Development and Pilot Testing of a Questionnaire Examining Men's Beliefs Regarding Testicular Self-Examination Utilizing the Theory of Reasoned Action

by

Marlene Del Pino

A thesis presented to the University of Manitoba in partial fulfillment of the requirements for the degree of Master of Nursing.

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DEVELOPMENT AND PILOT TESTING OF A QUESTIONNAIRE EXAMINING MEN'S BELIEFS REGARDING TESTICULAR SELF-EXAMINATION UTILIZING THE THEORY OF REASONED ACTION

BY

MARLENE DEL PINO

A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of

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Abstract

Testicular cancer (TC) is rare however, it is the most solid tumour between the ages of 15-34. Testicular tumours can have a high cure rate, approaching 90%; however, cure rates vary with the type of TC and its stage of progression at diagnosis. Testicular self-examination is quickly learned, can be performed within 30-60 seconds, is noninvasive, free, and considered easier to perform than breast self-examination.

There has been a longstanding interest in identifying factors that prompt individuals to carry out health behaviours. The Theory of Reasoned Action (TRA) has been used as a model to understand behaviour. Although the TRA has been used with some success with other health behaviours, to date it has not been used to examine the correlates of TSE behaviour. The TRA requires that for every behaviour examined by the theory a questionnaire needs to be developed by eliciting the salient beliefs of a representative sample of the target population. The purpose of this study was to elicit the beliefs of a sample of men representative of the target population regarding TSE, develop a questionnaire with these beliefs using the guidelines of the TRA, and then to pilot test the questionnaire for internal consistency and construct validity.

The study revealed that the knowledge level of the subjects regarding TSE was low; this is consistent with the literature on this topic. Only 8% (n=6) of the males in this study reported doing TSE on a monthly basis as recommended by the Canadian Cancer Society.

Content analysis was carried out to identify the subjects' salient beliefs. This information elicited from phase I, resulted in the formation of the five questions under the categories from the TRA of behaviourial beliefs (bi), outcome evaluations (ei), normative beliefs (NBj), and motivation to comply (MCj).

When the model components containing multiple items ($A_{(act)}$ [attitude toward performing TSE], bi, ei, (bi)(ei), NBj, MCj, and (NBj)(MCJ)) were evaluated for internal consistency reliability, the five item instrument measure of bi, ei, and the combination of (bi)(ei) were not internally consistent and therefore were not used further in the model testing. All other model components containing multiple items achieved an alpha score of at least .70.

Although the correlational matrix run on the model's components did not reveal any obvious multicollinearity, according to the criterion used in this study, in retrospect the significant strong positive relationship between $A_{(act)}$ and SN was in fact a sign of the multicollinearity that became evident when the two components were regressed on BI. Partial support for the construct validity of the scale was found.

In summary the results of this study provided partial support for the Theory of Reasoned Action; however, further testing must be done before this model will be able to provide guidance to health professionals regarding the promotion of TSE.

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CHAPTER I

THE PROBLEM

STATEMENT OF THE PROBLEM

Testicular cancer (TC) is rare, accounting for only 1% of all cancers found in men; however, it is the most common solid tumour between the ages 15-34 and evidence indicates its incidence in whites has more than doubled in the past 40 years (Canadian Cancer Society, 1988; Davies, 1981; Frank, Keys, & McCune, 1983; Mostofi, 1973; Schottenfeld, Warshauer, Sherlock, Zauber, Leder, & Payne, 1980). Each year in Canada approximately 390 men will be diagnosed with TC (37 in Manitoba) and 50 men will die of the disease (Canadian Cancer Society, 1988; Manitoba Cancer, 1987). Testicular tumours can have a high cure rate, approaching 90% in some cases; however, cure rates vary with the type of TC and its stage of progression at diagnosis (Einhorn, Paulson, & Peckman, 1982; Javadpour & Bergman, 1978; Mostofi, 1973; Thompson, Wear, & Almond, 1961).

Evidence suggests that the majority of men with TC delay seeking medical attention. Traditionally, young males fail to perceive their susceptibility to disease. This perception, along with their ignorance of TC and TSE, directly affects help seeking action, which ultimately may result in metastases and a poorer prognosis (Belis, 1982; Boileau, 1982; Bosl, Lange, Vogelzang, Goldman, Fraley, & Levitt, 1981; Dieckmann, Becker, & Bauer, 1987; Fraley, Lange, & Kennedy, 1979; Thornhill, Conroy, Kelly, Walsh, Fennelly, & Fitzpatrick, 1986; Williams, 1981). Research is

needed to determine if earlier diagnosis of TC by men who regularly practice TSE leads to improved long term outcomes (Friman, Finney, Glasscock, Weigel, & Christopherson, 1986; Spitzer, 1984). Despite this uncertainty, experts in the area are urging health professionals to teach and promote TSE (Akdas, Kirkalt, & Remzi, 1986; Blesch, 1986; Bosl et al., 1981; Canadian Cancer Society, 1988; Cavanaugh, 1983; Cummings & Murphy, 1985; Dieckmann et al., 1987; Goldenring, 1987).

Studies have shown that men at highest risk for developing TC are largely unaware of their risk, the symptoms of TC, and testicular self-examination (TSE); most, however, express an interest in learning the topic and technique of TSE (Blesch, 1986; Conklin, Klint, Morway, Sawyer, & Shepard, 1978; Cummings, Lampone, Mettlin, & Pontes, 1983; Dachs, Garb, White, & Berman, 1989; Friman, et al., 1986; Gagong & Markovitz, 1987; Goldenring & Purtell, 1984; Marty & McDermott, 1986; Ostwald & Rothenberger, 1985; Reno, 1988; Rudolf & Quinn, 1988; Vaz, Best, Davis, & Kaiser, 1989).

The most frequent symptom of TC is a small painless mass, palpable by TSE on the affected testicle (Canadian Cancer Society, 1988; Dieckmann, et al., 1987; Mostofi, 1973). Testicular self-examination is quickly learned, can be performed within 30-60 seconds, is noninvasive, free, and considered easier to perform than breast self-examination (BSE) (Canadian Cancer Society, 1988; Edson, 1979; Goldenring & Purtell, 1984; Rudolf & Quinn, 1988).

The age group at risk for TC generally does not frequent the doctor's office, and studies indicate that even those who do have contact with physicians and/or nurses rarely receive information about TC or TSE from them (Blesch, 1986; Conklin et al., 1978; Cummings et al., 1983; Ganong & Markovitz, 1987; Goldenring & Purtell, 1984; Stanford, 1987; Westlake & Frank, 1987). Recognizing that office visits may not be the ideal time to carry out preventive health teaching, the Canadian Task Force on the Periodic Health Examination calls for collaboration between physicians and other allied health professionals (Spitzer, 1984). Physician screening and Testicular Self-Examination (TSE) have recently been added by the Task Force as a recommendation for prevention (Spitzer, 1984).

The incidence and mortality statistics of TC must be considered with the implications for society of the productive years of life lost of the victims, the economic, psychological, and social effects on the family left to cope on its own, and the children forced to grow up without a father. Considering the high cure rate, any life lost is a sheer waste.

Nursing has a strong commitment to disease prevention and health promotion. Nursing is in an ideal position to teach about TSE. Public health nurses have access to the young male population through their work in the community and especially in schools where this population is most accessible. Occupational health nurses can also reach a broad sector of working males.

There has been a longstanding interest among nurses and other health professionals in identifying factors that prompt individuals to carry out health behaviours. To date, most of this research has focused on health behaviours such as immunization, breast self-examination (BSE), and medication compliance. Little research has been done in the area of TSE.

The traditional public health approach to health promotion and prevention is an empirical-rational approach. This approach assumes that people are rational beings and that given the knowledge, they will perceive the benefit of the recommended health behaviour and begin to perform it (Bennis, Benne, Chin, & Corey, 1976). However, it has been demonstrated that changing health behaviours is very complex. Despite the literature indicating that knowledge is not enough to produce long-term behaviourial change, knowledge dissemination continues to be the primary approach to promote health behaviour change. Further understanding of the correlates of health behaviour can guide health professionals to know more about who the programmes should be targeted towards and the type of content that would have the greatest likelihood of promoting the desired behaviours (Norman, 1988). A normative-reeducative strategy has been suggested as an alternative to promote long-term behaviourial change (Benne et al., 1976). This strategy is participative in nature and assumes people are guided by social norms, personal meanings, habits, and values. For change to occur, the personal meaning of the health behaviour must change

as well as the individual's perception of the norms and values of this behaviour.

Those concerned with health promotion and prevention have looked to the research and the theoretical formulations utilized to help explain and predict health behaviour. The use of such models can assist with the planning of programs and promotion of lifestyle changes. The model that has been used most extensively to examine preventive health behaviour, and more specifically TSE is the Health Belief Model (HBM). However, this model has received harsh criticism. In its 30 years of development the HBM has undergone various modifications. It is difficult to keep clear which version of the HBM is currently in use. Although the HBM provides conceptual definitions of its elements, it fails to operationalize these elements and explain the relationships between the various elements. As a result, virtually all studies operationalize the elements differently (Norman, 1988).

The HBM has been criticized as having low predictive power and lacking precision. Studies based on the model that have examined the same health behaviour have found inconsistent and even contradictory results (Norman, 1988). The HBM is rooted in the philosophy of the empirical-rational approach to change.

The Theory of Reasoned Action (TRA) has been suggested as an alternative to the HBM to examine health behaviours. The goal of this model is to understand behaviour. The TRA posits that attitudes toward the behaviour and perceptions of social pressure to perform the behaviour are factors that lead to the intent to

perform the behaviour (Azjen & Fishbein, 1980). This theory has not received as much empirical testing as the HBM, and has not been used to specifically study TSE (Norman, 1988). However, results based on research with other health behaviours show stronger support for the TRA. Specifically, the TRA is able to predict health behaviour with greater accuracy than the HBM (Norman, 1988).

To date, an instrument has not been developed to explore TSE within the framework of the TRA. The TRA utilizes a participative approach to change. Each behaviour (i.e., TSE, BSE, or eating habits) to be examined using the TRA necessitates operationalizing the behaviour. This results in a different questionnaire for each behaviour. The questionnaire is developed utilizing an elicitation survey that examines a sample representative of the target population's beliefs regarding the behaviour in question. The development of valid and reliable instruments using the TRA's standardized format is the first step toward an understanding of the correlates of TSE behaviour. Use of these instruments in the future might guide health professionals to know the client group that programs of TSE should be targeted toward and the type of content that would have the greatest likelihood of promoting monthly TSE. Therefore, the purpose of this study was to elicit the beliefs of a sample of men representative of the target population regarding TSE, to develop a questionnaire from these beliefs, and to pilot test the questionnaire for internal consistency and construct validity.

Chapter II

REVIEW OF THE LITERATURE

The review of the literature includes the following: health behaviours; types and effects of Testicular Cancer (TC); risk factors of TC; the signs and symptoms of TC; research on Testicular self examination (TSE); and theoretical frameworks that have been used to examine TSE.

Health Behaviours

The term "health behaviour" has been used differently by many authors to the extent that the term does not "bear much correspondence to the referents employed by another" (Steele & McBroom, 1972, p. 382). For the purpose of this paper the definition used most commonly in this area is that offered by Kasl and Cobb (1966). They define health behaviour as "any activity undertaken by a person believing himself to be healthy for the purpose of preventing disease or detecting it in an asymptomatic stage" (p. 246). Health behaviour by this definition is considered to be preventive health behaviour. Preventive health can be categorized according to the levels of prevention framework (Archer & Fleshman, 1975; Shamansky & Clausen, 1980). The first level is known as primary prevention and is described as "generalized health promotion as well as specific protection against disease" (Pender & Pender, 1987, p. 102). Taking part in a regular exercise program, learning to cope with stress, or being immunized are examples of primary prevention. Secondary prevention has been defined as,"any

activity undertaken by persons who believe themselves healthy, for the purpose of preventing or detecting disease in an asymptomatic stage" (Kasl & Cobb, 1966, p. 248). Behaviours such as breast self-examination, teeth brushing and TSE are examples of this second level of preventive health behaviours. The third level of prevention is known as tertiary prevention. Tertiary prevention is the rehabilitation to an optimum level of functioning when a chronic disease or problem is present (Turner & Chavigny, 1988).

In the past it was hypothesized that the motivation for health behaviours was unidimensional; if this were true health behaviours in general would be affected by the same factors (Norman, 1988; Steele & McBroom 1972). For example, if health behaviours were unidimensional research might find that individuals who skip breakfast tend to be heavy smokers and alcohol consumers. According to this model, individuals would tend to participate or not participate in all or most health promoting behaviours. Research, however, has demonstrated that health behaviours are not unidimentional (Norman, 1988). For example, in a random sample survey of approximently 1,000 households Steele and McBroom (1972) found that health behaviours are multidimensional and affected by a wide array of factors.

The multidimensional nature of health behaviours has promoted an interest in determining the correlates of health behaviours. Identification of the correlates of health behaviours enables health professionals to identify target groups to whom promotional efforts should be directed. Furthermore, insight into the

determinants of health behaviours provides the foundation to understanding the behaviour in question and provides direction to promote behaviourial change (Norman, 1988). There are many theories of change that examine various aspects of health behaviours in an attempt to determine the correlates of health behaviour and to predict health behaviour.

A number of factors are related to the recent increased interest in health promotion and illness prevention. Among them are "the epidemiologic transition from infectious to chronic disease as the leading cause of death, the aging population, rapidly escalating health care costs, and data linking individual behaviours to increased risk of morbidity and mortality" (Glanz, Lewis, & Rimer, 1990, p. 5). The link between cigarette smoking and lung cancer is a prime example. Smoking has been shown to cause or complicate chronic disease conditions, especially as the smokers age (Norman, 1988). Smoker's behaviour directly increases their risk of morbidity and mortality and thereby escalates the cost to the health care system.

In Canada, the publication of the 1974 Lalonde Report entitled "A New Perspective on the Health of Canadians" was evidence that the Government was reacting to public pressure to develop policy in the promotion of health (Glanz et al., 1990; Labonte, 1988). In the years following this report and a similar one in the United States entitled "Healthy People" (1979) the primary method of health promotion was through health education. What these initial efforts failed to address was the social climate affecting many of

the individuals to whom the programs were targeted. For example an educational program on developing healthy eating patterns might have little effect on families with a very limited income. The criticism that arose surrounding this narrow approach was labelled "Blaming the Victim" (Allegrante & Green, 1981; Crawford, 1977). This ideology premised that society itself made it difficult for some individuals affected by poor family or work states to practice preventive health behaviour. These critics called for efforts to focus on politically charged social action to improve educational, economic, environmental, and other social inequities.

In response to these criticisms of victim blaming and in an effort to achieve the goal set forth by the World Health Organization to "achieve health for all by the year 2000" the Canadian government released the 1986 Ottawa Charter for Health Promotion (Health and Welfare Canada, 1988). This charter included strategies to build healthy public policy, create supportive environments, strengthen community action, develop personal skills, and reorient health services (Health and Welfare Canada, 1988). The Charter's recognition of the importance of healthy public policy did not overshadow the emphasis on self-care, a balance between the two is required. The fact that self-care constitutes at least 75 percent of personal health care emphasises this fact (Levin, Katz, & Holst, 1976). Self-care behaviours are extensive and include: toothbrushing, BSE, TSE, wearing seat belts, and maintaining a healthy diet.

Epp's (1986) report "Achieving Health For All" provided the framework for these ideas which included different levels of intervention and incorporated the concepts of healthy public policy, self-care, and healthy environments to overcome the health challenges that face us in the future (Health and Welfare Canada, 1986). Health promotion and disease prevention efforts should be more successful within this holistic framework. Testicular self-examination is an example of a secondary self-care preventive health behaviour. However, viewed within this holistic framework does not provide the entire picture. For health education to be successful it must impact on the attitudes and the behaviours of the individuals to whom the programs are targeted. An understanding of the correlates that effect health behaviour will enable health professionals to be more effective. The first step with regards to the health behaviour in question here, namely TSE, is to examine the literature on TC and TSE.

Types and Effects of Testicular Cancer

Testicular tumours can broadly be classified into two major types seminoma and nonseminoma. The former accounts for 40% of all tumours and is generally easier to eradicate because of its tendency to grow slowly (Canadian Cancer Society, 1988; Mostofi, 1977). Nonseminomas tend to metastasize more quickly and, as a result, are more difficult to treat (Canadian Cancer Society, 1988; Donohue, 1980). Theoretically, sexuality and fertility should not be affected physiologically by the removal of one testicle.

However, studies have shown spermatogenesis of the contralateral normal testicle is decreased at diagnosis and over 50 % of the men surveyed reported impairment of sexual function following surgery and treatment (Schover & von Eshenbach, 1984). Any experience with testicular cancer can have a profound effect on a young man's masculinity, sexual identity, and self-image. Delayed diagnosis, poorer prognosis, and more radical surgery and treatment will compound the effect (Blackmore, 1988; Moreland, 1982; Gorzynski & Holland, 1979; von Eshenbach, 1986).

Risk Factors

The etiology of TC is unknown; however, various risk factors are evident (Javadpour, 1979). The major risk factor is cryporchidism (undescended testicle). Men with this risk factor are 20-40 times more likely to develop TC. Surgery to repair the condition does not eliminate the risk absolutely and the contralateral or normal testicle is also at increased risk (Dow & Mostofi, 1967; Sandella, 1983; Summer, 1959; Witus et al., 1959). White males are at highest risk for TC, followed by oriental males. TC is extremely rare in blacks (Schottenfeld, 1980).

There is also evidence of an increased risk for young adult males of higher socioeconomic status (Peterson & Lee, 1977). The risk factors help identify the broad target population at risk as young males between the ages of 15-34.

Signs and Symptoms of Testicular Cancer

A lack of significance placed on early signs and symptoms may relate to a delay in seeking diagnosis or treatment for TC. The earliest detectable symptom is a small painless mass on a testis (Dieckmann et al., 1987; Mostofi, 1977). Other signs and symptoms are scrotal or testicular enlargement, and pain or heaviness in the groin region (Canadian Cancer Society, 1988; Diechmann et al., 1987). Widespread metastases is usually present when the patient presents with more obvious signs such as gynaecomastia, pain in the abdomen or flank, or lymphadenopathy (Akdas et al., 1986; Dieckmann et al., 1987). There are also many benign causes of testicular symptoms that result in similar signs and symptoms. They include: orchitis, epididymitis, torsion of the testes, hydrocele, varicocele, tuberculosis and asyphilitic orchitis. These benign causes of testicular symptoms also help explain physician delay with the correct diagnosis and treatment (Bosl, 1981; Hubbard & Jenkins, 1983).

Given the fact that the signs and symptoms of early TC are few, Dieckmann et al. (1987) suggest that a lack of knowledge regarding their significance and how to perform TSE is related to diagnostic delay and a poorer prognosis. Educational efforts directed to this broad young adult male population are warranted. However, examination of their beliefs regarding TSE is the first step. An understanding of the correlates of the health behaviour of TSE will allow the content of the educational effort to be directed toward these beliefs.

Research on Testicular Self-Examination

The research to date on TSE has demonstrated a serious lack of knowledge in males within the high-risk age group regarding TC, TSE, and ultimately the practice of TSE (Blesch, 1986; Conklin et al., 1978; Cummings et al., 1983; Dachs et al., 1989; Friman et al., 1986; Ganong & Markovitz, 1987; Goldenring & Purtell, 1984; Marty & McDermott, 1986; Ostwald and Rothenberger, 1985; Reno, 1988; Rudolf & Quinn, 1988; Thornhill et al., 1986; Vaz et al., 1989). For example, a study of 1,286 high school males revealed that only 30% had even heard of TC and none knew how to perform TSE correctly (Vaz et al., 1989).

Despite the low levels of knowledge on TC and TSE, men reported high levels of interest in learning about TC and TSE. Of the 126 college men Reno (1988) surveyed, almost 90 % of those unaware of TSE expressed interest in receiving information and indicated that if they knew the technique they would practice it. This percentage may be somewhat biased, though, since the subjects volunteered to be in the survey. Similarly, a report published in the British Medical Journal, revealed that 90% of the 395 respondents expressed an interest in having more information on TC and TSE (Thornhill et al., 1986).

In an attempt to predict the likelihood of individuals actually performing the recommended preventive health action, several studies have been done within the framework of the older version (Becker & Maiman, 1974) of the Health Belief Model (HBM). The findings are somewhat mixed and only partial support is given

to the HBM (Blesch, 1986; Marty & McDermott, 1985; Reno, 1988; Rudolf & Quinn, 1988). For example, in Blesch's (1986) study that utilized a mailed questionnaire (n=128) men at highest risk, for developing TC, (white males aged 20-40) reported TSE to be less beneficial and more troublesome than low risk men. Rudolf and Quinn (1988) examined the effectiveness of an educational session on the variables of the HBM. Results revealed that the session increased subjects' perceived benefits to TSE and decreased barriers to TSE; however, perceptions of susceptibility and seriousness remained unchanged.

The TRA has been used once in the area of TSE and only one aspect of the model (behaviourial intention [BI]) was operationalized (Gangong & Markovitz, 1987). The study revealed that pamphlets on TSE and TC increased college aged males (n=64) intention to perform TSE on a short-term basis (in the next week or month) but not regularly (Gangong, & Markovitz, 1987).
Like many other studies utilizing the TRA, this study did not follow the subjects forward in time to measure actual behaviour (Gangong & Markovitz, 1987). Therefore, relationships among the model's variables require further study.

The TRA has been used to examine other health behaviours. Some of these health behaviours like BSE seem to be comparable to TSE; other behaviours are quite different such as: predicting breast feeding patterns of new mothers, predicting immunization behaviour, predicting health maintenance behaviours such as eating a healthy diet, avoiding stress and maintaining a regular exercise program

(Lierman, Young, Kasprzyk, & Benoliel, 1990; Manstead, Proffitt, & Smart, 1983; Montano, 1986; Pender & Pender, 1986). The results of these studies are compared to the results of this study in the discussion chapter.

The TRA has the potential for contributing understanding to the health behaviour of TSE and how to promote it. However, until valid and reliable instruments are developed to operationalize the TRA specific to TSE, testing of this model with this population cannot occur. Therefore, the development and testing of a questionnaire to operationalize the TRA for use with TSE is a necessary beginning research step.

Theoretical Frameworks

Extensive research has been done in an attempt to reveal the determinants of health behaviour. The Health Belief Model (HBM) and the Theory of Reasoned Action (TRA) are the two most common theories cited in the literature used in an attempt to explain and predict health behaviour. An explanation and critique of the HBM and the TRA are presented below.

The Health Belief Model

The theoretical formulation that has been used most extensively to examine health behaviours, and more specifically preventive health behaviours is the Health Belief Model (HBM) (see Appendix A). The model was developed in the 1950s by social psychologists who were members of the U.S. Public Health Service,

in an attempt to describe, explain, and predict preventive health behaviours (Becker, 1974; Hochbaum, 1958; Rosenstock, 1966).

The purpose of this model is to examine, describe, and predict the likelihood of an individual taking recommended preventive health action. Perceptions of the individual are central to this theory. The environment and society are also important in terms of their effect on the individual's perception.

The first element in the HBM, "individual perceptions", specifically one's perceived susceptibility to a disease and the perceived seriousness of a disease, together are viewed as having a direct effect on the outcome of the likelihood of taking recommended preventive health action. The second element is "modifying factors" consisting of demographic variables, sociopsychological variables, and structural variables. Collectively, these modifying factors have an indirect effect on an individual's perceptions and on the third element of the model, perceived benefits of the health action minus the perceived barriers. The fourth and final element of the model consists of the cues to action. The HBM describes an individual who may perceive and understand the risk of TC (a product of his individual perceptions as affected by his modifying factors) but only decides to do TSE when he finds out, for example, that his friend has TC. The ultimate preventive health action, in this example, was prompted by a cue. Of all the elements in the HBM cues to action have had the least empirical study.

Since its inception some 30 years ago the HBM has undergone numerous revisions (Becker, Haefner, Kasl, Maiman, & Rosenstock, 1977; Rosenstock & Kirscht, 1979). Originally a general motivational element was a part of the HBM; this was later taken out due to difficulties in operationalizing this construct. However, in 1975 Becker and Maiman suggested the reintroduction of motivation (incentive to behave) to the model.

Another construct, "locus of control", was added to the model by Becker in 1979. Locus of control refers to an individual's expectation that health is controlled by one's own behaviour or external forces. It was expected that locus of control would be related to compliance with heath behaviours (Wallston & Wallston, 1984). Subsequent research, however, did not support the predictive value of this element. Locus of control has now been removed as an element of the HBM since it is believed to be incorporated in other elements of the model (Rosenstock, Stretcher, & Becker, 1988). It has also been suggested that the normative (social approval) variable of the Theory of Reasoned Action is a missing concept in the HBM and might further aid in explaining and predicting health behaviour (Janz & Becker, 1984).

More recently it has been suggested that self-efficacy, a concept borrowed from Bandura's Social Learning Theory, be included as a separate independent element in the HBM. Self-efficacy is defined as the expectancy of one's own competence to perform the behaviour in question (Rosenstock, Strecher, & Becker, 1988).

Because of all the modifications to the model, it is difficult to evaluate the explanatory power and relevance of the model for different health behaviours. This is evident in the research literature on various health behaviours in which the use of the models range from using the Becker and Maiman 1975 standard version of the model, to measuring only certain elements of the model, to measuring the expanded version of the model (Blesch, 1986; Cahan & Moss, 1984; Champion, 1985; Reno, 1988). As a result, comparisons among these studies are difficult to make.

Champion (1985) states that the conceptualization of the HBM may be appropriate, but argues that there has not been enough attention to the measurement issues critical to evaluating any model including the HBM. Researchers must strive to develop valid, reliable, and standardized tools; only then can the HBM be justly critiqued (Champion, 1984; Davidhizar, 1983; Janz & Becker, 1984).

Despite Champion's (1985) suggestion, the problem of the lack of standardized tools remains and is, at least in part, a result of the HBM's major weaknesses. A gap exists between the conceptual definitions of the elements and the operational definitions of the elements. Even the developers of the HBM operationalize the elements differently (Hochbaum, 1958; Kegeles, 1963; Leventhal, 1960). Once again comparisons between studies are difficult with such fundamental conceptual problems.

Kirscht (1974) describes the strength of the HBM in "its potential for application to a wide range of health issues" (p.

140). However, this very strength is also a weakness. How can a single model explain and predict behaviours as different from taking a pill, on the one hand to overeating to the point of obesity on the other hand. Pender (1987) considers that the HBM is not logically congruent with health promotion behaviours. She argues that the elements of seriousness and severity are illness and disease specific, whereas health promoting behaviours are wellness motivated and therefore the HBM is inappropriate to use with many health behaviours.

Despite the limitations of the HBM, program planners and health practioners look to the research and models to assist with the planning of programs and the promotion of lifestyle changes. However, the research has provided inconsistent findings (Norman, 1988). Norman (1988) provides a comprehensive critical review of the HBM and concludes that the HBM "suffers from a lack of conceptual rigour" (p. 62).

The predictive power of the HBM has been described as weak and not precise (Norman, 1988). The constructs have been found to be inconsistent predictors of health behaviours. Some studies examining the same health behaviours have found contradictory results. The model has also been criticised for its failure to clearly define the relationship between the elements (Norman, 1988). For example, the HBM fails to describe the relationship between the variables of seriousness and susceptibility. Are additive properties appropriate, or are there multiplicative properties between the elements? Some studies have revealed a

curvilinear-relationship between perceived seriousness and the likelihood of taking recommended preventative health action (Norman, 1988; Wallston & Wallston, 1984).

In Janz and Becker's (1984) review of the HBM, they conclude that the model has received strong empirical support. This view appears to be in direct opposition to that put forth by Norman (1988). However, Janz and Becker go into much depth to explain the empirical results of the various studies. They describe why the findings of the various studies may be inconsistent by looking at the issue of instrumentation and disease specifics. However, Wallston and Wallston (1984) argue that this inconsistency is an indication that the model is a catalogue of variables, not a model capable of predicting relationships.

In summary, the HBM has had extensive empirical testing on a wide range of health behaviours. The results of these studies are mixed; however, the overwhelming conclusion is that the HBM is not an adequate model to predict or understand health behaviours. Norman (1988) and Janz and Becker (1984) acknowledge that there is a need for further testing of the HBM utilizing a prospective experimental methodology. Such studies would assist in examining the explanatory power of the HBM especially if the focus is on a relatively novel behaviour (Calnan & Moss, 1984).

The Theory of Reasoned Action

Fishbein/Ajzen's Theory of Reasoned Action (TRA) was formulated in 1967 approximately 10 years after the HBM (see

Appendix B). Unlike the HBM, the TRA was not developed specifically to predict health behaviours, but behaviours in general. This is evident in the research utilizing this theory. Behaviourial actions from voting, occupational choice, to family planning are predicted with the use of the TRA (Ajzen & Fishbein, 1980; Montano, 1986).

Norman (1988) argues that the TRA is "much tighter conceptually than the HBM" (p. 65). The variables are conceptually and operationally defined. A standardized approach for operationalizing the variables is clearly outlined. This is an essential feature since each behaviour (i.e., TSE, BSE, eating patterns) will have a different questionnaire. The questionnaire is developed based on the salient beliefs of a sample of individuals considered representative of the population the questionnaire is targeted for. This approach has two advantages over the HBM. First it recognizes that different health behaviours may be influenced by different health beliefs. Secondly, it recognizes that all health behaviours are not necessarily influenced by health beliefs. For example, people often jog to improve their physical appearance; health benefits may be secondary. The interrelationships between the variables of the TRA are specific and correlations between the variables act as predictors to the final outcome (Ajzen & Fishbein, 1980; Norman, 1988).

In their review of the HBM Janz and Becker (1984) note that barriers has been found to be the strongest element in the HBM to

predict behaviours across studies. Calnan & Rutter (1986) state that the TRA's attitude toward the behaviour, including its functions, essentially encompass the HBM's barriers and benefits. The TRA goes further by examining the impact of normative beliefs, which taps into an individual's perceived social pressure to perform a behaviour.

In the examination of the topic of TSE, it is important to remember that the level of awareness and knowledge regarding TC and TSE is low in the target population (Blesch, 1986; Conklin et al., 1978; Cummings et al., 1983; Dachs et al., 1989; Reno, 1988; Rudolf & Quinn, 1988; Vaz et al., 1989). The TRA does not include a knowledge component and seems to assume that the behaviour under examination is a known one. Ajzen and Fishbein (1980) do not address this fact which is a limitation of the model.

The development of a questionnaire utilizing the TRA's standardized format includes an elicitation procedure. Subjects are asked to list their perception of the advantages, disadvantages, and anything else that comes to mind regarding TSE. According to Fishbein (personal communication, Feb. 22, 1990), it would be inappropriate to teach the subjects regarding TC and TSE prior to the elicitation procedure. He suggests that attempts be made to include some individuals with knowledge regarding TC and TSE in the elicitation sample.

In summary, it seems unlikely that any single model will be an accurate predictor of the vast spectrum of health behaviours. It is difficult to compare the HBM's vast testing on a wide array

of health behaviours to the TRA's comparatively limited testing with health related topics. However, the TRA has stronger empirical support to date, its variables are operationally defined, the relationships between the variables are clear, and a standardized format exists to measure the behaviourial intentions of any behaviour. Based on the strengths the TRA has to offer it was utilized as the framework for this study.

Summary of Literature Review

Testicular self-examination can be categorized as a preventive self-care health behaviour used to detect TC. Although the etiology of TC is unknown, the risk factors identify a broad target population of men between the ages of 15-34 who are at risk for TC. The awareness and knowledge level regarding TSE and TC among this population is low. Monthly TSE is supported by experts in the field, in order to detect the small painless mass on a testis, which is the first sign of TC. Traditionally, educational efforts have concentrated on providing knowledge regarding prevention of specific diseases. However, this approach has not proven effective, especially in the promotion of long-term behaviourial change. The TRA provides a framework that can be used with health behaviours and is gaining increasing empirical support. This model provides a standardized framework that is behaviour specific. The elicitation of beliefs regarding TSE from a sample of men representative of the target population enables the development of questionnaires that can be tested for validity and reliability.

This is the first step to understanding the correlates of the health behaviour of TSE.

Theoretical Framework

The Theory of Reasoned Action is based on the assumption that human beings are rational and able to make behaviourial choices based on the information available to them. Appendix B illustrates the arrangement of the constructs of the model. The mathematical relationships of the constructs to the model are shown in Appendix C. In the TRA, the behaviour under study is viewed as a product of one's intention to perform the behaviour. Intention is a function of an individual's attitude toward the action (A_{act}) and the person's perception of social pressure to perform the behaviour, social norms (SN). Furthermore, attitudes (A_{act}) are a function of a person's attitude toward the behaviour (behaviourial beliefs) and their evaluation that the behaviour in question leads to a certain outcome (outcome evaluations). Subjective norms are a function of a person's belief that specific individuals would think that s/he should or should not perform the behaviour in question (normative beliefs). Additionally, the individual's motivation to comply with the specific referents outlined is also included as a function of the SN (Ajzen & Fishbein, 1980).

The TRA can be represented by the following multiple regression equation: $B \sim BI = [w_1]A_{(act)} + [w_2]SN$

wherein B = overt behaviour; BI = behaviourial intention;

$A_{(act)}$ = attitude toward performing the behaviour; SN = subjective norm regarding the behaviour; w_1 and w_2 = empirically determined weights reflecting the relative importance of each component in determining BI (see Appendix C).

Furthermore, the functions of $A_{(act)}$ can be represented by the following expectancy-value formulation: $A_{(act)} = \Sigma(b_i)(e_i)$ wherein b_i = the belief that performance of the behaviour will lead to outcome (behaviourial belief) i; e_i = the value of outcome i to the individual (outcome evaluation). $\Sigma(b_i)(e_i)$ is an indirect measure that provides a better understanding of the attitude that predicts BI and is a direct predictor of A_{act}.

The functions of the SN components can also be represented by an expectancy-value formulation: $SN = \Sigma(NB_j)(MC_j)$ wherein NB_j = the belief that a relevant other j thinks one should or should not perform the behaviour (normative belief); MC_j = the motivation to comply with j (motivation to comply). $\Sigma(NBj)(MCj)$ is an indirect measure that provides a better understanding of the global SN that predicts BI and is a direct predictor of SN.

For the purpose of this study the constructs of the model were operationally defined as illustrated in Appendix D. The pilot testing of this model included behaviourial intention (BI) only; subjects were not followed forward in time to measure their self-reports of the behaviour.

CHAPTER III

METHODOLOGY

Design

A methodological research design was utilized to develop instruments that investigate the behaviour of Testicular Self Examination (TSE) within the framework of the Theory of Reasoned Action (TRA) (Shelley, 1984). This study was conducted in two phases. Phase one consisted of utilizing the TRA standardized framework to elicit beliefs regarding TSE from a sample of young men representative of the target population (see Appendix E). Data collection for phase I of this study was completed over a two month period in the summer of 1990. A content analysis was used to examine the wording and the number and frequency of responses for the elicited beliefs.

The second phase of this study involved the development of questionnaires utilizing the elicited beliefs from phase one and the pilot testing of these questionnaires for construct validity and reliability (see Appendix F). Phase II data collection took one month and was completed in the summer of 1990.

Population and Sample

The population, sample, and setting were similar for phase I and phase II of this study. The population for this study was Manitoban male university students between the ages of 15 and 35 years. Quota sampling was utilized for both phases in this study (Kerlinger, 1986). According to Fishbein (personal communication,

Feb. 22, 1990), a representative sample size of 30 is adequate to elicit the attitudes and beliefs necessary to develop the questionnaire (phase I) and pilot test the questionnaire (phase II). Different subjects were used in each phase. Since the population at highest risk for TC are men between the ages of 15 and 35, age was used as the quota sampling criterion. An attempt was made to obtain half the sample between the ages of 15 to 25 years of age and the other half between 25 and 35 years of age. Quota sampling was used because the investigator could not select a random sample but aimed for more control than was possible with accidental/convenience sampling. The aim was to reduce bias/sampling error (Wilson, 1987). The samples of men between the ages of 15 and 25 were taken from undergraduate classes. The samples of men between the ages of 25 and 35 were taken from graduate level classes. By this process, it was expected that the age range of men between 15 to 35 would be more adequately represented.

In phase I of this study an undergraduate class and a graduate class were sampled. Table 1 illustrates the number of available potential subjects, the actual number of subjects who completed questionnaires, the number of questionnaires eliminated, and the number of questionnaires used. Questionnaires were eliminated that did not meet the sampling criteria.

Table 1 –

Phase I Sample: The Total Number of Questionnaires Used

Class	No. of potential subjects	No. of questionnaires completed	No. eliminated	No. of question-naires used
UG. class	20	19	2	17
G. class	18	18	4	14
Total				31

Phase II of this study utilized an undergraduate class and a graduate class. Table 2 illustrates the number of potential subjects, the number of questionnaires completed, the number eliminated and the final number of questionnaires used.

Table 2

Phase II Sample: The Total Number of Questionnaires Used

Class	No.of potential subjects	No. of questionnaires completed	No. eliminated	No. of question-naires used
UG. class	40	16	0	16
G. class	19	19	3	16
Total				32

Procedure for Data Collection

Access to the classes of undergraduate and graduate classes (to meet the criterion of quota sampling, as described previously) for phase I and phase II was gained via the professor of the class

(see Appendix G). The professor explained to the class that a researcher interested in developing and testing an instrument to measure the preventive health beliefs of men would be coming to the class and that the females in the class would therefore be dismissed 15 minutes prior to the end of class. The nurse researcher was then introduced by the professor. The professor was instructed to leave the classroom following this introduction. An explanation was read by the researcher to all the remaining students (see Appendix H and I).

All of the students were provided with pamphlets on Testicular Cancer (TC) and TSE to provide information and answer possible questions that might arise (see Appendix J and K). They also received a questionnaire (see Appendix E or F), and a consent form (see Appendix L or M). The subjects were reminded that it was important to the study that the pamphlets distributed were not read prior to the completion of the questionnaires. This objective was further endorsed by wrapping the consent around the pamphlets and stapling the package together. The researcher was able to observe that none of the participants appeared to have looked at the information prior to their completion of the questionnaires.

Following the verbal explanation, the males interested in participating in the study were asked to move to a designated room to complete their consent forms and their questionnaires. Previous research has indicated that the knowledge level regarding TC and TSE is extremely low in the very age group that is at risk for this disease. There was some concern that the subjects in this study

would not understand what was meant by the term TSE. However, when the potential participants were asked if they had any questions, no questions were asked. It is possible that the males who declined to participate in the study did so because of their lack of understanding of the topic; however, there was no way to ascertain this.

In the undergraduate class attended by the researcher in phase I of the study there was a test review at the end of the class. Five male students left the class at this time. Of the remaining 20 males, 19 completed the questionnaires. It is important to note that although the professor of the class left following the researcher's introduction, he remained in the hall answering a students' questions. Therefore, when the males moved to the designated room to complete the questionnaires, their decision to participate may have been influenced by their teacher's presence in the hall. Of the remaining 19 subjects two were eliminated, one was over the age of 35 and the other was the only black male in phase I and would thus be identifiable.

The graduate class utilized in phase I had a potential subject pool of 18 males, all of whom completed the questionnaires. Four of the 18 subjects were eliminated because they were over the age of 35.

In phase II of the study the undergraduate class had a potential subject pool of approximently 40 males; however, less than half the class decided to participate in the study. The low participation is markedly different from the response rate in the

three other classes. The researcher noted that some of the male students were leaving before and during the researcher's explanation of the study. When one of the participants was questioned by the researcher following his completion of the questionnaire, she was informed that the teacher told the class the topic and nature of the study before the researcher arrived. Also the class was told that only those males who were interested in "helping out" need stay in the class. It is interesting to note that this was the only class approached in both phases that had a female teacher. It is possible that the information given and the gender of the teacher may have affected the participation rate. It is also possible that with the larger number of males present the subjects felt less commitment to participating. This classroom also had two exits which made it easy for those at the back of the classroom to leave. In fact, it appeared to the researcher that the participants appeared to be predominately from the front of the class. In summary, a total of 16 students from this class completed questionnaires. None of the 16 questionnaires were eliminated.

In the graduate class utilized in phase II there was a total of 19 males. When the class was instructed to go across the hall to complete the questionnaires in a classroom that had been booked by the researcher, it turned out that the room was occupied. The researcher instructed those deciding to participate to return to the original room to complete the questionnaires. The researcher returned to the room first to provide an opportunity for those deciding not to participate (everyone was in the hall at this time)

to leave. All of the 19 males returned to the room to complete the questionnaires. Of the 19 completed questionnaires 3 were eliminated. One student was the only native Canadian to complete a questionnaire in phase II and would thus be identifiable, the two remaining questionnaires were eliminated because the subjects were over the age of 35.

In summary, the graduate classes' participation level was higher than the undergraduates. There were no missing data in the questionnaires utilized in this study. The subjects seemed very receptive to the research. The atmosphere of the subjects was quietly serious; there was only one snickering incident between two undergraduate students in phase II. Although the questionnaires did not have any areas asking the subjects for additional comments, a number of positive written remarks were received. The following is a list of those comments: "nice to see some concern on men's health", "thank you for the information, why haven't I heard of this before!", "I had a friend with TC this is the first I've seen regarding the promotion of TSE", "with all the promotion of health, I feel ignorant not knowing that TC or TSE even existed", "thanks for the information".

Phase I: The Elicitation Phase

Purpose

The purpose of phase I was to elicit the beliefs of a sample of men representative of the target population regarding TSE.

Data Collection Method

According to the TRA, the questionnaires examining various health behaviours are different since the attitudes and beliefs must be behaviour specific and must be elicited from a representative sample of the target population. The determinants of the attitudinal and normative components of the questionnaire required the elicitation of the modal behaviourial beliefs and the modal normative beliefs. During phase I the young men were asked to respond to open ended questions examining their perception of the 1) advantages of TSE; 2) disadvantages of TSE; and 3) any other associations they make to TSE (see Appendix E). Similarly the salient referents for the normative component of the theory asked the men to list any groups or people who would 1) approve of their doing TSE; 2) disapprove of their doing TSE; and, 3) where they would seek information regarding TSE. Specific sociodemographic data were also collected (i.e., age, race, and educational status). The collection of this data was important since these factors have been linked to the incidence of TC. It took the subjects approximently 10 minutes to complete phase I of this study.

Data Analysis Methods

Following elicitation of the beliefs, the beliefs were categorized. Content analysis was used to examine the wording, number and frequency of responses for each elicited section. Salient beliefs were determined utilizing the recommended method involving the frequency of the responses (Azjen & Fishbein, 1980).

Based on previous research the TRA holds that only, "a small number (five to nine) of beliefs serve as the determinants of a person's attitude"; therefore, a maximum of five beliefs were chosen from the elicited beliefs per section (Fishbein & Azjen, 1975, p. 218). This resulted in a maximum of five questions in the areas of behaviourial beliefs, outcome evaluations, normative beliefs, and motivation to comply for the questionnaire to be used in phase II.

Content analysis was confirmed by the researcher's thesis committee members using percent agreement. Since the committee consisted of three members, two of the three members had to agree on the content of the questions. This would meet the 70% agreement suggested by Topf (1986) necessary for content analysis. This percent agreement is parallel to the ranking of Cronbach's alpha of 0.70 for an immature quantitative scale as suggested by Nunnally (1978). In order to carry out the content analysis, the researcher sent copies of the content analysis to the three members of the committee (see Appendix N for the letter sent to the thesis committee members).

A descriptive statistical summary of the sample in terms of demographic variables was also conducted to assess the representativeness of the sample for age.

Phase II: Development of the Instrument and Pilot Testing

Purpose

The purpose of phase II was to pilot test the questionnaire developed in phase I and test the questionnaire for internal consistency and construct validity.

The Instrument

The standard format for instrument development was followed (Ajzen & Fishbein, 1980). The questionnaire's sections correspond to the variables of the model (see Appendix B & E). A seven point semantic differential scaling procedure was utilized to measure the variables. The semantic differential technique is often used to measure attitudes (Osgood, Suci & Tannenbaum, 1957). This method is appropriate for the TRA because the use of bipolar evaluative adjectives is congruent with the assumption of the TRA that the more positively a behaviour is viewed the more likely an individual will intend to perform it (Ajzen & Fishbein, 1980). Ajzen and Fishbein (1980) recommend this method because of its flexibility and the potential to produce a large quantity of information. The evaluative adjectives utilized (i.e., good/bad; likely/unlikely) for the various scales came from their format.

In the studies that utilize the Theory of Reasoned Action in the literature there is some inconsistency in the scaling procedures used. The variables in this model were measured using

a seven point semantic differential scaling procedure with bipolar evaluative adjectives. However, some studies use numerical values ranging from negative to positive numbers, some use only positive numbers, and some use an inconsistent combination of both (Fishbein, 1982; Hill, Rassaby, & Gray, 1982; Lierman, Young, Kasprzyk, & Benoliel, 1990; Montano, 1986; Gerber, Newman, & Martin, 1988). Some ambiguity exists in Fishbein and Ajzen's text describing the theory (1980). In an attempt to clarify the scaling procedure intended to be used for this model, the researcher contacted Fishbein (personal communication, Nov. 28, 1990). Fishbein noted that only one scaling procedure is appropriate to be used with the Theory of Reasoned Action. Failure to use the appropriate scaling procedure may result in false results (Fishbein, personal communication, Nov. 28, 1990).

Scaling of the Instrument

The following is the scaling procedure suggested by Fishbein and used in this study (personal communication, Nov. 28, 1990). The clarity of the scaling procedure may be enhanced by following the questionnaire used in phase II (see Appendix O).

Behaviourial Intention is a single question referring to the subjects' intentions to perform TSE within the next week. This question was scored from +1 (extremely unlikely) to +7 (extremely likely).

Attitude toward performing TSE (A_{act}) was rated from -3 to +3, with high scores associated with positive adjectives. There

are a total of ten attitude questions; the sum of these scores is used as the attitude measure (Ajzen & Fishbein, 1980).

Subjective Norm (SN) is also rated from -3 to +3, with the high score associated with a response indicating that "most people who are important to me would think that I should perform TSE".

The behaviourial beliefs (bi) and their corresponding outcome evaluations (ei) are scored on the seven point scale from -3 (i.e., unlikely/bad) to +3 (i.e., likely/good). The sum of the products of bi and ei is used as the measure for this category. The use of the bipolar scale in this situation is designed to capture the situation where a double negative exists (Fishbein, personal communication, Nov. 28, 1990). Consider, for example, a man who has a negative evaluation (i.e., -3/extremely unlikely) of "for me doing TSE would promote early detection of Testicular cancer", and who believes that early detection is quite bad (-2). Since, behaviourial belief and outcome evaluations are multiplied to predict the attitude, this particular belief would make a contribution of +6 to the man's attitude toward his performing TSE.

Similarly, normative beliefs (NBj) are scored on the same seven point scale from -3 (unlikely) to +3 (likely). However, motivation to comply (MCj) is rated from +1 (unlikely) to +7 (likely). In this situation there is no chance for a double negative effect; instead, by numbering the MCj in positive terms insures that the important referents are given proportionately more weight in the prediction of the subjective norm. The sum of the

products of NBj and MCj is used as the measure for this category.

According to the TRA, the questions must be worded so that the intentions, attitudes, and beliefs of the person are specific to that person. For example, a question examining attitude toward TSE would be worded, "My doing TSE on a monthly basis is good/bad" as opposed to the general statement of "doing TSE monthly is good/bad". The time frame for a behaviour must also be specific. Studies utilizing the TRA have shown that time frames longer than two weeks decrease predictability (Ajzen & Fishbein, 1980). Therefore, in the Behaviourial Intention question ("I intend to do TSE within the next week": likely-unlikely) a one week time frame was chosen in an attempt to increase predictability. The Canadian Cancer Society (1988) recommends that men perform TSE on a monthly basis; this time frame was only used in the section where the men self-report their TSE history ("I examine my own testes": never-regularly [once a month]). The standardized format allows for the behaviour specific wording to be inserted.

Measurement of the Variables

In the section that follows, the measurement of the variables of the TRA is described and reference is made to the corresponding question numbers of the questionnaire used in phase II (see Appendix F).

Behaviourial Intention (BI) - Question # 1

Behaviourial intention was measured using the standardized question.

I intend to perform TSE within the next week.

likely_____:_____:_____:_____:_____:_____:_____:unlikely

Attitude Toward The Behaviour (A_{act}) - Question # 2

The attitude toward the behaviour (A_{act}) was measured by ten evaluative scales. The scales represent bipolar adjectives to which the person must respond. The theory predicts that a person with a more favourable view toward the behaviour in question is more likely to intend to perform the behaviour. The adjectives that will be utilized for phase II of this study, have been suggested by Fishbein (1990). For example, the subject was asked:

My doing TSE will be / is

good_____:_____:_____:_____:_____:_____:_____bad

difficult_____:_____:_____:_____:_____:_____:_____easy

and so forth.

Subjective Norm (SN) - Question #3

The subjective norm component of the theory "refers to the person's perception that important others desire the performance or nonperformance of a specific behaviour" (Azjen & Fishbein, 1980, p. 57). The TRA predicts that the more a person perceives that

others who are important to him think that he should perform the behaviour in question, the more likely the person will intend to perform the behaviour. The SN question format asked:

Most people who are important to me think

I should_____:_____:_____:_____:____:_____:____I should not

perform TSE

Behaviourial Belief (b_i) and Outcome Evaluations (e_i)
Question # 4 and Question # 5 respectively

The TRA provided the format to develop the questions from the elicited beliefs. In the TRA, attitudes are a function of a person's belief regarding the behaviour (behaviourial beliefs) and their evaluation that the behaviour in question leads to a certain outcome (outcome evaluation). For every behaviourial belief there is a corresponding outcome evaluation. For example, the most frequently elicited advantage to doing TSE (from phase I) was "early detection"; therefore, the format used for this question was as follows:

Behaviourial Belief - Question # 4

1. For me doing TSE would promote early detection of TC

unlikely_____:_____:_____:_____:_____:_____:_____likely

Outcome Evaluation - Question # 5

1. Early detection of TC is

good_____:_____:_____:_____:_____:_____:_____bad

Normative Beliefs (NB_j) and Motivation to Comply (MC_j)
Question # 6 and question # 7 respectively

Subjective norms are a function of a person's belief that specific individuals would think that s/he should or should not perform the behaviour in question. Correspondingly, the person is requested to record his/her motivation to comply with the specific referents. For every normative belief question (elicited from phase I) there is a corresponding motivation to comply question. For example, one of the specific referents elicited from the survey was "doctor"; therefore, the questions to correspond to this elicitation were formatted as follows:

Normative Beliefs - Question # 6

1. My doctor would think that I should perform TSE monthly

likely_____:_____:_____:_____:_____:_____:_____unlikely

Motivation to Comply - Question # 7

1. Generally speaking, I want to do what my doctor thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely

In summary, the framework of the questionnaire was developed from the components of the Theory of Reasoned Action. Specifics regarding TSE were inserted into BI, Aact, and SN. The elicitation survey (phase I) provided the salient beliefs that formed the basis for the questions on behaviourial beliefs and outcome evaluation (questions # 4 & 5), as well as the normative beliefs and the motivation to comply (questions # 6 & 7). As in phase I of this study the relevant sociodemographic data of age, sex, education and race were collected.

Data Collection Methods

Phase II utilized the questionnaire developed in phase I with a different sample. A total of 32 questionnaires were utilized in the pilot testing of the questionnaire developed in phase I of this study. The final questionnaire consisted of 40 questions and took approximently ten minutes to complete (see Appendix F).

Data Analysis Methods

Data were analyzed using SAS programming. Prescreening was done to identify any outliers. A descriptive statistical summary of the sample in terms of demographic variables was conducted to assess the representativeness of the sample for age. Internal consistency reliability of the instrument was assessed using Cronbach's alpha coefficient. In an effort to determine construct validity of the instruments, stepwise multiple regression analysis was performed to regress intention on attitudes, norms, and beliefs. Standardized beta weights were examined for each of the predictor variables (Aact and SN) to determine the extent to which predicted effects were obtained. According to Ajzen and Fishbein (1980) "these weights can be taken as indicants of the relative importance of each component in the prediction of the intention".

Protection of the Rights of Subjects

Approval from the Ethical Review Committee of the School of Nursing, University of Manitoba was obtained prior to data collection. An explanation was read to all potential subjects (see Appendix H & I), assuring their rights and confidentiality of the data collected. In addition, all subjects received a copy of their consent form to keep (see Appendix L & M). Subjects were informed that all questionnaires would be kept in a locked cabinet and would be destroyed following completion of the study.

The method of data collection maintained confidentiality. In both phases of the study there was no identifying information on the questionnaire to relate the questionnaire to the subjects.

The subjects' professor was not present in the classroom following the introduction of the researcher. This helped to ensure the anonymity of the subjects and eliminate any coercion that the presence of the professor might have created. Subjects were also assured that the study would in no way influence their educational status. Participants in the study who wished to have access to the results of the study were instructed to indicate so on the bottom part of the consent form. An abstract of the results will be forwarded to them following completion of the study.

Subjects were informed that feelings of discomfort may occur due to the nature of the questions. All potential participants received two pamphlets provided by the Canadian Cancer Society on TC and TSE (see Appendix J & K). The researcher remained in the classroom following the collection of the data to answer any questions or concerns. The names and phone numbers of the following contacts were included on the consent form: the researcher, the student health centre on campus, and the Canadian Cancer Society. This information was provided in the event that questions arose following the study. Subjects were assured that they could withdraw at any time during the course of the study, by simply informing the researcher.

Summary

The nature of the TRA necessitates the use of a methodological research design to develop instruments that investigate specific behaviours. The behaviour examined in this study was TSE. The TRA's standardized approach for operationalizing the variables was utilized in phase I of this study to develop the instruments. The instrument developed in phase I of this study was then pilot tested in phase II. The scaling of the instruments was developed following the standardized scaling procedure set forth by Ajzen and Fishbein (1980).

Chapter IV

FINDINGS

The purpose of phase I of this study was to elicit the beliefs of a sample of men representative of the target population regarding Testicular-Self Examination (TSE) using the framework of the Theory of Reasoned Action (TRA). Following the elicitation phase a questionnaire was developed and pilot tested for internal consistency and construct validity in phase II of this study. Characteristics of the samples (phase I and phase II) will be reported in this chapter. As well, the results of the elicitation phase (phase I) will be described to explain the development of the final questionnaire that was used in phase II. The results of phase II (the pilot testing of the instrument) will also be reported. These findings will include estimates of internal consistency of the tools and construct validity results obtained through regression analysis. Finally the subjects were divided into groups based on their responses to the question about their behaviourial intention to perform TSE and their reported practice of TSE. The means of groups on all the items of the model were compared using the nonparametric Wilcoxon test and are reported here.

Characteristics of the Sample

All of the participants were Canadian citizens and cauasian males. The ages of the samples in phase I and phase II are reported in Table 3. The quota sampling method utilized in this study met

the objective of obtaining approximently half the subjects between the ages of 15-24 and the other half between the ages of 25-35, thereby adequately representing the population at risk for Testicular Cancer (TC).

Table 3

Age of Subjects: Phase I and Phase II

Age	Phase I	Phase II
15-24 year old age group	15	14
25-35 year old age group	16	18
Total	31	32

Education data of the samples is reported in Table 4. The educational levels of the subjects in phase I and phase II did vary slightly. None of the subjects in phase I reported their highest educational level as a high school diploma, while six subjects in phase II fit into this category. In phase I there were more subjects with one to three years of University education as compared to only ten subjects in phase II in this education category. A chi-squared procedure was computed comparing the level of education between phase I and phase II subjects. The results indicated that the phase I subjects were more highly educated than the subjects in phase II ($\chi^2 = 9.210$, $p=0.0163$).

Table 4

Educational Level of Subjects

Educational level	Phase I	Phase II	Total
High school diploma	--	6	6
1 to 3 years of University	17	10	27
Undergraduate degree and Graduate degree	14	16	30
Total	31	32	63

The vast majority (79%) of the subjects had either an undergraduate degree or at least one to three years of University education. This finding is congruent with the sampling approach chosen. Since TC is more prevalent in males of a higher socioeconomic status and higher educational level, this sample was appropriate for this study (Peterson & Lee, 1977).

Data were collected on the subjects' knowledge of TC and TSE. As illustrated in Table 5, approximently 54% (n= 33) of the subjects had heard of TC. In contrast, only 31% (n= 20) of the subjects had heard of TSE. These data are congruent with previous research on this subject indicating that the men at highest risk for developing TC are largely unaware of their risk, the symptoms of TC, and TSE (Blesch, 1986; Conklin et al., 1978; Cummings et al., 1983; Dachs et al., 1989; Friman et al., 1986; Gagong & Markovitz, 1987; Goldenring & Purtell, 1984; Marty & McDermott, 1986; Ostwald & Rothenberger, 1985; Reno,1988; Rudolf & Quinn, 1988; Vaz et al., 1989). Only one third of the subjects in phase

I had heard of TC (n= 11), compared with two thirds (n= 22) of the subjects in phase II.

Table 5

Knowledge of Testicular Cancer and Testicular Self-Examination

Heard of TC?	Phase I	Phase II	Total
Yes	11	22	33
No	20	10	30
Heard of TSE?	**Phase I**	**Phase II**	**Total**
Yes	9	11	20
No	22	21	43

Data were also collected on subjects' self examination practices. The data in Table 6 reveal that only 8% (n= 6) of the males in this study reported doing TSE on a regular (monthly) basis, as recommended by the Canadian Cancer Society (1988). Over 80% (n= 51) of the subjects have either never done TSE or do so rarely. This finding is consistent with previous research on this subject.

Table 6

Examination of Testes

I examine my own testes	Phase I	Phase II	Total
Never	16	8	24
Once or twice in my life	8	10	18
Once every 6 months to a year	2	7	9
Every 2 or 3 months	2	4	6
Once a month	3	3	6
Total	31	32	63

In phase I, one of the five subjects who reported that he practised TSE monthly or every two to three months also reported never having heard of TSE before this study. In phase II this inconsistency was found in five of the seven subjects. Of the same seven subjects who reported practising TSE regularly (monthly or every two or three months), three also indicated they do not intend on doing TSE within the next week. This may indicate that the time period used "in the next week" may have been inappropriate; however, in any case these data are difficult to interpret.

Results of Elicitation Phase (Phase I)

The purpose of phase I of this study was to elicit the beliefs of a sample of men representative of the target population regarding TSE, utilizing the TRA. The results of phase I are based on the data collected from 32 subjects by the elicitation of the questionnaire outlined in Appendix D.

Table 7 illustrates the results of the content analysis, the formulation of the five behaviourial belief questions and the corresponding five outcome evaluation questions.

Table 7

Content Analysis and Resulting Behaviourial Belief and Outcome Evaluation Questions

Behaviourial Belief Question and corresponding Outcome Evaluation Question formulated from content analysis	Responses to: List advantages/disadvantages or any thing else that comes to mind when thinking of TSE	Frequency of Responses
1. **Behaviourial Belief Question** For me doing TSE would promote early detection of TC unlikely-----likely	"early detection"	13
	"early diagnosis"	10
	"early prevention"	5
Outcome Evaluation Question Early detection of TC is good-----bad	"finding the problem at the initial stage"	3
2. **Behaviourial Belief Question** For me doing TSE would promote early treatment of TC unlikely-----likely	"early treatment"	12
Outcome Evaluation Question Early treatment of TC is good-----bad		
3. **Behaviourial Belief Question** For me handling myself during TSE is unappealing unlikely-----likely	"negative feelings of handling self"	3
	"feelings of handling self"	2
	"reminds me of a gay practice"	1
	"gay practice"	2
Outcome Evaluation Question Unappealing feelings of handling myself are good-----bad	"lack of acceptance of this type of behavior"	2
4. **Behaviourial Belief Question** For me doing TSE would cause fear of finding cancer unlikely-----likely	"fear"	3
	"fear of finding cancer"	1
	"fear of cancer"	1
Outcome Evaluation Question The fear of finding cancer associated with the practice of TSE is good-----bad	"increased anxiety"	1
	"paranoia"	1
	"panic"	2
5. **Behaviourial Belief Question** For me doing TSE would increase my awareness of health unlikely-----likely	"increased health awareness"	1
	"health awareness"	2
	"better health"	1
	"self-health promotion"	1
Outcome Evaluation Question Increased awareness of health resulting from my doing TSE is good-----bad		

Other responses: "misdiagnosis"-1; "save a trip to the doctor"-1; "remain fertile"-1; "done with a partner"-1; "time involved"-1; "discomfort"-1; "sex"-1; and "STD"-1

Content analysis was confirmed by the thesis committee members using percent agreement. Although Topf (1986) suggests that 70% agreement is necessary for content analysis, the agreement was in fact unanimous.

From the original content analysis carried out by the researcher, a few changes were made based on the feedback received from the thesis committee members. These changes are listed below. Under Behaviourial Beliefs and Outcome Evaluation, question number one was changed by deleting "and diagnosis" in an attempt to increase clarity. The term "detection" was used more often by the subjects than was "diagnosis" (see Appendix N). The final behaviourial belief question read: "For me doing TSE would promote early detection of Testicular Cancer unlikely--------likely". The corresponding outcome evaluation question read: "Early detection of Testicular Cancer is good----------bad".

Another change under Behaviourial Beliefs and Outcome Evaluation, (question number 3) was made to increase clarity. The final behaviourial belief question read: "For me handling myself during TSE is unappealing unlikely----------likely". The corresponding outcome evaluation question read: "Unappealing feelings of handling myself during TSE are good----------bad". The outcome evaluation question was described as "confusing" by two subjects. Three subject responses made reference to TSE as a "gay practice"; this may mean that this is a separate category to be examined. However, following the criteria set out by Fishbein and Ajzen (1975) using the frequency of responses, this category would

not have had a sufficient number of responses to create a behaviourial belief question for the concept.

The third change under Behaviourial Beliefs and Outcome Evaluation concerned question number four. The concept of fear was clarified by adding "of finding cancer". The final behaviourial belief question read: "For me doing TSE would cause fear of finding cancer unlikely---------likely". The final outcome evaluation question read: "The fear of finding cancer associated with the practice of TSE is good----------bad". The terminology "fear of finding cancer" did appear in two of the nine responses related to fear.

The final change under Behaviourial Beliefs and Outcome Evaluation was for question number five. "Increase my health awareness" was changed to "increase my awareness of health". Table 7 contains the corresponding behaviourial belief and outcome evaluation questions.

No changes were made to the normative beliefs and motivation to comply sections based on content analysis results. Table 8 outlines the content analysis and resulting five normative belief questions and the five corresponding motivation to comply questions. Appendix F contains the final copy of the questionnaire used for phase II of this study.

Table 8

Content Analysis and Resulting Normative Belief and Motivation to Comply Questions

Normative Belief Question corresponding Motivation to Comply Question	Responses to: List persons/groups you think would approve/disapprove, agree/disagree, or support of your doing TSE	Frequency of Responses
1. **Normative Belief Question** My doctor would think that I should perform TSE likely-----unlikely **Motivation to Comply** Generally speaking I want to do what my doctor thinks I should do likely-----unlikely	"doctor" "my doctor" "family doctor"	25
2. **Normative Belief Question** The Canadian Cancer Society would think I should perform TSE likely-----unlikely **Motivation to Comply** Generally speaking I want to do what the Cancer society thinks I should do likely-----unlikely	"Canadian Cancer Society" "Cancer Society" "Manitoba Cancer Society"	20
3. **Normative Belief Question** The medical community in general would think I should perform TSE likely-----unlikely **Motivation to Comply** Generally speaking I want to do what the medical community thinks I should likely-----unlikely	"nurse" "health educators" "clinics" "hospitals" "health department" "medical community" "MHSC" "insurance company at work"	2 2 2 2 5 7 1 1
4. **Normative Belief Question** My family &/or significant others would think I should perform TSE likely-----unlikely **Motivation to Comply** Generally speaking I want to do what my family &/or significant others thinks I should do likely----unlikely	"family" "wife" "girlfriend" "significant others" "friends"	10 3 1 3 2

Normative Belief Question corresponding Motivation to Comply Question	Responses to: List persons/groups you think would approve/disapprove, agree/disagree, or support of your doing TSE	Frequency of Responses
5. **Normative Belief Question** My religious group would think I should perform TSE likely-----unlikely	"some churches"	2
	"some religious groups"	3
	"religious leaders"	1
Motivation to Comply Generally speaking I want to do what my religious group thinks I should do likely-----unlikely		

Other responses: "workplace" 1; "fitness and nutrition" 1; and "magazines" 1.

Results of Phase II: Pilot Testing of the Instrument

The purpose of phase II was to pilot test the questionnaire, developed in phase I, for internal consistency and construct validity. Since prescreening failed to detect any outliers in the subject pool, all 32 questionnaires were utilized in the data analysis.

Assessment for Internal Consistency

The model components ($A_{(act)}$, bi, ei, Σ(bi)(ei), NBj, MCj, and Σ(NBj)(MCj) were evaluated for internal consistency reliability. Using standardized Cronbach's alpha coefficients (see Table 9) for the ten item attitude measure $A_{(act)}$ an alpha coefficient of .70 was attained. The lowest alpha coefficients were found on the five item instrument measures of behaviourial beliefs (bi), their corresponding outcome evaluations (ei), and on the sum of the products of bi and ei Σ(bi)(ei). The alpha score for Σ(bi)(ei) indicated that this scale did not meet the preset criteria for internal consistency and therefore could not be used.

The highest alpha coefficients were found on the five item instrument measures of normative beliefs (NBj), and on their corresponding motivation to comply (MCj) components. The sum of the products of these two measures (NBj)(MCj) forms the indirect measure of the person's subjective norm. The alpha value of the combined instrument measure of Σ(NBj)(MCj) is .76. In summary, the following scales met the preset criterion of .70 (Nunnally, 1978) for an immature scale and therefore, could be entered into the regression model: $A_{(act)}$, NBj, MCj, and Σ(NBj)(MCj).

Table 9

Cronbach's Alpha Coefficients for the Model's Components

Model Components	Alpha Coefficient
$A_{(act)}$	.70
bi	.35
ei	.21
Σ(bi)(ei)	.11
NBj	.86
MCj	.77
Σ(NBj)(MCj)	.76

Construct Validity Assessment

In order to assess the strength of the relationships between the model variables, multiple regression procedures were used. In order to check the assumption of no multicollinearity among the independent variables, a correlation matrix was constructed. Pearson correlation coefficients between the major model components are shown in Table 10. Both independent variables ($A_{(act)}$ and SN) were moderately highly correlated with the dependent variable BI. Also, a significant positive correlation between $A_{(act)}$ and SN was found ($r=.580$; $p<.05$). Although a moderately high positive correlation was found, this value was judged to be lower than the criterion of .65 set by Gordon (1968) as an indicator of multicollinearity among independent variables. Subsequently, both

independent variables were used as predictors in the model testing analysis.

Table 10

Correlations Among The Major Model Components

	BI	$A_{(act)}$	SN	$\sum$(NBj)(MCj)
BI	1.00			
$A_{(act)}$	.460*	1.00		
SN	.428*	.580*	1.00	
$\sum$NBj MCj	.185	.384*	.658*	1.00

*denotes significance at $p<.05$

Several additional procedures were carried out to assess the model assumptions. First, the independent variable SN was regressed on the sum of (NBj)(MCj). The adjusted R squared was significant (.41; p=.001). (The independent variable $A_{(act)}$ could not be regressed on the indirect measure of attitudes, the sum of (bi)(ei), because of the low reliability of the scale).

Next, both independent variables ($A_{(act)}$ and SN) (the direct measures of attitude and subjective norm) were entered simultaneously into the regression equation with BI as the dependent variable. The adjusted R squared of .20 was significant (p=.015) and the two components contributed to 19.89 percent of the variance in intention (F=4.848, df=2.29). However, when each variable was examined separately, the p value for each variable

failed to reach significance ($p<.05$). This finding suggests that a concomitant effect of multicollinearity was present.

Further support for the idea that multicollinearity was present was found during stepwise regression procedures. When the variable, $A_{(act)}$, was entered into the regression model first, 21.2 percent of the variance in behaviourial intent was explained. When the second variable SN was entered, no further increase in the percentage of the variance was explained. In fact, if the inclusion of BI was forced upon the model, the overall significance (ie., the predictive power of the regression equation) became insignificant.

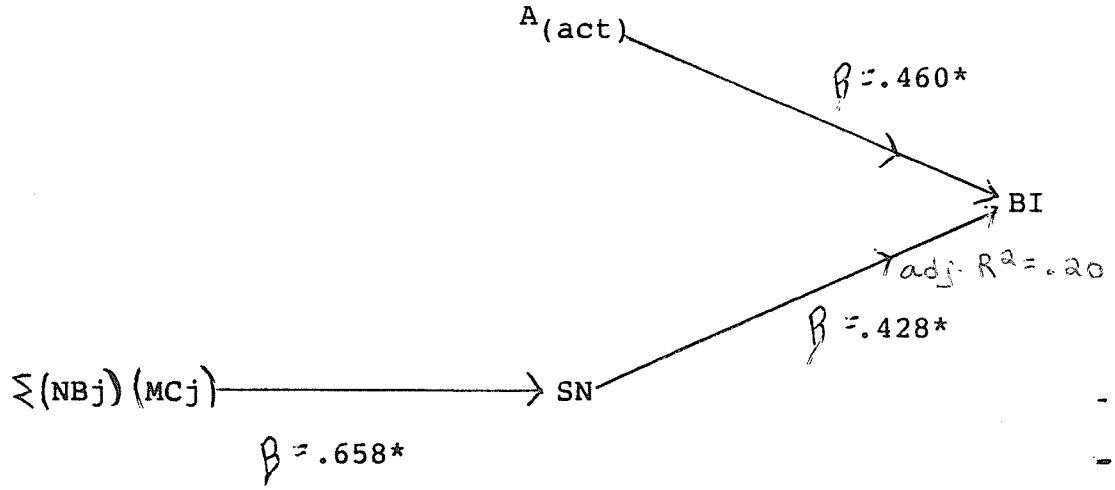
In addition to assessing the independent variables and their relationship to behaviourial intent, the model's assumptions were further examined. $A_{(act)}$ was regressed on the indirect measure of Subjective Norm (the sum of (NBj)(MCj)). The adjusted r squared of .157 was significant ($p=.03$). This finding gives further support of the relationship among model components and decreased support for the construct validity of the scale. Also, BI was regressed on the indirect measure of SN, the sum of (NBj)(MCj), with no significant results.

In summary, the independent variables (the direct measures of attitude and subjective norm--$A_{(act)}$ and SN predicted approximately 20% of the variance in behaviourial intent. However, no further predictive power was gained with the addition of the second variable due to multicollinearity of the independent variables.

The results of the regression analysis procedures partially support construct validity of the scale. The Theory of Reasoned Action states that BI is a function of an individual's attitude toward the action ($A_{(act)}$) and the person's perception of social pressure to perform the behaviour (SN). The results of the regression analysis indicate that $A_{(act)}$ and SN predicted approximently 20% of the variance of intent to perform TSE. However, attitude alone predicted 21.7% of BI. Also, the model maintains that subjective norms are a function of a person's belief that specific individuals would think that s/he should or should not perform the behaviour in question and the person's motivation to comply with the specific referent persons (the sum of [NBj][MCj]). This component of the model was supported.

Figure 1

Results of Model Testing Using Stepwise Multiple Regression



*denotes significance at p<.05

In summary, partial support for the model was found. The following relationships among the model components were found and the assumptions underpinning the model were confirmed or not confirmed:

Attitude predicts Intent: confirmed

Subjective Norm predicts Intent: confirmed

Attitude and Subjective Norm predict Intent: not confirmed

Sum of (NBj)(MCj) predicts Subjective Norm: confirmed

Sum of (bi)(ei) predicts Attitude: unable to assess

Attitude and Subjective Norm are not related: not confirmed

Attitude and sum of (NBj)(MCj) are not related: not confirmed

Sum of (NBj)(MCj) has a lower correlation to BI than SN to BI: not confirmed, because no statistically significant relationship was found

Comparing "Intenders" With "Nonintenders"

In addition to assessing the internal consistency and construct validity of the scale, other analyses were carried out. Subjects were also divided into two groups based on their reported intentions to engage in or not engage in TSE. The first group (n=12) included those subjects who indicated that they intended to perform TSE in the next week (scoring 4-7) and the second group (n=20) included those subjects who indicated that they did not intend to perform TSE in the next week (scoring 1-4). There were two subjects who answered with a score of 4; these subjects were randomly assigned, one into the intending group (I) and one into the nonintending group (NI). The nonparametric Wilcoxon test was applied to compare the two groups. Nonparametric tests are more appropriate for groups with a small n value (Polit & Hungler, 1988).

Table 11

Mean Attitudes for Men Who Intend and Do Not Intend to Perform TSE

Attitude My doing TSE is:	I n=12	NI n=20	p value
good-bad	20.79*	13.92	0.0397
difficult-easy	16.17	16.70	0.8883
embarrassing- not embarrassing	15.83	16.90	0.7562
moral-immoral	18.96	15.02	0.2302
harmful-beneficial	21.54*	13.47	0.0124
pleasant-unpleasant	15.50	17.10	0.5346
unnatural-natural	21.58*	13.45	0.0131
convenient- inconvenient	18.96	15.02	0.2401
inappropriate- appropriate	20.29	14.22	0.0669
enjoyable- not enjoyable	15.29	17.22	0.5059
$A_{(act)}$ summed total	20.71*	13.97	0.0513

I=intenders (those subjects who intend to perform TSE within the next week)
NI=nonintenders (those subjects who do not intend to perform TSE within the next week)
p=.05

As illustrated in Table 11 the mean values of the 10 attitude variables of $A_{(act)}$ varied significantly for 3 of the variables: 1. good-bad, 2. harmful-beneficial, and 3. unnatural-natural.

Therefore, this indicates that the intenders thought that that TSE was good, beneficial and natural. Also, the means of the summed attitudes ($A_{(act)}$) were significant (intenders [I = 20.71] and the nonintenders [NI = 13.97, p=.0513].

For the subjective norm components of the model, there was no significant difference found between the mean values of the I and NI for the five normative belief (NBj) variables, the five corresponding motivation to comply (MCj) variables, or the product (NBj)(MCj). The single item subjective norm (SN) question also did not produce a significant difference in the mean values between the I and the NI.

Comparing "Doers" and "Nondoers"

In addition to the BI question, the subjects were also asked to answer a question regarding their present and/or past behaviour regarding TSE (see Appendix--, question #6). The 32 subjects were again divided into two groups, those who indicated that they perform TSE regularly (doers [D] answering occasionally or monthly to question number 15), and those who indicated that they have never performed TSE or do so rarely (nondoers [ND]). The nonparametric Wilcoxon test was repeated to compare these two groups.

The mean values of the ten attitude variables were significantly different for only two of the variables: embarrassing - not embarrassing (D=23.79, ND=14.46, p=.0144) and unnatural-natural (D=23.00, ND=14.68, p=.0307). The "doer" group had a more positive attitude toward the above mentioned two

variables than did the "nondoer" group. The only variable whose means were significantly different for both the BI question and the actual performance question was the variable unnatural-natural. The mean values between the doers (D) and the nondoers (ND) did not vary significantly for the summed total of the ten item attitude measure.

As illustrated in Table 12 some significant differences were found between the attitudes of the subjects who perform TSE (D) and the subjects who do not perform (ND) regarding their normative beliefs and their motivation to comply with those normative beliefs. The subjects who report performing TSE were more likely to believe that their doctor would think that they should perform TSE monthly. These same subjects report that they are also more likely to comply with what their doctor believes. Although there was no significant difference between the means of the D and the ND regarding their normative beliefs with the medical community in general, the D were more likely to comply with what the medical community in general believes.

Table 12

Mean Normative Beliefs and Motivation to Comply Values for Men Who Perform and Do Not Perform TSE

	Normative Beliefs		Motivation To Comply	
	D n=7	ND n=25	D n=7	ND n=25
Doctor	22.57*	14.80	22.00*	14.96
Canadian Cancer Society	17.71	16.16	17.64	16.18
Medical Community in General	19.36	15.70	22.43*	14.84
Family &/or significant other	20.29	15.44	17.00	16.36
Religious Group	22.00	14.96	13.57	17.32

*$p<.05$

Also, there was no significant difference between the means of the D and the ND when the product of the normative beliefs (NBj) and the motivation to comply (MCj) with those beliefs was examined. When the single subjective norm (SN) question was examined, a significant difference existed between the means of the D (23.50) and the ND (14.54) ($p<.05$). The D group believed that those people who are important to them think that they should perform TSE significantly more often than the ND group.

Little consistency was found between the two groups, the I and the NI, and the D and the ND on the nonparametric Wilcoxon tests. Also, when a correlational coefficient was determined between the above two groups utilizing the variables of

behaviourial intention and reported practice of TSE, no significant correlation between these two variables was found.

Summary of Findings

The characteristics of the samples for phase I and phase II used in this study were as expected. Quota sampling was successful in obtaining approximently half the subjects between the ages of 15-24 and half between the ages of 25-35; however, the 15-19 year old age group was not represented. The educational level was higher than that of the general population; this is consistent with the sampling method used. There was a difference between phase I and phase II regarding the number of subjects who had heard of TC. In phase I, approximently one third of the subjects (n=31) had heard of TC; however, two thirds of the subjects in phase II had heard of TC (n=32). There was no significant difference between the two groups with regards to hearing about TSE. Overall, the knowledge level of TSE was low; this is consistent with the literature on this topic. Only 8% (n=6) of the males in this study reported doing TSE on a monthly basis as recommended by the Canadian Cancer Society.

Content analysis was carried out to identify the subjects' salient beliefs. This information elicited from phase I, resulted in the formation of the five questions under the categories of behaviourial beliefs, outcome evaluations, normative beliefs, and motivation to comply.

When the model components containing multiple items ($A_{(act)}$, bi, ei, Σ(bi)(ei), NBj, MCj, and Σ(NBj)(MCJ)) were evaluated for

internal consistency reliability, the five item instrument measure of bi, ei, and the combination of $\sum$(bi)(ei) were not internally consistent and therefore were not used further in the model testing. All other model components containing multiple items achieved an alpha score of at least .70.

Although the correlational matrix run on the model's components did not reveal any obvious multicollinearity, according to the criterion used in this study, in retrospect the significant strong positive relationship between $A_{(act)}$ and SN was in fact a sign of the multicollinearity that became evident when the two components were regressed on BI. Partial support for the construct validity of the scale was found.

When intenders (I) and nonintenders (NI) were grouped and their mean values for the models components were compared using the nonparametric Wilcoxon tests, the I had a more positive attitude toward TSE than did the NI. However, no significant difference was found between the I and the NI in the other components of the model.

Data were also collected about the actual performance of TSE; these groups were identified as the doers (D) and the nondoers (ND). However, these data are difficult to interpret since six of the 12 subjects who reported practising TSE regularly also reported never having heard of TSE before this study.

CHAPTER V

DISCUSSION AND IMPLICATIONS

This study was conducted in two phases. The purpose of phase I was to elicit the beliefs of a sample of men representative of the target population regarding Testicular Self-Examination (TSE). The purpose of phase II was to pilot test the questionnaire developed in phase I for internal consistency and construct validity. The Theory of Reasoned Action (TRA) served as the framework for this study (Fishbein & Ajzen, 1980). As described earlier, the TRA requires that for every behaviour examined by this theory instruments specific to the behaviour need to be developed. This chapter will examine the findings and implications from both phase I and phase II of this study including: the representativeness of the sample, the effects of knowledge on phase I and phase II, item construction, internal consistency, construct validity, comparison of the intenders and nonintenders, the interpretation of findings from the perspective of the theoretical framework, the implications for nursing, limitations, and the recommendations for further research.

Representativeness of the Sample: Phase I

The representativeness of the sample of this study was important in both phase I and phase II. In phase I the salient beliefs of a sample of men were elicited. The TRA requires that the elicitation sample be representative of the population of interest, otherwise the beliefs elicited might not represent the

salient beliefs of the larger population of interest. The representativeness of the sample was examined in terms of the age range and the subject's knowledge level. As mentioned previously the sample did not include any males between the ages of 15 and 19.

It is possible that the beliefs of this group regarding TSE are different. It is well documented in the literature that young men have a low awareness and knowledge level regarding both TC and TSE (Blesch, 1986; Conklin et al., 1978; Cummings et al., 1983; Dachs et al., 1989; Friman et al., 1986; Gagong & Markovitz, 1987; Marty & McDermott, 1986; Vaz et al., 1989). Although this study examined only the subjects' awareness, the results of this study are consistent with these findings. In the present study the awareness level of the subjects regarding TC varied from phase I to phase II. Only one third of the subjects elicited from phase I had heard of TC before this study, whereas, two thirds of the subjects in phase II had heard of TC. The educational level of the two subject groups (phase I and phase II) also varied, the phase I subjects were significantly better educated than the subjects in phase II. The possibility exits that if phase II subjects beliefs about TSE were elicited, those beliefs might be different from the beliefs elicited in phase I.

Another issue is the relationship of awareness of TC and actual knowledge. Does the awareness of the term TC relate to actual knowledge of TC or TSE? Previous research suggests that awareness of the terminology TC or TSE is not related to accurate

knowledge regarding the method of TSE (Cavanaugh, 1983). Since the development of the phase I instrument directly affects the results obtained on the final instrument, the representativeness of the elicitation sample is paramount. However, it is difficult to ascertain if the subjects' knowledge level regarding TC and TSE directly influenced the development of the questionnaire. The representativeness of the sample in phase II affects the generalizability of the results; however, the generalizability of this study is limited due to the small sample size and the pilot testing nature of the study. The issue remains, though, did the subjects' knowledge level regarding TC and TSE as elicited in phase I directly influence the development of the questionnaire?

Effects of Knowledge Level of The Subjects:

The knowledge level of the subjects has been a concern in this study from its onset. Previous research with the TRA has dealt with behaviours that are well known to the population in general, for example, breast self-examination, smoking, and eating patterns. According to Fishbein (personal communication, Feb. 22, 1990), it would not have been appropriate to teach subjects regarding TC and TSE prior to the elicitation procedure. However, he suggested that an attempt be made to include some individuals with confirmed knowledge regarding TC and TSE in the elicitation sample. Unfortunately this was not feasible to do for this study. Also, the method of the elicitation process may have affected the beliefs elicited. The majority of studies done utilizing the TRA have

elicited beliefs via a personal one-to-one interview (Lierman, et. al., 1990; Montano, 1986; Mullen, Hersey, & Iverson 1987; Pender & Pender, 1986). However, because of the personal nature of TSE and the fact that the researcher was of the opposite sex to the potential subjects it was felt that a questionnaire style elicitation procedure was more appropriate. It is possible, though, that personal interviews may have elicited different beliefs.

The issue surrounding the effect of the subjects' knowledge level regarding TC and TSE not only impacts on the development of the questionnaire (phase I), but also on the pilot testing of the questionnaire. The subjects' knowledge level of TC and TSE would have the greatest effect on the section of the questionnaire dealing with behaviourial beliefs (bi) and outcome evaluations (ei). The first two questions in this section dealing with detection and early treatment are directly related to the subjects' knowledge of the disease. The Canadian Cancer Society has promoted the general impression in the community that the sooner any cancer is found the more favourable the prognosis. Despite this information, many people still associate cancer with death. These factors, along with the subjects' own experience with cancer, likely had a great effect on their responses to these first two questions. Uncertainty on the part of the subject may also have caused the subject to score near the middle of the scale.

Item Construction

In the pilot testing of the instrument developed in phase I of this study it became apparent that the construction of the items in the instrument may have caused some confusion and therefore may have affected the results of this study. Specific items will be examined and suggestions to increase clarity for future research will be offered.

For example, the third behaviourial belief question reads, "For me handling myself during TSE is unappealing unlikely--likely" and the corresponding outcome evaluation question reads, " Unappealing feelings of handling myself during TSE are good--bad". Two written comments were received on the questionnaires stating that the wording seemed "awkward" and that the subjects were not sure what the question was asking. This same question had also caused the researcher and the researcher's thesis committee some concern as mentioned previously. This question attempted to reflect the elicited beliefs including: negative feelings of handling myself, gay practice, and lack of acceptance of this behaviour (see Table 7). It would be interesting in the future to see if repeated elicitation draws out the gay practice as a separate category. The confusion created by this question likely affected the subjects' responses. A possible alternative question might be worded: behaviourial belief- "For me TSE is unappealing unlikely--likely"; outcome evaluation- "unappealing feelings created by doing TSE are good--bad".

A similar problem was reported by three of the subjects regarding the outcome evaluation question related to fear. The question reads, "The fear of finding cancer associated with the practice of TSE is good--bad". Two subjects made a written comment next to the question stating that the question was "confusing". The third subject commented that despite his views on TSE he felt the fear aspect could be viewed in two different ways. On the one hand fear may be good as it prompts individuals to practice the behaviour (this would be regarded as a cue to action under the Health Belief Model [HBM]). On the other hand fear may inhibit the practice of TSE (this would be a barrier as described by the HBM). The responses of the three subjects on the elicitation phase describing the disadvantages of TSE as causing "paranoia" or "panic" may be examples of how fear may inhibit practice. In this questionnaire the scaling of the question (relating to fear) was from -3 good to +3 bad; therefore, the assumption was that those subjects who viewed TSE more positively would view any fear associated with the practice of TSE as being negative or inhibiting. Possible alternative questions might read "The inhibiting fear of finding cancer associated with the practice of TSE is good--bad" or "Any fear created by me doing TSE would inhibit my practice of TSE; this inhibiting factor is good--bad".

The dimensions incorporated in the section of the questionnaire dealing with bi and ei are far more complex than the section relating to normative beliefs (NBj) and motivation to comply (MCj). Furthermore, the issue surrounding the subjects'

knowledge level regarding TC and TSE directly effects the responses to the section of bi ei; however, this has very little or no effect on the NBj MCj section.

Internal Consistency

The issue surrounding the effect of the knowledge level of the subjects on the pilot testing along with the problems of wording of two of the questions in the behaviourial belief and outcome evaluation section help to explain the low internal consistency of these scales (bi =.35; ei =.21; Σ(bi)(ei) =.11). This low internal consistency may indicate that the scale itself is not internally consistent or that the knowledge level of the subjects directly affected the outcome.

In contrast the section dealing with NBj and MCj, which is not directly affected by the subjects' knowledge level received acceptable alpha scores for an immature scale (NBj =.86; MCj =.77; Σ(NBj)(MCj)=.76). The 10 item $A_{(act)}$ scale dealing with the subjects' direct attitude towards TSE was internally consistent with an alpha score of .70. It is interesting to compare the internal consistency of these scales with other scales that have been used within the framework of the TRA to examine other health behaviours.

Table 13

Comparison of Internal Consistency From Three Different Studies That Utilized The Theory of Reasoned Action

	DelPino	Lierman	Pender & Pender		
	TSE	BSE	Exercising	Weight	Stress
$A_{(act)}$	.70	.70	NA	NA	NA
$\Sigma(bi)(ei)$	.11	.69	.87	.75	.78
$\Sigma(NBj)(MCj)$	.76	.86	.90	.85	.81

Table 13 compares the alpha scores between three recent studies (including this study). The first comparison is made with a study that attempted to predict breast self-examination (BSE) practice in older women (n=93) (Lierman, et. al., 1990). The Pender & Pender (1986) study examined three separate behaviours, exercising regularly, maintaining/attaining recommended weight, and avoiding stressful life situations (n=66). In all three studies the alpha scores for $\Sigma(NBj)(MCj)$ are higher than the $\Sigma(bi)(ei)$ alpha scores. The alpha scores for the present study on TSE are the lowest; however, it must be recognized that the number of subjects is low (n=31) and that this is only a pilot test of the instruments developed. Also, the other behaviours (BSE, exercising regularly, maintaining/attaining recommended weight, and avoiding stressful life situations) are behaviours that are well known to the general population and presumably also to the subjects; therefore, the knowledge level of the subjects likely does not affect the results.

Although TSE and BSE appear to be health behaviours that might be compared between men and women one must recognize the different knowledge level of men and women regarding TSE and BSE respectively, and the general acceptance of the latter behaviour. Breast self-examination is a well accepted behaviour, TSE is not well known and the mention of it may be associated with a gay practice.

Construct Validity

Regression procedures performed on the model's variables provided partial support for the TRA. As mentioned previously it is difficult to compare these results with other studies using the TRA since so many variations of the measurements of the variables are used in the literature. Although, in the present study both attitude ($A_{(act)}$) and subjective norm (SN) independently predicted behaviourial intent (BI), they were unable to predict BI together due to the multicollinearity of these independent variables. Multicollinearity was not mentioned as a problem between the independent variables in the other studies utilizing the TRA (Hill, Gardner, & Rassaby, 1985; Lierman et al., 1990; Powell-Cope, 1991). In the other studies examining self-care behaviours the attitude variable ($A_{(act)}$) was able to predict BI with a higher percent of the variance explained (Hill et al., 1985; Lierman et al., 1990; Powell-Cope, 1991). It is possible that with personal self care behaviours such as BSE and TSE that the influence of significant others has less influence than one's own attitude

toward the behaviour in question. If further testing confirms this finding with TSE, educational efforts aimed at changing attitudes would be most effective in increasing the intent and actual practice of TSE. If, on the other hand, SN and $A_{(act)}$ were equal predictors it might be effective to include men's most significant social norms in the general educational efforts. In the present study approximently 20% of the variance of BI was explained. This result is consistent with the percentage of explained variance reported in other studies utilizing the TRA (12-36%) (Gerber, Newman, & Martin, 1988; Horn, McDermott, & Gold, 1986; Lierman, et. al., 1990; London, 1982; Manstead, Plevin, & Smart, 1984; Pender & Pender,1986; Powell-Cope, 1991). Table 18 charts the percent of variance explained by $A_{(act)}$ and SN in combination across three studies (including this study [the other two studies have been discussed previously under the section discussing alpha scores]).

Table 14
Comparison of the Percent of Variance Explained by $A_{(act)}$ and SN in Combination

	DelPino	Lierman	Pender & Pender		
	TSE	BSE	Exercising	Weight	Stress
$A_{(act)}$ & SN	20%	21%	5.5%	18%	7%

A few, studies utilizing the TRA have been able to predict higher percentages of explained variance. For example, Montano (1986) was able to predict 80% of the explained variance related

to subjects' behaviourial intention of receiving an influenza vaccination and in another study examining infant feeding patterns chosen by mothers 60% of the variance was predicted (Manstead, Proffitt, & Smart, 1983). The possible reasons for the percent of variances explained by these two studies must be examined. Firstly, the health behaviours examined in the Manstead et al. (1983) and the Montano (1986) studies are quite different than those examined in the other studies previously mentioned. Neither one of the behaviours in the Manstead et al. (1983) study or the Montano (1986) study is a self-care behaviour. The flu-vaccination behaviour is a one shot behaviour; it also does not carry with it the sexual nature of TSE or BSE, self-efficacy is not an issue, it is a positive behaviour unlike TSE or BSE where one is detecting the presence or absence of cancer, and finally it is a socially acceptable behaviour: people feel free to talk about going for the flu shot. Therefore, this behaviour is understandably easier to predict than behaviours that are affected by more external variables and are more personal in nature. The health behaviour examined by Manstead et al. (1983), namely breastfeeding, is open to more influence by others than a self-care behaviour. However, at present our society accepts and promotes breastfeeding, the general population is cognizant that the breast is best for mother and baby. Also, an activity such as breastfeeding has a positive undertone of a satisfied baby; there is no fear of finding cancer associated with this behaviour.

The percent of variance the TRA model is able to predict has practical significance. The higher the percent of variance explained the more useful the model will be to assess, understand, and promote the behaviour in question.

A further issue related to construct validity involves the ten evaluative adjectives used to assess attitude ($A_{(act)}$) suggested by Fishbein (personal communication, Feb. 22, 1990). Fishbein also suggested that when the pilot testing of the questionnaire was complete the adjectives most predictive of BI be determined so that the attitude scale could be decreased to approximently five questions. A stepwise multiple regression was conducted using BI as the criterion variable and all ten of the individual $A_{(act)}$ items as predictors. However, the four item scale $A_{(act4)}$ was not internally consistent (see Table 9); therefore, the ten item attitude scale was not reduced.

Comparison of the Intenders and the Nonintenders

This study also compared the findings of those subjects categorized as intenders to perform TSE and nonintenders, based on their response to the behaviourial intent question in phase II. Comparison of the intenders and the nonintenders indicated that persons who intended to perform TSE within the next week had a more positive attitude toward the behaviour than those subjects who reported no intention to perform TSE within the next week. This finding is consistent with what the TRA predicts. The clinical applicability increases when attitudes between intenders and

nonintenders can be compared. However, there was a problem in the wording of the question or in the subject's understanding of the questions relating to behaviourial intent and present and/or past experience with TSE. Of those indicating that they perform TSE regularly (n=7) only 3 indicated that they intended to perform TSE within the next week. This problem may be eliminated by having more than one BI question. For example, any subject intending to perform TSE within the next week, month, or next 2-3 months could be grouped in the intending group. Also as mentioned previously, the comparisons made between the subjects who reported a history of practising TSE (D [doers]) and those who reported no history of practising TSE (ND [nondoers]) are considered unreliable since 6 of the 12 subjects who reported doing TSE regularly also reported never having heard of TSE before this study. However, it is possible that those who reported doing TSE regularly that noted they had not heard of TSE are in fact performing a "folk" practice of TSE. For example these subjects may feel that they check their testicles while bathing, their technique may or may not be effective.

Two changes are suggested for improving the reliability of this part of the questionnaire. The first change involves the inclusion of a step by step description of TSE and then asking the subject if they practice TSE as described. The second method involves a two step question, for example "Have you ever heard of TSE before this study? Yes___ No___" , and if they answered yes to this question do you practice TSE and how often".

Interpretation of Findings From the Perspective of the Theoretical Framework

Multiple factors affect health behaviours. The factors that influence individuals to choose or not choose a health behaviour are likely as varied as the individuals themselves. Nevertheless, there continues to be an intense interest in determining the correlates of health behaviours (Norman, 1985). To unravel the mystery surrounding why individuals decide to participate or not to participate in a health promoting behaviour carries with it great potential for improving the health of the population. The Health Belief Model (HBM) has been used most extensively to examine health behaviours; however, this model has proven to be inadequate in many areas. The model used in this study was the Theory of Reasoned Action (TRA). This model was not developed to replace the HBM and was not developed specifically with health behaviours in mind. Like the HBM the TRA is not empirically driven; however, the standardized approach along with variables that are conceptually and operationally defined make this model conceptually tighter.

However, despite the standardized approach, examination of the literature reveals inconsistency in the use of this model. Various studies measure the variables differently and in fact measure different variables. Some of the studies use only the indirect components of attitude and subjective norm and others use a combination of both. The statistical interpretation also varies. Many studies regress the indirect variables on behaviourial intent while others combine independent and dependent measures of attitude

and subjective norm (Lierman et al., 1990; Manstead, Proffitt, & Smart, 1983; Manstead, Plevin, & Smart, 1984; Montano, 1986; Pender & Pender, 1986; Powell-Cope et al., 1991). These inconsistencies make it difficult to compare studies utilizing the TRA and make it difficult to evaluate the effectiveness of the theory.

The accuracy of predicting behaviourial intention (BI) is highest when a short time frame is used (two weeks or less). For this reason the present study used a time frame of one week despite the fact that the Canadian Cancer Society (CCS) recommends that TSE be performed monthly. This may have caused some confusion and problems interpreting the results. As described previously, of the seven subjects who reported that they practice TSE regularly only three indicated that they intended to do TSE within the next week. Few studies follow the subjects forward in time to identify if they actually carry out the behaviour. However, in the studies that do, the TRA seems to be able to predict the behaviourial intention leading to actual behaviour on a short term basis, but not on a long term basis (Norman, 1985). The motivational aspect that was missing in the HBM also appears to be missing in the TRA. A person's attitude and the influence of their social norm still does not explain why or how an individual starts to perform the behaviour.

Despite these limitations, empirical support for the TRA is increasing; however, the clinical usefulness it holds has yet to be determined. The TRA is a value expectancy cognitive theory,

therefore, without knowledge of the behaviour in question, one could argue that there is no awareness and therefore it is difficult if not impossible to test attitude (Glanz et. al., 1990). In the change theory literature the TRA certainly does not stand alone, it is not intended to account for all the explained variance related to human behaviour.

"Intrapersonal, interpersonal, and organizational or community theories must often be combined for optimal health behaviour change" (Glanz et. al., 1990, p. 432). This multilevel analysis will point to the different kinds of policy that will be required and suggest appropriate interventions (Winett, King, & Altman, 1989). Although the future of a multitheoretical approach seems inevitable, there will continue to be a need to test the components and subcomponents of existing models inductively and deductively. The combination of quantitative and qualitative methods often reveals the most "meaningful data" (Glanz et. al., 1990, p. 430). The constructual boundaries of a model that is not empirically driven (like the TRA) must be recognized.

Implications for Nursing

The epidemiology of disease and illness has changed and with it society's attitude of prevention and promotion (Glanz et al., 1990). In Canada the Lalonde report (1974) first put into words the government's recognition that health promotion was part of the future of health care. Efforts to increase health promotion focused on education of the general public. However, these efforts have

been labelled as "victim blaming" and criticized for their narrow focus and their blatant exclusion of the larger issue effecting health, namely social public policy (Glanz et. al., 1990, p. 5). General public awareness grew from these criticisms. In order to promote health, public policy itself had to be "healthy". Public policy can be defined as "a course of action or inaction chosen by public authorities to address a given problem or interrelated set of problems" (Pal, 1987, p. 4). Public policy affecting education, economics, the environment, racism, occupational hazards, and other social inequities had to be on the agenda for change. Epp's (1986) framework for health promotion entitled "Achieving Health for All" addressed these concerns. The aim of this framework was to "attain equity in health". In order to attain equity three areas (health challenges, health promotion mechanisms, and implementation strategies) were identified as requiring attention.

This framework is diagrammatically represented to enhance the understanding of the relationships of the three areas to achieving the goal or aim (see Appendix P). The three areas identified work together to achieve the aim with a dynamic and intricate interrelationship evolving between the three areas and their nine items at all times.

The first area, health challenges, identifies reducing inequities, increasing prevention, and enhancing people's capacity to cope, by providing the skills and the community support required for a wide variety of disabling conditions. The mechanisms by which health will be promoted are by promoting self-care, or the

"decisions taken and the practices adopted by an individual specifically for the preservation of his health" (Epp, 1986, p. 4). The second mechanism is mutual aid which involves the promotion of an informal network to act as supports. The final mechanism is related to the creation of healthy environments. The implementation strategies are aimed at fostering public participation, strengthening community health services by expanding their present role and focusing on health promotion and disease prevention, and finally by coordinating healthy public policy. Recently the Royal Commission submitted its report to the government of British Columbia on the future of health care in that province (Globe and Mail, Nov. 13, 1991). The results of the Royal Commission are clearly congruent with Epp's (1986) framework for health. The underlying message is that public policy needs to change to support prevention and reduce health-care costs. Some of the examples that have been proposed are: halving of the present allowable blood-alcohol level for drivers; legalizing midwifery; boosting welfare payments to families with children; and banning any use of tobacco products by adults or children on school property.

Public policy is often criticised for its underlying political goals which may be congruent or incongruent with the problem at hand. The goals themselves may be indistinct and imprecise, often deliberately hidden for fear of criticism (Pal, 1987). The Epp (1986) framework is important because it is the only government policy framework dealing with the future health of Canadians. The framework itself is not empirically based and the goal or aim is

difficult if—not impossible to measure. The political undertones of any public policy enables "the identical policy to be evaluated as a stunning success or a miserable failure" (Pal, 1987, p. 189). Recognizing the purpose and the perspective of public policy enables one to work realistically with public policy.

The changing epidemiology of disease and a government supported shift in focus from the treatment of disease and illness to health promotion and illness prevention has far reaching effects for the nursing profession. Community health nurses are in a prime position to implement the changes made reference to in Epp's (1986) framework for health. For Epp's (1986) framework to become successful there must be a shift from the hospital centred care in our society to a community model. "Achieving Health For All", utilizes community resources to provide education and support, held together by a supportive public policy. In this same vein Kickbusch (1987) states "people, individuals and in groups, are the most important resource for health, self-care is the first and most prevalent form of care." (p. 439). Community health nurses are in a position to identify learning needs in the community and carry out the teaching in the home, educational institutions, the work site, and in the media. They are able to identify community support groups and have the potential to act as a liason to these groups. Nurses need to become more active in the development and implementation of public policy that effects health care.

TSE is an example of a health behaviour that fits into Epp's (1986) framework and that will increase consumers' awareness and their ability to help themselves. In dealing with the behaviourial change related to TSE nurses are in an ideal position to promote knowledge and awareness regarding TC and TSE and to promote the skill development for TSE. However, it is necessary to determine the most effective way of disseminating the information on TSE. The options include mass media presentations, face-to-face presentations in educational institutions or at the work site, one-to-one teaching in clinics or doctor's offices, or teaching aimed at men with a history of cryporchidism. The epidemiology of the disease provides some guidance in this area. The cost of any educational effort needs to be assessed regarding the potential benefits of the program, for example mass screening for all men between the ages of 15-34 for TC would undoubtably not be cost effective. Promoting TSE may be criticised by some since the incidence is low; however, the fact that it is the most common solid tumour between the ages of 15-34 lends support for promoting TSE (Canadian Cancer Society, 1988; Davies, 1988; Frank et al., 1983). Since TC is most prevalent in men between the ages of 15-34 the most likely location to reach the largest number of these men is in educational and work settings. Studies indicate that this age group of men rarely visits the doctor's office and screening only those with cryporchidism would disregard the other risk factors (Blesch, 1986; Conklin et al., 1978; Cummings et al., 1883; Ganong & Markovitz, 1987). Mass media in the form of

television, radio, or newspaper has the "advantage to reach groups who are difficult to access through traditional medical delivery" (Redman, 1990, p. 90). This would be effective in increasing the general public's knowledge regarding TC and TSE. However, the acceptance of a personal health behaviour such as TSE on the mass media is questionable. Studies indicate that media alone is not effective in changing behaviour; it seems face-to-face contact is more effective in this respect (Flora, Marbach, & Maccoby, 1989; Redman, 1990).

The logical location to teach and support TSE behaviour is the high school. Many high schools have provided programs on breast cancer and BSE. Presently, these programs are being questioned, since the risk for breast cancer doesn't start until a women is 30 years old. Since the age range for TSE is 15-34, highschool is an appropriate location to disseminate the related information. The age of the students and the sensitive nature of the topic might point to a male making the presentation on TC and TSE.

If the TRA was used to guide teaching to promote TSE, teaching would focus on the items elicited in the behaviourial beliefs section of the questionnaire in an attempt to affect the individuals attitude toward the behaviour. This varies from the traditional public health approach which focuses on direct information dissemination. Subjective norms might be included by sending a brief letter home to parents informing them of the presentation and the information that will be presented. However, elicitation of this group might also reveal that their peer group

and not their parents are acting as their subjective norm. Further research is required in this area. However, it would be difficult to contact all the identified social referents.

Testicular Self-Examination is only a single example of a health behaviour nurses are in a position to promote. However, it provides a good example of how a community can be assessed with regards to the epidemiology of a specific disease and efforts focused to promote early detection.

The goal of the TRA is to understand behaviour. The development of valid and reliable instruments within the framework of the TRA to examine the beliefs of young men regarding TSE is the first step toward understanding the correlates of this health behaviour. The use of these instruments in the future might be useful in guiding nurses and other health professionals to know to whom programs of TSE should be targeted towards and the type of content that may have the greatest likelihood of promoting monthly TSE in men.

To date TSE has not been examined within the TRA. This study expands the literature on the information available regarding this health practice. The pilot testing of these instruments is, though, only the beginning; the direction offered by this study will be clearer when further testing of the instrument is completed.

Limitations

As mentioned previously, the TRA does not specifically incorporate a knowledge component into the theory itself. The

cognitive nature of the TRA assumes that individuals possess knowledge regarding the behaviour in question. The literature on TSE suggests that the awareness and knowledge level of men is low regarding TC and TSE. This directly influenced the elicitation procedure that is central to this theory. In personal communication with Fishbein (Feb. 22, 1990), he suggested that an attempt be made to include some men in the sample with previous knowledge regarding TSE. It is difficult to ascertain what the knowledge level of the sample was. However, since this University population has a higher educational status than the broader target population, they may be more likely to have some knowledge regarding TSE and thus constitute an appropriate sample.

The second limitation is also related to the theory. The predictive nature of the TRA makes it necessary to examine whether or not the subjects carried out the behaviour in question following the elicitation of their behaviourial intention. This would assist in strengthening construct validity. However, since the purpose of this study was to develop an instrument, this is recognized as a limitation which may be addressed in future research.

This study elicited beliefs from a University sample of men. Although this sample was within the high risk age group for TC, it did not represent the entire age range at risk for this disease. For example, the youngest age at risk for TC was not represented in this sample. It is possible that the age group not represented in the sample may maintain different salient beliefs regarding TSE.

Also the sample chosen for this study over represents the more highly educated group in the population at risk. This may be viewed as a limitation. However, there is some evidence that TC is more prevalent in higher socioeconomic groups; therefore, this population was suitable for investigation (Peterson & Lee, 1977). The generalizability of this study is also limited due to the small sample size in phase II and the pilot testing nature of the study.

Recommendations for Further Research

Based on the results of this study several recommendations are made for future research.

1. The elicitation phase should be repeated with a male presenter and include the entire 15-34 year old age group to determine if the beliefs of this entire group varies from those revealed in this study.
2. Initial elicitation should be done on a one-to-one basis to determine if the beliefs revealed vary from those revealed in this study. If the one-to one interviews reveal beliefs different from those revealed in the present study the entire elicitation should be done using this method of data gathering. A male researcher should be used for all one-to-one contacts.
3. Once the elicitation phase is complete the questionnaire should be tested with a larger sample, approximently 150 subjects based on the guidelines offered by Kerlinger (1986).
4. The changes to the wording of questionnaire items mentioned in the discussion section need to be implemented.

5. The final questionnaire should be used to predict behaviourial intent and then followed up in six months to determine if TSE was carried out. This follow-up would enable testing of the full model.

Summary

Testicular cancer (TC) is rare; however, it is the most solid tumour between the ages of 15-34. Testicular tumours can have a high cure rate, approaching 90%; however, cure rates vary with the type of TC and its stage of progression at diagnosis. Testicular self-examination is quickly learned, can be performed within 30-60 seconds, is noninvasive, free, and considered easier to perform than breast self-examination.

There has been a longstanding interest in identifying factors that prompt individuals to carry out health behaviours. The Theory of Reasoned Action (TRA) has been used as a model to understand behaviour. Although the TRA has been used with some success with other health behaviours, to date it has not been used to examine the correlates of TSE behaviour. The TRA requires that for every behaviour examined by the theory a questionnaire needs to be developed by eliciting the salient beliefs of a representative sample of the target population. The purpose of this study was to elicit the beliefs of a sample of men representative of the target population regarding TSE, develop a questionnaire with these beliefs using the guidelines of the TRA, and then to pilot test the questionnaire for internal consistency and construct validity. The results provided partial support for the theory; however, further

testing must—be done before this model will be able to provide guidance to health professionals regarding the promotion of TSE.

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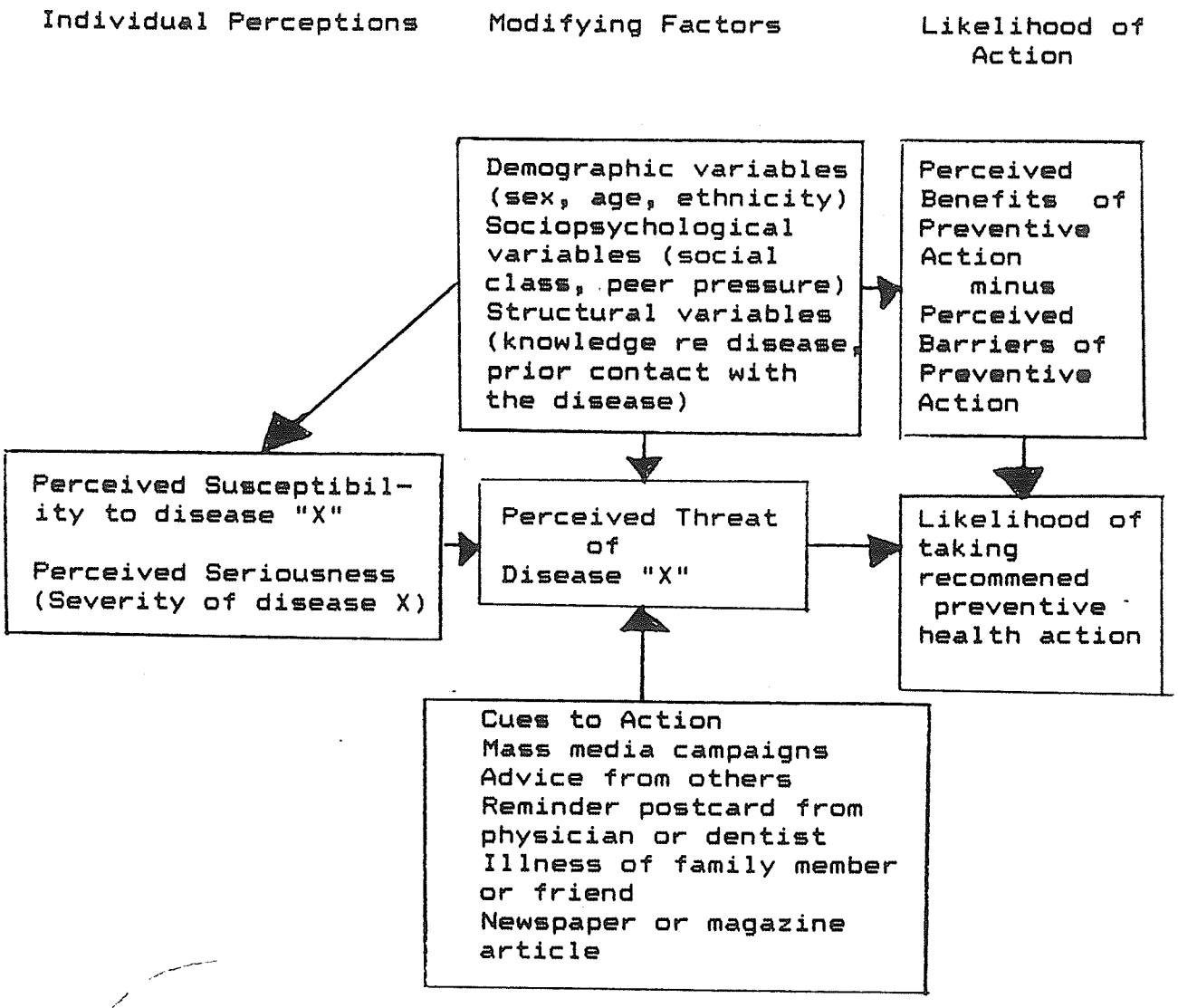
Appendix A:

Diagrammatic Representation of the Health Belief Model

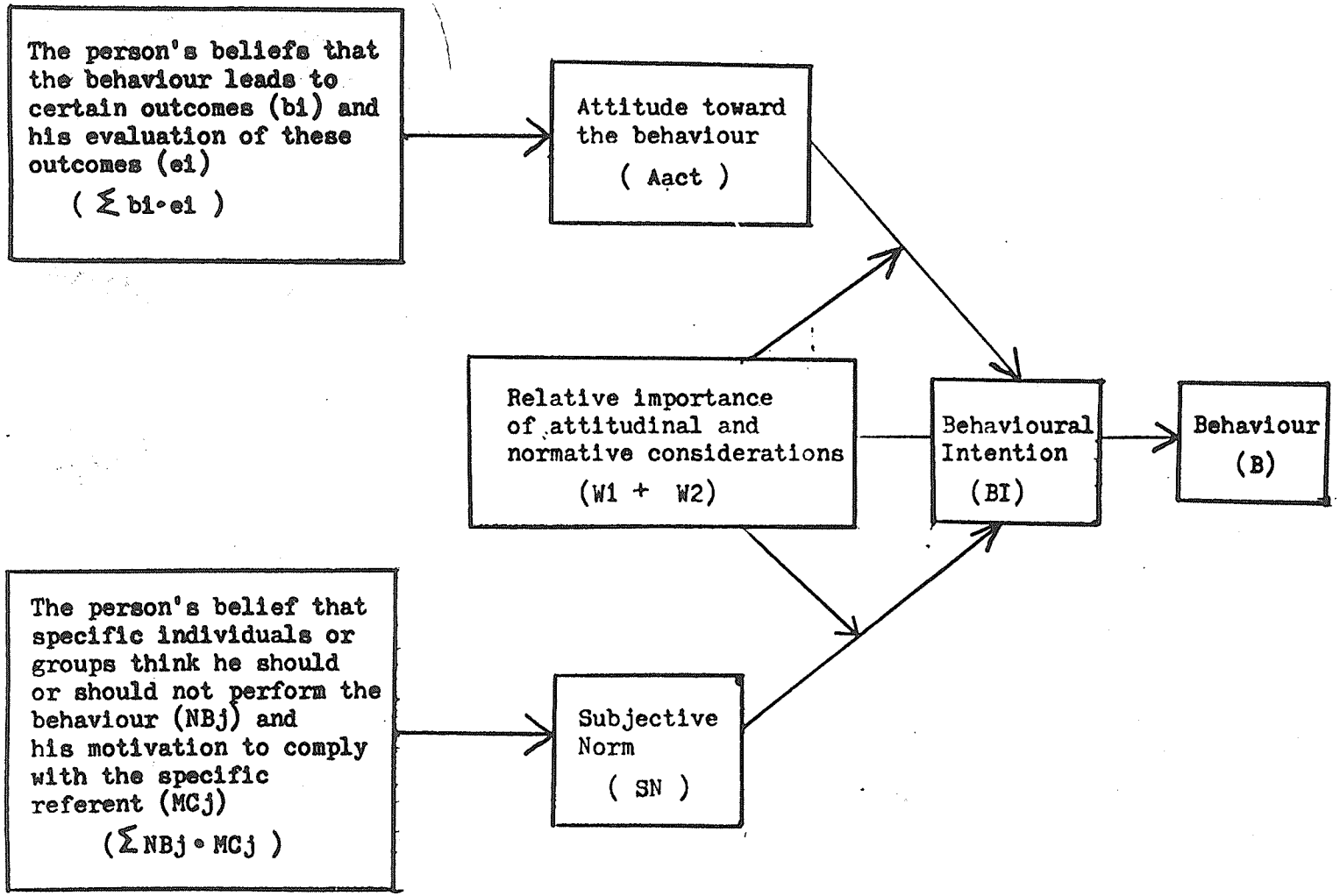
Appendix A:



The "Health Belief Model" as predictor of preventive health behavior, taken from Becker, 1974. p. 7.

Appendix B:

Diagrammatic Representation of the Theory of Reasoned Action

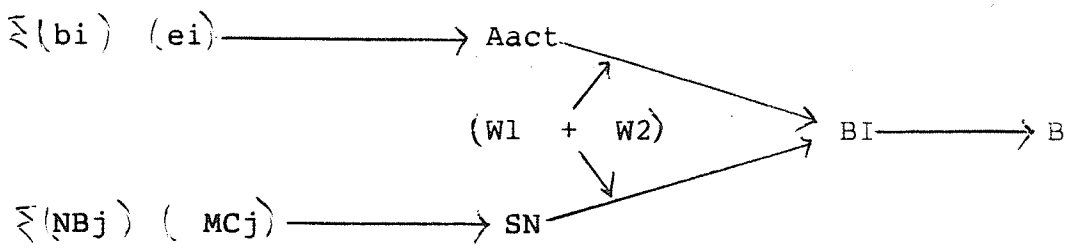


The "Theory of Reasoned Action" taken from Azjen & Fishbein, 1980, p. 17.

Appendix C:

Diagrammatic Representation of the Theory of Reasoned Action

With the relevant equations inserted



$$BI = W1\ (Aact) + W2\ (SN)$$

$$BI = W1\ \Sigma(bi)(ei) + W2\ \Sigma(NBj)(MCj)$$

Bi = behaviourial intention

Aact = attitude toward performing the behaviour

Sn = subjective norm or social influence

bi = the belief that performance of the behaviour will lead to outcome i

ei = the value of outcome i to the individual

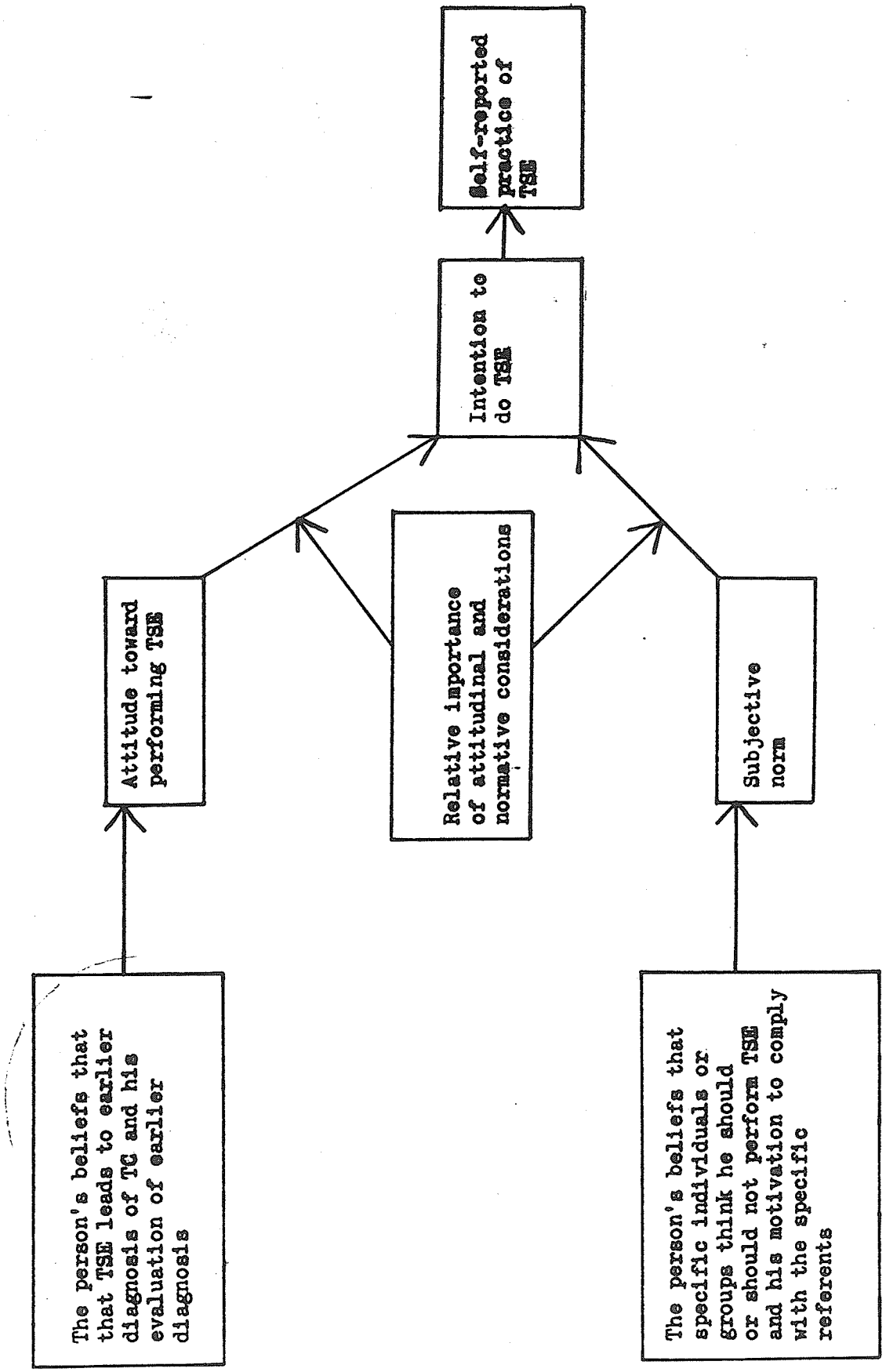
NBj = the belief that a relevant other j thinks one should or should not perform the behaviour

MCj = the motivation to comply with j

W1 & W2 = the weights reflecting the relative importance of each component in determining BI

Appendix D:

Diagrammatic representation of the Theory of Reasoned Action
With the Variables Related to
Testicular Self-Examination Inserted


Self-reported practice of TSE
Intention to do TSE
Attitude toward performing TSE
Relative importance of attitudinal and normative considerations
Subjective norm
The person's beliefs that that TSE leads to earlier diagnosis of TC and his evaluation of earlier diagnosis
The person's beliefs that specific individuals or groups think he should or should not perform TSE and his motivation to comply with the specific referents

Appendix E:

Phase I: Elicitation Survey

Elicitation Survey: Phase I

In this questionnaire we are mainly concerned with your attitude toward Testicular Self-Examination (TSE).

1. Please list any advantages you can think of regarding performing TSE.

2. Please list any disadvantages you can think of regarding performing TSE.

3. Please list any thing else that comes to mind when thinking of TSE.

4. Please list any persons or groups you think would approve/agree/support of your doing TSE.

5. Please list any persons or groups you think would disapprove/disagree of your doing TSE.

6. Please list where you would go to seek more information regarding Cancer of the testicle or TSE.

General Information

Please answer the following questions as they pertain to you. Please do not be offended. Age, race, and socioeconomic status have been identified as significant factors related to the incidence of TC.

7. Age: _____

8. Race: White_____ Black_____

Asian/Oriental_____

Native Canadian (Indian)_____

Other_____

9. Citizenship: Are you a Canadian citizen Yes_____ No_____

10. Education: highschool diploma_____

1 to 3 years of University_____

undergraduate degree_____

graduate degree_____

other (please specify)_____

11. Have you ever heard of Testicular Cancer outside of this study?

Yes_____ No_____

12. Have you ever heard of Testicular Self-Examination outside of this study?

Yes____ No_____

13. I examine my own testes:

_____ Never

_____ Very rarely (once or twice in my life)

_____ Rarely (once every 6 months to a year)

_____ Occasionally (every 2 or 3 months)

_____ Regularly (once a month)

Thank you for your participation in this study.

Appendix F:

Phase II: Questionnaire

Phase II

TESTICULAR SELF-EXAMINATION (TSE) QUESTIONNAIRE

In the questionnaire you are about to fill out we ask questions which make use of ranking scales with seven places; you are to place an X in the place that best describes your opinion. For example, if you were asked to rate "The weather in Winnipeg" on such a scale, the seven places should be interpreted as follows:

The weather in Winnipeg is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

If you think the weather in Winnipeg is extremely good then you would place your mark as follows:

The weather in Winnipeg is

good___X____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

If you think the weather in Winnipeg is quite bad, then you would place your mark as follows:

The weather in Winnipeg is

good_____:_____:_____:_____:_____:__X__:_____bad
extremely quite slightly neither slightly quite extremely

In making your ratings please remember the following points:

(1) Place your marks in the middle of the spaces, not on the boundaries:

_____:__X__:_____:_____:_____:_____X_____
this not this

(2) Be sure you answer all items-please do not omit any.

(3) Never put more than one X mark on a single scale.

1. I intend to do TSE within the next week

likely_____:_____:_____:_____:_____:_____:_____:unlikely
extremely quite slightly neither slightly quite extremely

2. My doing TSE will be

i) good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

ii) difficult_____:_____:_____:_____:_____:_____:_____easy
extremely quite slightly neither slightly quite extremely

iii) embarrassing_____:_____:_____:_____:_____:_____:_____not embarrassing
extremely quite slightly neither slightly quite extremely

iv) moral_____:_____:_____:_____:_____:_____:_____immoral
extremely quite slightly neither slightly quite extremely

v) harmful_____:_____:_____:_____:_____:_____:_____beneficial
extremely quite slightly neither slightly quite extremely

vi) pleasant_____:_____:_____:_____:_____:_____:_____unpleasant
extremely quite slightly neither slightly quite extremely

vii) unnatural_____:_____:_____:_____:_____:_____:_____natural
extremely quite slightly neither slightly quite extremely

viii) convenient_____:_____:_____:_____:_____:_____:_____inconvenient
extremely quite slightly neither slightly quite extremely

ix) inappropriate_____:_____:_____:_____:_____:_____:_____appropriate
extremely quite slightly neither slightly quite extremely

x) enjoyable_____:_____:_____:_____:_____:_____:_____not enjoyable
extremely quite slightly neither slightly quite extremely

3. Most people who are important to me would think that

I should_____:_____:_____:_____:_____:_____:_____I should not perform TSE

4.

i) For me doing TSE would promote early detection of Testicular Cancer

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely

ii) For me doing TSE would promote early treatment of Testicular Cancer

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely

iii) For me handling myself during TSE is unappealing

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely

iv) For me doing TSE would cause fear of finding cancer

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely

v) For me doing TSE would increase my awareness of health

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely

5i) Early detection of Testicular Cancer is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

ii) Early treatment of Testicular Cancer is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

iii) Unappealing feelings of handling myself during TSE are

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

iv) The fear of finding cancer associated with the practice of TSE is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

v) Increased awareness of health resulting from my doing TSE is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely

6i) My doctor would think that I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

ii) The Canadian Cancer Society would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

iii) The medical community in general would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

iv) My family &/or significant others would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

v) My religious group would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

7.

i) Generally speaking I want to do what my doctor thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

ii) Generally speaking I want to do what the Canadian Cancer Society thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

iii) Generally speaking I want to do what the medical community in general thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

iv) Generally speaking I want to do what my family &/or significant others thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

v) Generally speaking I want to do what my religious group thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely

General Information

Please answer the following questions as they pertain to you. This information is important because age, race, and socioeconomic status have been identified as significant factors in the likelihood of developing testicular cancer.

1. Age: _____

2. Race: White_____ Black_____

Asian/Oriental_____

Native Canadian (Indian)_____

Other_____

3. Citizenship: Are you a Canadian citizen? Yes_____ No_____

4. Education:

highschool diploma_____

1 to 3 years of University_____

undergraduate degree_____

graduate degree_____

other (please specify)_____

5. Have you ever heard of Testicular Cancer outside of this survey?

Yes_____ No_____

6. Have you ever heard of Testicular Self-Examination outside of this survey?

Yes_____ No_____

7. I examine my own testes:

_____ Never

_____ Very rarely (once or twice in my life)

_____ Rarely (once every 6 months to a year)

_____ Occasionally (every 2 or 3 months)

_____ Regularly (once a month)

Thank you for your participation in this study.

Appendix G:

Letter Regarding Access of Researcher To Classroom

Marlene Del Pino
166 Brentlawn Blvd.
Winnipeg, Manitoba
R3T-5C7

Dear Professor:

This letter is to formalize our discussion on the phone regarding access into your class. Enclosed is an abstract of my proposed research. Pending approval from the ethical review committee, I will conduct my study in your class, with your male students, as previously discussed on July __ 1990.

The study will take no longer than 15 minutes to complete. Students will be informed that their participation is strictly voluntary and that their participation or refusal to participate will not affect their educational status. Students participating will have the option of withdrawing from the study at any time without recrimination or prejudice. The study will not cause the students any physical or emotional harm. The nature of the questions may cause some students to feel uncomfortable. Students may perceive some benefit by gaining information on Testicular Cancer and Testicular Self-Examination. The study itself will involve responding to a questionnaire.

One of the requirements of the ethical review committee at the University of Manitoba is a letter indicating in writing access to your class. My proposal will be forwarded to the committee in May 1990. Please address this letter to me, and forward it to the address found at the top of this letter.

Your participation in this study is greatly appreciated.

Sincerely,

Marlene Del Pino, RN
Masters Candidate
University of Manitoba

Appendix H:

Verbal Explanation Read to Potential Subjects

Phase I

Verbal explanation read to potential subjects (Phase I)

"Hello, my name is Marlene Del Pino, I am enroled in the Nursing Masters program at the University of Manitoba. Part of my program involves conducting a research study. I am here to request your participation in my study.

Most of you have heard of the preventive health behaviour referred to as breast self-examination. However, some of you may not be aware of a similar preventive self-care behaviour recommended for men to detect Testicular Cancer which involves self-examination of the testicles. The purpose of my study is to elicit young men's health beliefs regarding this behaviour referred to as testicular self-examination. This elicitation is the first phase of my study that will eventually develop a questionnaire on this topic. This group has been chosen because of your sex, age range, and accessibility.

Participation in this study will include responding to a questionnaire. The entire session will take approximately 10 minutes. Participation is strictly voluntary and you may choose freely not to become a part of this study. If you decide to participate you may also withdraw your participation at any time during the study without penalty.

Let me explain how my research will be used. Your answers to the survey will be completely confidential. The questionnaires will be evaluated collectively and then reported in the form of a master's thesis which is a partial requirement for my Masters degree. The results may be published, but confidentiality will be maintained by reporting only group results.

If you agree to participate, I would ask you to please answer all of the questions. This is not a school-type test. There are no perfect scores. It is essential that you try to answer as close to the truth for you as possible and not try to answer what you believe would be the ideal answer.

Some personal data such as age, race, and education level will be collected because the incidence of TC is related to these variables. Your name will not appear on the questionnaires.

Participation in this study has no known risks. The nature of the questions may cause some to feel a little uncomfortable. You may perceive some benefit in gaining an awareness regarding TC and TSE. If you have any questions concerning this study or your participation in it, please feel free to ask me. Everyone here will receive a package including two pamphlets (one on TC and one on TSE), a consent form, and a questionnaire. If you chose to participate in this study please do not refer to the pamphlets until after you have completed the questionnaire. If you have questions following this session you can contact me at the number provided on your consent form. I will stay to answer any questions regarding TC or TSE following your completion of the questionnaires. The Manitoba Cancer Society and the health services here at the University have been notified and are also willing to answer any questions you may have. The contact people and their

phone numbers will also appear on your copy of the consent form. The signed consent form will indicate your informed and voluntary participation.

Following completion of the study all the questionnaires will be disposed of to maintain confidentiality.

I do appreciate your time and interest in assisting me. If you wish to have the results of this study mailed to you following the completion of my study please fill out your name and address on the section of your consent form designated.

Those males interested in participating in this study please go to room X (as designated) to complete your consent forms and your questionnaires. Those choosing not to participate may leave at this time. Thank you for your attention.

Appendix I:

Verbal Explanation Read to Potential Subjects

Phase II

Verbal explanation read to potential subjects (Phase II)

"Hello, my name is Marlene Del Pino, I am enroled in the Nursing Masters program at the University of Manitoba. Part of my program involves conducting a research study. I am here to request your participation in my study.

Most of you have heard of the preventive health behaviour referred to as breast self-examination. However, some of you may not be aware of a similar preventive self-care behaviour recommended for men to detect Testicular Cancer which involves self-examination of the testicles. The purpose of my study is to pilot test a questionnaire that I have developed regarding testicular self-examination. The questionnaire examines men's beliefs regarding TSE. This group has been chosen because of your sex, age range, and accessibility.

Participation in this study will include responding to a questionnaire. The entire session will take approximately 10 minutes. Participation is strictly voluntary and you may choose freely not to become a part of this study. If you decide to participate you may also withdraw your participation at any time during the study without penalty.

Let me explain how my research will be used. Your answers to the survey will be completely confidential. The questionnaires will be evaluated collectively and then reported in the form of a master's thesis which is a partial requirement for my Masters degree. The results may be published, but confidentiality will be maintained by reporting only group results.

If you agree to participate, I would ask you to please answer all of the questions. This is not a school-type test. There are no perfect scores. It is essential that you try to answer as close to the truth for you as possible and not try to answer what you believe would be the ideal answer.

Some personal data such as age, race, and education level will be collected because the incidence of TC is related to these variables. Your name will not appear on the questionnaires.

Participation in this study has no known risks. The nature of the questions may cause some to feel a little uncomfortable. You may perceive some benefit in gaining an awareness regarding TC and TSE. If you have any questions concerning this study or your participation in it, please feel free to ask me. Everyone here will receive a package including two pamphlets (one on TC and one on TSE), a consent form, and a questionnaire. If you chose to participate in this study please do not refer to the pamphlets until after you have completed the questionnaire. If you have questions following this session you can contact me at the number provided on your consent form. I will stay to answer any questions regarding TC or TSE following your completion of the questionnaires. The Manitoba Cancer Society and the health services here at the University have been notified and are also willing to answer any questions you may have. The contact people and their phone numbers will also appear on your copy of the consent form.

The signed consent form will indicate your informed and voluntary participation.

Following completion of the study all the questionnaires will be disposed of to maintain confidentiality.

I do appreciate your time and interest in assisting me. If you wish to have the results of this study mailed to you following the completion of my study please fill out your name and address on the section of your consent form designated.

Those males interested in participating in this study please go to room X (as designated) to complete your consent forms and questionnaires. Those choosing not to participate may leave at this time. Thank you for your attention.

Appendix J:

Canadian Cancer Society's Pamphlet entitled:

Facts on Cancer of the Testicle

Appendix K:

Canadian Cancer Society's Pamphlet entitled:

The Most Important Minute in a Man's Life

Appendix L:

Consent Form

Phase I

Dear Subject:

Description of Study

Marlene Del Pino, a Registered Nurse and a student in the Masters of Nursing Program at the University of Manitoba is conducting a study to elicit young men's health beliefs regarding Testicular Self-Examination. This information will be used to develop a questionnaire on the topic of Testicular Self-Examination. I have been chosen as a potential participant because of my sex, age, and accessibility. I am being invited to participate in this study.

Procedures

If I agree to participate in this study my participation will include responding to a questionnaire that will take approximently 10 minutes to complete. Questionnaires will be completed in a nearby classroom.

Benefits and Risks of Participating in this Study

Participation in this study has no known risks. However, the nature of the questions may cause me to feel uncomfortable. I may perceive the gaining of an awareness of Testicular Cancer and Testicular Self-Examination as a benefit of my participating.

Confidentiality

My answers to this study will be completely confidential. My name will not appear on the questionnaire. The questionnaires will be evaluated collectively and then reported in the form of a master's thesis which is a partial requirement for Marlene's Masters degree. The results may be published, but my confidentiality will be maintained by the reporting of group results. All of the questionnaires used in this study will be kept in a locked cabinet and will be destroyed following the completion of the study.

Invitation to Question

The researcher is here to answer any questions that I might have regarding this study and my participation in it. If I have questions following my participation in this study I can contact Marlene at: 269-8829. The Manitoba Cancer Society (MCS) and the student health services at the University have been notified of this study and are also willing to answer any questions. Ralph is the contact at the MCS and can be reached at: 774-7483. Clare Hawkins is the contact at the student health services and can be reached at 474-8411.

If I wish to speak with Marlene's thesis advisor, Professor Karen Chalmers, she can be reached in the School of Nursing at the University of Manitoba.

Voluntary Participation

Participation in this study is entirely voluntary. Whether or not I decide to participate will in no way affect my educational status. If I decide to participate and then later want to withdraw, I am free to do so without penalty. My signature on this form indicates that I have had an opportunity to have my questions regarding this study answered by Marlene, that I have read the information provided above, and have decided to participate.

---------- ----------

Signature Date

I wish to have a copy of the results of this study mailed to me following the completion of this study.

NAME _____

ADDRESS _____

_____

_____

Appendix M:

Consent Form

Phase II

Dear Subject:

Description of Study

Marlene Del Pino, a Registered Nurse and a student in the Masters of Nursing Program at the University of Manitoba is conducting a study to pilot test a questionnaire that examines young men's health beliefs regarding Testicular Self-Examination. I have been chosen as a potential participant because of my sex, age, and accessibility. I am being invited to participate in this study.

Procedures

If I agree to participate in this study my participation will include responding to a questionnaire that will take approximently 10 minutes to complete. Questionnaires will be completed in a nearby classroom.

Benefits and Risks of Participating in this Study

Participation in this study has no known risks. However, the nature of the questions may cause me to feel uncomfortable. I may perceive the gaining of an awareness of Testicular Cancer and Testicular Self-Examination as a benefit of my participating.

Confidentiality

My answers to this study will be completely confidential. My name will not appear on the questionnaire. The questionnaires will be evaluated collectively and then reported in the form of a master's thesis which is a partial requirement for Marlene's Masters degree. The results may be published, but my confidentiality will be maintained by the reporting of group results. All of the questionnaires used in this study will be kept in a locked cabinet and will be destroyed following the completion of the study.

Invitation to Question

The researcher is here to answer any questions that I might have regarding this study and my participation in it. If I have questions following my participation in this study I can contact Marlene at: 269-8829. The Manitoba Cancer Society (MCS) and the student health services at the University have been notified of this study and are also willing to answer any questions. Ralph is the contact at the MCS and can be reached at: 774-7483. Clare Hawkins is the contact at the student health services and can be reached at 474-8411.

If I wish to speak with Marlene's thesis advisor, Professor Karen Chalmers, she can be reached in the School of Nursing at the University of Manitoba.

Voluntary Participation

Participation in this study is entirely voluntary. Whether or not I decide to participate will in no way affect my educational status. If I decide to participate and then later want to withdraw, I am free to do so without penalty. My signature on this form indicates that I have had an opportunity to have my questions regarding this study answered by Marlene, that I have read the information provided above, and have decided to participate.

---------- ----------

Signature Date

I wish to have a copy of the results of this study mailed to me following the completion of this study.

NAME _____

ADDRESS _____

_____

_____

Appendix N:

Content Analysis Letter sent to Thesis Committee Members

Karen Chalmers
Linda Kristjanson
Dextar Harvey

July, 10 1990

Phase I of my data collection is now complete. The response has been very positive. A total of 37 subjects completed questionnaires, however, 5 questionnaires were eliminated since the subjects did not meet the age criteria, and 1 questionnaire was eliminated because the subject was the only black male in the subject pool and would thus be identifiable. Of the remaining 31 respondents 15 are in the age range of 15-24 and 16 are in the age range of 24-35.

BEHAVIOURIAL BELIEFS AND OUTCOME EVALUATION

1. Under behaviourial beliefs the most common responses were:
"early diagnosis" - 10 (responses)
"early detection" - 13
"finding the problem at the initial stage" - 3
"early prevention" - 5
these responses have been grouped together so that the question will read:

Behaviourial Belief- For me doing TSE would promote early detection and diagnosis of Testicular Cancer.
unlikely----------likely

Outcome Evaluation- Early detection and diagnosis of Testicular Cancer is
good----------bad

2. The second most common response was related to early treatment:
"early treatment"- 12 (responses)
this response will read:

Behaviourial Belief- For me doing TSE would promote early treatment of Testicular Cancer
unlikely----------likely

Outcome Evaluation- Early treatment of Testicular Cancer is
good----------bad

3. The third category of responses dealt with negative feelings regarding the practice of TSE:
"negative feelings of handling self" - 3
"feelings of handling self" - 2
"unappealing" - 2
"reminds me of a gay practice" - 1
"gay practice" - 2
"lack of acceptance of this type of behaviour" - 5
these responses have been grouped together so that the question will read:

Behaviourial Belief- For me doing TSE is unappealing related to negative feelings of handling myself
unlikely----------likely

Outcome Evaluation- Unappealing feelings of performing TSE related to negative feelings of handling myself are:
good----------bad

4. The forth category was related to the fear aspect of any self examination behaviour:
"fear"- 3
"fear of finding cancer"- 1
"fear of cancer"- 1
"increased anxiety"- 1
"paranoia"- 1
"panic"- 2
these responses have been grouped together so that the question will read:
Behaviourial Belief- For me doing TSE would cause fear
unlikely----------likely

Outcome Evaluation- The fear created surrounding the practice of TSE is
good----------bad

5. The final category revealed feelings of increased health awareness:
"increased health awareness"- 1
"health awareness" - 2
"better health"- 1
"self-health promotion"- 1
these responses have been grouped together so that the question will read:
Behaviourial Belief- For me doing TSE would increase my health awareness
unlikely----------likely

Outcome Evaluation- Increase health awareness resulting from my doing TSE is
good----------bad

Other responses: "misdiagnosis"- 1; "save a trip to the doctor"- 1; "remain fertile"- 1; "done with a partner"- 1; "time involved"- 1; "discomfort"- 1; "sex"- 1; and "STD"- 1.

NORMATIVE BELIEFS AND MOTIVATION TO COMPLY

1. The most common response under normative beliefs was "doctor", "my doctor", and "family doctor", 25 of the 31 subjects listed this response.

Normative Belief- My doctor would think that I should perform TSE
likely----------unlikely

Motivation To Comply- Generally speaking I want to do what my doctor thinks I should do
likely----------unlikely

2. The second category of response was the "Canadian Cancer Society"," Cancer Society", or "Manitoba Cancer Society" indicated by 20 of the subjects. The heading "Canadian Cancer Society" has been chosen to represent this category.

3. The third category of was created by the following responses:
"nurse"- 2
"health educators"- 2
"clinics" - 2
"hospitals"- 2
"health department"- 5
"medical community"-7
"MHSC"- 1
"insurance company at work" -1
these responses will be collectively referred to as "the medical community in general."

4. The forth category was created by the following responses:
"family"- 10
"wife"- 3
"girlfriend"- 1
"significant others"- 3
"friends"- 2
these responses will be collectively referred to as "family &/or significant others.

5. The fifth category was created by the following responses:
"some churches"- 2
"some religious groups"- 3
"religious leaders"- 1
these responses will be collectively referred to as "religious group".

Other responses: "workplace"- 1; "fitness and nutrition"- 1; and "magazines"- 1.

Your quick response to this content analysis is appreciated. If you have any questions feel free to contact me at home at 269-8829.

Thank you for your time and assistance,

Marlene Del Pino

Appendix O:

Phase II Questionnaire with Scaling

Phase II

TESTICULAR SELF-EXAMINATION (TSE) QUESTIONNAIRE

In the questionnaire you are about to fill out we ask questions which make use of ranking scales with seven places; you are to place an X in the place that best describes your opinion. For example, if you were asked to rate "The weather in Winnipeg" on such a scale, the seven places should be interpreted as follows:

The weather in Winnipeg is

good							bad
extremely	quite	slightly	neither	slightly	quite	extremely	

If you think the weather in Winnipeg is extremely good then you would place your mark as follows:

The weather in Winnipeg is

good	X						bad
extremely	quite	slightly	neither	slightly	quite	extremely	

If you think the weather in Winnipeg is quite bad, then you would place your mark as follows:

The weather in Winnipeg is

good							bad
extremely	quite	slightly	neither	slightly	quite	extremely	

In making your ratings please remember the following points:

(1) Place your marks in the middle of the spaces, not on the boundaries:

	X					X
	this					not this

(2) Be sure you answer all items-please do not omit any.

(3) Never put more than one X mark on a single scale.

1. I intend to do TSE within the next week

likely_____:_____:_____:_____:_____:_____:_____:unlikely

extremely	quite	slightly	neither	slightly	quite	extremely
+7	+6	+5	+4	+3	+2	+1

2. My doing TSE will be

i) good_____:_____:_____:_____:_____:_____:_____bad

extremely	quite	slightly	neither	slightly	quite	extremely
+3	+2	+1	0	-1	-2	-3

ii) difficult_____:_____:_____:_____:_____:_____:_____easy

extremely	quite	slightly	neither	slightly	quite	extremely
-3	-2	-1	0	+1	+2	+3

iii) embarrassing_____:_____:_____:_____:_____:_____:_____not embarrassing

extremely	quite	slightly	neither	slightly	quite	extremely
-3	-2	-1	0	+1	+2	+3

iv) moral_____:_____:_____:_____:_____:_____:_____immoral

extremely	quite	slightly	neither	slightly	quite	extremely
+3	+2	+1	0	-1	-2	-3

v) harmful_____:_____:_____:_____:_____:_____:_____beneficial

extremely	quite	slightly	neither	slightly	quite	extremely
-3	-2	-1	0	+1	+2	+3

vi) pleasant_____:_____:_____:_____:_____:_____:_____unpleasant

extremely	quite	slightly	neither	slightly	quite	extremely
+3	+2	+1	0	-1	-2	-3

vii) unnatural_____:_____:_____:_____:_____:_____:_____natural

extremely	quite	slightly	neither	slightly	quite	extremely
-3	-2	-1	0	+1	+2	+3

viii) convenient_____:_____:_____:_____:_____:_____:_____inconvenient

extremely	quite	slightly	neither	slightly	quite	extremely
+3	+2	+1	0	-1	-2	-3

ix) inappropriate_____:_____:_____:_____:_____:_____:_____appropriate

extremely	quite	slightly	neither	slightly	quite	extremely
-3	-2	-1	0	+1	+2	+3

x) enjoyable_____:_____:_____:_____:_____:_____:_____not enjoyable

extremely	quite	slightly	neither	slightly	quite	extremely
+3	+2	+1	0	-1	-2	-3

3. Most people who are important to me would think that

I should_____:_____:_____:_____:_____:_____:_____I should not
+3 +2 +1 0 -1 -2 -3
perform TSE

4.

i) For me doing TSE would promote early detection of Testicular Cancer

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely
-3 -2 -1 0 +1 +2 +3

ii) For me doing TSE would promote early treatment of Testicular Cancer

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely
-3 -2 -1 0 +1 +2 +3

iii) For me handling myself during TSE is unappealing

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

iv) For me doing TSE would cause fear of finding cancer

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

v) For me doing TSE would increase my awareness of health

unlikely_____:_____:_____:_____:_____:_____:_____likely
extremely quite slightly neither slightly quite extremely
-3 -2 -1 0 +1 +2 +3

5i) Early detection of Testicular Cancer is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

ii) Early treatment of Testicular Cancer is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

iii) Unappealing feelings of handling myself during TSE are

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely
-3 -2 -1 0 +1 +2 +3

iv) The fear of finding cancer associated with the practice of TSE is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely
-3 -2 -1 0 +1 +2 +3

v) Increased awareness of health resulting from my doing TSE is

good_____:_____:_____:_____:_____:_____:_____bad
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

6i) My doctor would think that I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

ii) The Canadian Cancer Society would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

iii) The medical community in general would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

iv) My family &/or significant others would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

v) My religious group would think I should perform TSE

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+3 +2 +1 0 -1 -2 -3

7.

i) Generally speaking I want to do what my doctor thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+7 +6 +5 +4 +3 +2 +1

ii) Generally speaking I want to do what the Canadian Cancer Society thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+7 +6 +5 +4 +3 +2 +1

iii) Generally speaking I want to do what the medical community in general thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+7 +6 +5 +4 +3 +2 +1

iv) Generally speaking I want to do what my family &/or significant others thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+7 +6 +5 +4 +3 +2 +1

v) Generally speaking I want to do what my religious group thinks I should do

likely_____:_____:_____:_____:_____:_____:_____unlikely
extremely quite slightly neither slightly quite extremely
+7 +6 +5 +4 +3 +2 +1

General Information

Please answer the following questions as they pertain to you. This information is important because age, race, and socioeconomic status have been identified as significant factors in the likelihood of developing testicular cancer.

1. Age: _____

2. Race: White_____ Black_____

Asian/Oriental_____

Native Canadian (Indian)_____

Other_____

3. Citizenship: Are you a Canadian citizen? Yes_____ No_____

4. Education: highschool diploma_____

1 to 3 years of University_____

undergraduate degree_____

graduate degree_____

other (please specify)_____

5. Have you ever heard of Testicular Cancer outside of this survey?

Yes_____ No_____

6. Have you ever heard of Testicular Self-Examination outside of this survey?

Yes_____ No_____

7. I examine my own testes:

_____ Never

_____ Very rarely (once or twice in my life)

_____ Rarely (once every 6 months to a year)

_____ Occasionally (every 2 or 3 months)

_____ Regularly (once a month)

Thank you for your participation in this study.

Appendix P:

Epp's Framework Entitled:

"Achieving Health For All"

Appendix P

Epp's 1986 Framework For Health Entitled "Achieving Health For All", taken from Epp, 1986, p. 4.

Aim	Achieving Health For All		
Health Challenges	Reducing Inequities	Increasing Prevention	Enhancing Coping
Health Promotion Mechanisms	Self-Care	Mutual Aid	Healthy Environments
Implementation Strategies	Fostering Public Participation	Strengthening Coordinating Community Health Services	Healthy Public Policy