. calcium)
☐	☐	m. other: _____

2-23. **Which of the above is or will be your primary option to manage your menopausal experience?**

_____

Appendix I

Index of Menopausal Symptoms as Described by Kaufert & Syrotuik, 1981

2-18a. **Using the following scale, indicate how often have you experienced the following symptoms during the past 6 months.**

	all of the time **1**	most of the time **2**	some of the time **3**	a little of the time **4**	none of the time **5**
a. depression					_____
b. irritability					_____
c. tiredness					_____
d. insomnia					_____
e. dizziness					_____
f. hot flushes/flashes					_____
g. night sweats					_____
h. nervous tension					_____
i. rapid heart beat					_____
j. pins and needles in hands/feet					_____
k. headaches					_____

Note. Description from "Symptom Reporting at the Menopause ," by P. Kaufert and J. Syrotuik, 1981, Social Science and Medicine, 15, p. 1178.

Appendix J

Letter of Information Included in Packages Mailed to Participants

University of Alberta
Edmonton
Canada T6G 2E7

Choices & Change Project
Department of Human Ecology
3-38 Assiniboia Hall. Telephone (403) 492-5771
FAX (403) 492-7527

75th Anniversary 1918 to 1993 Household Economics Home Economics Human Ecology

Dear Choicemaker,

We are conducting a study of how women in the mid years of their life (ages 40 - 60) handle life transitions. We are calling this area of interest choicemaking. We are interested in the questions : What are key areas for choices at this period? How do women respond? Why do women see the lack of choice in some areas? What assists women in making choices ? The transitions we are interested in include personal physical and emotional, family and relationship,work changes that occur during this period.

We are inviting you to participate in this research by completing this questionnaire All of your answers are confidential; only code numbers are placed on the questionnaire to identify different respondents. There is no risk to completing the questionnaire. We would hope that the information will be useful in developing a better understanding of women's actions as choicemakers and to provide women with better support in making effective decisions.
Please return the completed questionnaire in the enclosed envelope. If you have any questions feel free to contact any of the researchers at the numbers listed below.

Thank you for your assistance.

Sincerely,

Dianne K. Kieren, Phd
Professor
Human Ecology
492-5770

Paula Brook, Phd
Associate Professor.
Educational Policy Studies
492-7949

Joy Edwards, MSN, Phd
Public Health Research
Scientist
Capital Health Authority
Public Health Services
492-9803

Tracy Salmon
MSc Candidate
Dept. of Human Ecology

Appendix K

Tables Describing Participants' Highest Level of Education Completed and Primary Work Status

Highest Level of Education Completed by the Participants

Education	Sub Sample 1[a] Freq.	%	Sub Sample 2[b] Freq.	%	Total Sample Freq.	%
Junior high (grades 7-9)	1	0.8	1	8.4	2	1.4
High school (grades 10-12)	16	12.3	4	33.0	20	14.1
Non-university	29	22.3	2	16.8	32	22.5
University diploma/certificate	9	6.9	0	0.0	9	6.3
Bachelor's degree	36	27.7	2	16.8	38	26.8
Professional degree	3	2.3	0	0.0	3	2.1
Master's degree	22	16.9	3	25.0	24	16.9
Doctorate	13	10.0	0	0.0	13	9.2
No response	1	0.8	0	0.0	1	0.7
TOTAL	130	100	12	100	14	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.

Primary Work Status of Participants

Work Status	Sub Sample 1[a] Freq.	%	Sub Sample 2[b] Freq.	%	Total Sample Freq.	%
Full-time	89	68.4	10	83.3	99	69.7
Part -time	13	10.0	2	16.7	15	10.6
Unemployed	1	0.8	0	0.0	1	0.7
Homemaker	4	3.1	0	0.0	4	2.8
Student	4	3.1	0	0.0	4	2.8
Retired	3	2.3	0	0.0	3	2.1
On leave	1	0.8	0	0.0	1	0.7
Other	13	10.0	0	0.0	13	9.2
No response	2	1.5	0	0.0	2	1.4
TOTAL	130	100	12	100	142	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.

Appendix L

Tables Describing Participants' Income Level and Marital Status

Total Family Income Before Taxes and Deductions

Income	Sub Sample 1[a]		Sub Sample 2[b]		Total Sample	
	Freq.	%	Freq.	%	Freq.	%
Under $20 000	6	4.6	1	8.3	7	4.9
$20 000 - $29 999	8	6.2	0	0.0	8	5.6
$30 000 - $39 999	8	6.2	0	0.0	8	5.6
$40 000 - $49 999	16	12.3	2	16.7	18	12.7
$50 000 - $59 999	14	10.8	3	25.0	17	12.0
$60 000 - $69 999	10	7.7	2	16.7	12	8.5
$70 000 - $79 999	13	10.0	0	0.0	13	9.2
$80 000 - $89 999	7	5.4	1	8.3	8	5.6
$90 000 - $90 999	16	12.3	2	16.7	18	12.7
Over $100 000	31	23.8	0	0.0	31	21.8
No response	1	0.8	1	8.3	2	1.4
TOTAL	130	100	12	100	142	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.

Marital Status of Participants

Marital Status	Sub Sample 1[a]		Sub Sample 2[b]		Total Sample	
	Freq.	%	Freq.	%	Freq.	%
Currently married	94	72.3	10	83.4	104	73.2
Common law	7	5.4	0	0.0	7	4.9
Divorced	14	10.8	1	8.3	15	10.6
Separated	5	3.8	0	0.0	5	3.5
Widowed	2	1.5	0	0.0	2	1.4
Never married	6	4.6	1	8.3	7	4.9
No response	2	1.6	0	0.0	2	1.4
TOTAL	130	100	12	100	142	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.

Appendix M

Tables Describing Participants' Residence and Religious Beliefs

Location of Participants' Residence

Residence	Sub Sample 1[a]		Sub Sample 2[b]		Total Sample	
	Freq.	%	Freq.	%	Freq.	%
Farm	5	3.8	0	0.0	5	3.5
Rural (non farm)	10	7.7	3	25.0	13	9.2
City	114	87.7	9	75.0	123	86.6
No Response	1	0.8	0	0.0	1	0.7
TOTAL	130	100	12	100	142	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.

Participants' Religious Beliefs

Beliefs	Sub Sample 1[a]		Sub Sample 2[b]		Total Sample	
	Freq.	%	Freq.	%	Freq.	%
Conservative	24	18.5	2	16.7	26	18.3
Moderate	36	27.7	5	41.7	41	28.8
Liberal	56	43.1	4	33.3	60	42.3
None at all	12	9.2	1	8.3	13	9.2
No Response	2	1.5	0	0.0	2	1.4
TOTAL	130	100	12	100	142	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.

Appendix N

Table Describing Participants' Health Status

Overall Health Status of Participants Compared to Other Women Their Age

Health Status	Sub Sample 1[a]		Sub Sample 2[b]		Total Sample	
	Freq.	%	Freq.	%	Freq.	%
Much better	12	9.2	0	0.0	12	8.4
Better than average	64	49.2	7	58.3	71	50.0
About the same	40	30.8	3	25.0	43	30.3
Worse	14	10.8	2	16.7	16	11.3
Much worse	0	0.0	0	0.0	0	0.0
No Response	0	0.0	0	0.0	0	0.0
TOTAL	130	100	12	100	142	100

[a] Women whose ovaries are intact.

[b] Women who have had a total abdominal hysterectomy and bilateral salpingo oophorectomy.