HEALTH PROMOTION:
SOCIAL COGNITIONS AND TESTICULAR SELF EXAMINATION

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"I HAVE SEEN THINGS NO GROWN MAN SHOULD SEE."

I have seen swollen testicles, cross-sections of cancerous testes and ultrasound scans of "malignant germ cell tumours and occult lesions". I have seen photographs of men with undescended testicles, and diagrams of scrotums, collecting tubules and spermatic cords.

And I have seen a video entitled Testicular Self-Examination (do you want me to stop there?). Discreetly presented in a plain paper wrapper, this nine-minute educational short, features a naked man demonstrating the fine art of testicular awareness by holding up his penis, cupping his balls and rolling them delicately between thumb and forefinger. Made ten years ago with all the production values of a Monty Python sketch, it is the most hilariously gruesome and embarrassing film I have ever watched since Mel Gibson's Braveheart" (Watson, 1997, p. 102).
ABSTRACT

Testicular self examination (TSE) is an important behaviour to prevent the development of testicular cancer. This thesis examined the stages of decision making, emotions, perceived costs and benefits of screening, the self perceptions, social influences, and health routines in samples of adult males and adolescent school boys. A multi-method approach was adopted involving qualitative and quantitative methods of study. The qualitative part of the investigation comprised a series of studies including focus groups, in-depth interviews, programme evaluation and survey studies. The aim was to elucidate the meanings associated with health and illness and preventive cancer screening. Such information formed the bases for developing a survey measure and a health promotion programme to promote TSE.

A comparative cross-sectional approach, including the components of three social cognition models was then carried out revealing a hybrid model (HSCM) to be most effective in explaining TSE. Acknowledging traditional social cognitions as predictors of TSE decision making, it also stresses the importance of emotional cognitions, self perceptions and routine behaviours.

Using a five-stage model building approach, a longitudinal examination of stages of decision making was also carried out. Logistic analysis revealed that much of the variation in TSE practice was explained by a planning stage, implicating a two-stage motivation and volition stage rather than a five-stage model.

In addition to explaining the characteristics associated with TSE practice and elucidating a stage approach to decision making, a draft health promotion programme was developed and evaluated. Two forms of the programme, a booklet and a seminar, were appraised and deemed effective as motivators of preventive action. Findings are discussed in terms of theory and practice of health education. The implications of the findings for health psychology are also discussed.
CHAPTER 1
CANCER

Incidence of Cancer
The incidence of cancer has now taken on almost epidemic proportions. Like tuberculosis, "the black death" of the 19th century, cancer has become the killer disease of the 20th century. It is now the second leading cause of death in the UK and almost a quarter of a million of new cases are registered in Britain each year (160,000 people died of the disease in 1986). In Europe alone there are more than 750,000 cancer deaths every year. The seriousness of cancer and its human and economic consequences has lead the Department of Health (DOH) to set out the "Health of the Nation Targets for the year 2000". In this policy document the DHSS has set out guidelines for five key areas of disease prevention. Cancer has been singled out, along with coronary heart disease, stroke, mental illness, sexual health and Aids as priority targets for prevention.

"Cancer" is an umbrella term for a wide range of different diseases, many with common causes. Cancer's unique qualities defy classification because they have no consistent pattern of etiology and no consistent pattern of response to treatment. Therefore, a definition of the condition has historically been problematic and no definition has been adequate (Boyd, 1966). Cancer is thus an enigmatic disease, the etiology and biology of most of the common cancers are still poorly understood. It is perhaps not surprising therefore that public attitude to the disease is characterised by irrationality and fear.

Public Perception of Cancer
However, recent years have brought great advances in the treatment of some cancers and new technologies have greatly facilitated early detection of the disease. As a result, for many cancers, the prognosis has been significantly improved. Despite such medical advances, however, people's attitude to "the big C" has remained largely negative, indeed, few diseases are regarded with such universal dread (Sontag, 1977). More recent research has shown that cancer is still among the most feared of diseases (Levin et al, 1985). Community surveys indicate that public attitudes toward cancer are characterised by anxiety, worry and a desire to deny or ignore signs and symptoms of the disease (Dent and Goulston, 1982). Such fears about cancer are not limited to the general public. It
appears that medical students have similar feelings (Cassileth and Egen, 1979). In addition, a number of myths about cancer also contribute to fear, guilt and despair in the general population. Common myths include the notion that cancer is always associated with prolonged and intense pain. Moreover, a sense of fatalism about cancer remains, maintaining the common misconception that cancer cannot be prevented or successfully treated (Dagrosa, 1980).

In addition to feelings of fear, the term cancer conjures up images of urgency. There is the notion that where cancer is suspected, time is of the essence, a notion reinforced by contemporary health promotion. As though racing against time, we should obtain a diagnosis and obtain treatment to control or eliminate the cancer before it is too late. The question as to whether cancer is seen as a temporary state to be conquered or a terminal state from which there is no escape has been addressed by Domino who investigated the imagery of cancer in cross-cultural contexts (Domino et al, 1992). People perceive cancer as a deadly disease that "strikes" randomly and without warning (Sontag, 1977) and when symptoms appear it is already too late. The terror of this is manifest in the use of the disease as a metaphor, expressing unpredictability and doom (Domino et al, 1992). However, the perceived urgency associated with cancer bears no relation to the slow and lengthy development of a disease which takes decades to develop and has more than 200 different manifestations.

There thus exists a great deal of misconception and lack of knowledge about the development of cancer, despite much media coverage of the subject. Research has shown that this lack of knowledge is related to levels of fear about cancer in the population. It appears that the more inadequate the knowledge, the greater the fear of the disease (Gutteling et al, 1986).

Although factual information about cancer is disseminated mainly via the mass media, it is well known that this information does not reach everyone. One reason for this variation in knowledge is attributed to level of education. Such socio-demographic factors strongly influence how the media is used: more highly educated people appear to use the media for information acquisition rather than entertainment (Klapper et al, 1960). Klapper concluded that mass media serves only to reinforce existing opinion and that group norms,
opinion leaders, and personal values determine the exposure to perception and retention of information. Only in the absence of opinion do media create opinion.

To understand the person's perception of illness, therefore, one must assume that a person's ideas about illness are shaped by information from a variety of sources including friends and family, their own experience with a disease and the media. These lay theories about disease play an important role in directing a person's behaviour and coping strategies (Leventhal and Cleary, 1980; Petrie and Weinman, 1997). It is also understood that such lay perspectives are often at odds with medical orthodoxy and that debunking misinformation derived by word of mouth may be difficult.

However, accurate information about how cancer develops is clearly necessary for people to make informed decisions about prevention. This is particularly true to the extent that it helps to reduce anxiety and fear about cancer and facilitates preventive efforts. Moreover, accurate information about cancer development may help to demystify the disease, leading to improved assessment of risk and increase the range of options available for cancer prevention.

A Natural History of Cancer Development

In the design of new approaches to cancer prevention it is important to realize that most cancers develop in stages, over long periods of time, with non-malignant pre-cursor lesions that only slowly evolve toward cancer.

Cancer development can be divided into 3 stages of progression. These stages are initiation, promotion and progression. Initiation is frequently associated with a more or less permanent change in the phenotype of a rare target cell, presumably due to a change in base composition in DNA or the gene arrangements. During promotion, these rare cells expand by proliferation to generate focal proliferations that resemble benign neoplasm. These proliferations, in turn, exercise at least one of two options, regression to normal appearing tissue or slow evolution to cancer. Whilst the progression is self generating, it can be modulated by intervention (diet, drugs, or xenobiotics). It is the prolonged nature of the promotion - progression stages in most tissues and its modulability which indicates that these stages are amenable to prevention. This overall pattern is known to occur in
organs such as the liver, skin and bladder and is probable in other organs such as the colon, breast and pancreas. Research suggests that the patterns may be very similar for cancer development in many sites of the body. The best example in support of this contention is the Melanoma. It has been shown in animal studies that the phenotype of the precursor lesion is remarkably similar in any single organ. For example, the hepatocyte nodules are very similar to each other despite many different carcinogens and promoting environments even though the ultimate cancers are quite diverse. This diversity emerges quite late in the step by step development of cancer. Although its exact step has not been delineated as yet, it appears to be acquired as malignancy. Unlike the cancers, the commonality in the precursor lesions offers many opportunities for interrupting the process and thus in preventing cancer. Experimental studies with hormones, dietary manipulation and drugs indicate that inhibition of the development of cancer may be most readily achieved by affecting the promotion and progression sequences in carcinogenesis (Newell et al, 1988). Once a cancer is discovered, it generates a strong sense of urgency and it is at this point that cancer prevention is often first considered. However, an understanding of the natural history of this chronic disease, even as incomplete as it is, favours a different attitude.

The devastating aspects of cancer - increasing growth rate and autonomy, invasion and metastasis, are often very late manifestations of the process of cancer development. The decades leading up to this later manifestation, represent almost no threat to life, and retain a propensity for at least two options; regression or further progression to malignancy. These considerations offer major prospects for prevention and are the greatest challenges of cancer research today.

The stage-wise development of cancer described above is best seen in cervical cancer. Cervical Intraepithelial Neoplasm (CIN) includes the continuum of CIN1 (mild dysplasia), CIN2 (moderate dysplasia) to CIN3 (severe dysplasia/carcinoma in situ). CIN can progress, persist, or regress. At this time it is not possible to say which of the lesions will progress, nor state the transit time of progression. Although invasive cervical cancer is the second most common cancer in women throughout the world (500,000 new cases in 1992), it is least common in women of developed countries. The reason for this is partly because screening tests for the detection of precursor lesions are routinely available in
these countries. The incidence of cervical cancer in these countries has markedly decreased (70% over the last 30 years in the incidence of CIN). However, there has been a dramatic increase in the pre-invasive lesion (600,000 new cases each year).

From the discussion above it can be concluded that the slow and stepwise development of most cancers not only has implications for medical intervention and prevention but also for behavioural prevention. Moreover, the detection of pre-cancers at an early stage of development (the promotion and progression stage) has become an important part of secondary prevention in modern health care.

Medical cancer screening is based on the principle of early detection. Thus, national screening programmes, such as cervical pap smear testing, exist primarily to initiate medical intervention early and thus avoid the progression of the disease. For the same reason, mammography screening has been made available for high risk groups and testicular cancer self screening has been recommended by the Department of Health. The purpose of these and other preventive efforts is the early detection of cancer before disease develops further making treatment more difficult and the prospect of total recovery less likely.

It is probable that ignorance of cancer development impacts on uptake of medical screening. Moreover, where attention is firmly fixed on late-stage development of cancer, anxiety and fear will be an inevitable consequence. Thus, focusing on only part of "the story of cancer development" may lead to misrepresentation of the disease, to lack of personal control over health and the underestimation of available options as regards to prevention. It follows that where the developmental process of cancer is poorly understood, the need for effective health promotion may be paramount in order to increase understanding and encourage uptake of preventive screening. Such education is of particular importance in the case of sensitive areas such as testicular cancer and the promotion of preventive self screening, this being the subject of this inquiry.
Epidemiology of Testicular Cancer

The incidence of testicular cancer (TC) is relatively low. In Britain, less than 1 percent of all cancers are testicular cancers. The lifetime probability of developing TC in the white male is 0.2 percent as compared with 3.8 percent for prostatic cancer. Nevertheless, TC is the most common cancer among men aged 15 to 40 years. There has been a steady unexplained increase of TC (40 - 100 percent) in recent decades in men between the ages of 15 to 29 years, whilst incidence rates after 60 years have decreased between 32 - 72 percent. In contrast there has been very little change between the ages of 30 to 59 years.

Moreover, there is a notable difference in incidence between white and black males. The age specific mortality rates for white men are bimodal, with a prominent peak at 25 to 34 years and a lesser peak beginning after 70 years. The age specific mortality for black males in contrast is four times less than that for their counterparts and does not peak during the early years. However, there is a rise in mortality after 65 years of age. The age adjusted mortality rate has remained constant for 40 years (1936 - 1976).

Internationally, the highest incidence rates occur in Denmark (1.6 percent of all cancers in men) and the higher rates occur in USA, UK, and Northern Europe. The lowest rates occur in indigenous black populations. Other epidemiological features vary with age at diagnosis, social class and cell type. An important risk factor is cryptorchidism or undescended testicles. Mostopfi (1973) found that of 2000 testicular tumours, 72 (3.6%) occurred in undescended testicles. The chances of TC occurring in a man with undescended testicles are therefore 14 to 48 times higher than in a man with normally descended testes. Cryptorchidism occurs in greater frequency in white men and has been produced experimentally in rodents by the inutero exposure to oestradiol and diethylstibestrol (DES).

DES is a synthetic (exogenous) estrogen which is associated with cancer in other sites of the body. Beginning in the mid 40's and continuing to 1960, DSE was prescribed to pregnant women to prevent miscarriages (Guzinski, 1978). It has also been an additive in cattle feed to promote rapid weight gain. The use of DSE for this purpose is now banned. However, the consequences of DES have been recorded in the offspring of women who took it to prevent miscarriages. Consequences have included anatomical
abnormalities in the genitalia of males and females, lowered sperm counts and higher than expected incidence in rare cervical and vaginal cancers among young girls (Bibbo et al, 1977; Manber, 1976). Relating exogenous estrogen to cancer of the reproductive tract warrants careful attention when evaluating potential carcinogenic effects on tissues of the testes. The increasing incidence of TC in white young men of upper social class background suggests that prenatal environmental factors such as the administration of estrogens may be involved (Schottenfield et al, 1980). The hypothesis is that the administration of hormone treatments to pregnant women from higher socio economic groups is reflected in the incidence of TC observed in higher social class males.

There are a number of other risk factors which have also been investigated. These include chemical pollutants, radiation, surgical contraception (vasectomy) and other environmental factors such as occupational exposure to heat and tight clothing have been implicated. However, no conclusive evidence has been forthcoming.

However, it is an interesting fact that a number of different medical conditions involving the reproductive system, have increased in incidence along with TC. One such condition is male infertility (low sperm counts). For example, recent findings have shown low sperm counts in men who are professionally exposed to heat, proving the hypothesis that professional exposure to heat is a risk factor for male infertility (Enria et al, 1996). Much medical research concerns itself with finding causal explanations for this recent phenomenon in male health.

In the absence of causal explanations for TC, which precludes medical prevention, the need for effective health promotion to promote the early detection of the disease is paramount. Moreover, the steady increase of TC in young adults draws attention to the need for the promotion of testicular self examination (TSE), which may be the most effective available option for men to protect themselves from a potentially fatal disease.

Pathology and Treatment of Testicular Cancer
The already mentioned biological process and stepwise development shared by most cancers also applies to the development of testicular cancer (Bosl et al, 1981). Two forms of testicular cancer exist, germcell and non-germinal tumours. However, ninety-five
percent of TC is in the form of germ-cell tumours, almost half seminomas and half teratomas. The two types of TC are distinguished because they are treated in different ways, seminoma tending to be treated with radiotherapy, the tumour being very radio sensitive. After the cancer has spread to the lymph nodes, however, chemotherapy is also used. Teratoma in contrast may spread not only by the lymphatic system, but also via the bloodstream. Consequently, localised treatment is less likely to be successful and chemotherapy is used. The success of this treatment has recently increased greatly.

Although modern techniques of management have decreased the previously high mortality rates from TC, treatments such as orchidectomy, lymph node dissection, chemotherapy and radiotherapy have a variety of unpleasant side effects. Treatment for late-stage TC is complex using combinations of surgery, radiotherapy and chemotherapy.

From the above it can be seen that medical and behavioural interventions are important in preventing the spread of cancer to other parts of the body. Moreover, early detection and prompt treatment are desirable means of ensuring the most favourable outcome.

Detection of Testicular Cancer

It is the increased effectiveness of the treatment of testicular cancer in recent years which makes prevention through early detection a desirable action. However, in areas of medicine where no effective treatments are available, the use and usefulness of diagnostic tests is arguable and can be questioned on ethical grounds (e.g. Huntington's Chorea).

There is even some concern over breast cancer screening. Although the cause and prevention of the disease it is not yet understood, it is believed that early detection of the disease offers the best prognosis in terms of survival rates. However, there is some question over "leadtime" of diagnosis, which suggests that survival rates after early treatment only appear to be longer because the cancer has been detected at an earlier stage (Prorock et al, 1981).

Moreover, it has been suggested that different types of breast cancer exist, some of which may be genetically determined and run in families. Recently, a breast cancer marker gene has been discovered (Brown, 1993). This has raised ethical questions about whether or
not genetic screening is appropriate without effective prevention and treatments. Mammography screening as a method of detection has thus also been criticised. This is because high dosage of radiation is itself a carcinogen and may cause damage.

However, no such medical preventive or genetic tests exist to predict the onset of TC, or to detect TC at an early stage of development. Although a test is available to facilitate diagnoses and monitor treatment and re-occurrence of TC (by measuring hormone secretion alpha foeto protein (a-FP) and chorion gonadotrophin (hCG) of tumours), the test is not useful as an early detection device. In contrast, however, the ultra sound test is an effective detection procedure available on referral to hospital.

The most immediately available preventive test, however, is the palpation of the testes by hand. This can be carried out by a trained health care professional (GP) or by the individual himself. Testicular Self Examination (TSE), as an effective screening procedure, has long been recommended by the American Cancer Association and by the Department of Health. Therefore, in the absence of national screening programmes, testicular self examination may be the best possible way to detect abnormalities early in the course of the disease.

A positive result from TSE involves the detection of a suspicious mass. Professional diagnosis can then be determined by using ultra sound scanning and confirmation by pathological examination of tissue. The detection of cancer through self diagnosis is a health behaviour which differs from other health behaviours in a number of important ways and which requires closer examination.
CHAPTER 2
A REVIEW OF PREVENTIVE HEALTH BEHAVIOURS

Patterns of morbidity and mortality have changed. Attention to health problems has shifted from fighting infectious diseases to dealing with chronic conditions and dangers to health from modern living (Koop, 1983). In our present society, causes of disease and premature death lie mainly in the environment and in patterns of living (Mattarazzo, 1982). Therefore, different behaviours are called upon in order to protect people's health and improve their quality of life. Moreover, prevention of disease is an option more readily available to the individual now than previously.

In seeking a definition of preventive health behaviour, a logical starting point has been to determine the kind of action people undertake to protect their health. Sorting out the different behaviours that people engage in has necessarily led to an incomplete definition of preventive health behaviour (Kasl and Cobb, 1966). In this respect, Kasl and Cobb's classic definition: "a preventive behaviour is an activity undertaken by a person believing himself to be healthy for the purpose of preventing disease or detecting it in an asymptomatic state" fails to take into account the fact that ill people also engage in preventive action and that many health behaviours are carried out for non-health reasons.

More broadly, prevention encompasses popular views about the causes and consequences of disease, as well as the articulation between professional and lay perspectives. The beliefs and practices associated with prevention are subject to widespread effort at change of behaviour in the pursuit of healthier living. This effort comes from different sources, each with its particular value judgement and theoretical stance. The resulting behaviour modifications all share the same goal, to ward off threat to health. Prevention then is any behaviour, induced or spontaneous with the intention of alleviating the impact of potential risks and hazards to the external or internal environment.

The Practice of Preventive Health Behaviour

The kind of preventive behaviours people undertake is immensely varied (Harris and Guten, 1979). These include:
1. health practices to control diet and stress
2. secondary prevention
3. environmental hazard avoidance, and
4. harmful substance avoidance.

Alternative dimensions have been suggested. Some researchers make the distinction between health behaviours and risk reduction behaviours, so that health behaviours actively promote health, whereas risk reduction behaviour reduces health risks (e.g. giving up smoking). Moreover, health habits are often distinguished from other health behaviours, they are firmly established health behaviours which are resistant to change (Hunt et al, 1979). Research has shown that the more health habits are practised, the less illness and disability are reported and the greater people's wellbeing (Belloc and Breslow, 1972).

A health behaviour may or may not be dependent upon access to the health care system. However, some health behaviours clearly require the help of health care practitioners. Immunisation and medical screening are cases in point. These behaviours are contrasted with health promoting actions such as physical activity, or the taking of vitamins. Other behaviours may be highly recommended by the medical profession but not necessarily adopted by individuals (for instance, regular tooth brushing). Thus it is evident that health beliefs and health practices are varied and they are often of questionable validity. Furthermore, as the value of a behaviour may differ, lay and professional opinion often differ as well. Thus, many behaviours are viewed differentially by popular culture and the health care system. There is a great need for research, therefore, to explain why these different patterns of behaviour exist, what purpose they serve and what contingencies maintain them.

It is interesting to note how some health behaviours have diffused rapidly in our society, whereas others have not been so easily accepted (for instance, seat-belt wearing). In this respect, an interesting class of behaviour is related to the modification of eating habits and its relevance to coronary heart disease. This area remains the subject of much professional controversy.

The variety of behaviour patterns illustrate the complexity that surrounds the issue of prevention. It is clear that scientific medicine needs to clarify how people can best prevent disease and promote good health, while health psychology needs to determine what
factors influence the practice of prevention in order to encourage people to move toward maintaining and optimising their quality of life.

**Research into Preventive Health Behaviours**

Much of the information about prevention comes from surveys which have shown that most action undertaken by individuals is performed outside the health care system (Harris and Guten, 1979). Although the fact of personal preventive action is well documented, little is known about the details of such behaviours. The best established findings have related medically based preventive action to demographic and social structure factors. Moreover, socio-economic differences are typically found across a single range of behaviours and in different populations. It has been consistently found that the higher the SES, the more likely is preventive action. Such behaviours include: asymptomatic check-ups (Haefner et al, 1967), Pap-Smear screening (Kegeles et al, 1965) and breast cancer screening (Fink et al, 1972). Other factors associated with greater use of medical screening are: access, education, and sex (i.e. women are more likely to screen than men). Findings also show medical screening to be interrelated, whilst no relationship exists between medical and other health preventive behaviours (Harris and Guten, 1979). Therefore, the individual who takes regular exercise does not necessarily utilise a preventive screening service, whilst the person who has regular check-ups from the dentist is more likely to undergo a cervical smear.

It would appear that the best available documented data concerning preventive behaviour, deals with rather obvious characteristics of people and in relation to quite limited behavioural measures. There is clearly a need for better quality information about motivational processes underlying preventive action.

Moreover, the facts concerning morbidity and mortality rates should compel us to look deeper and understand why people behave the way they do in relation to illness prevention. For many people preventive health screening has become an active part of health care. However, counteracting the dictum "prevention is better than cure" is the saying "one must not look for trouble". This is reflected in the low uptake rate of certain groups of people.
Medical Screening

Medical screening, defined as secondary prevention, is concerned with the detection of disease in an early asymptomatic state. The patient can then benefit from early treatment. Much effort has gone into persuading individuals, communities and societies that "prevention is better than cure". National screening programmes such as pap smear testing and mammography exist for women and are offered free to high risk groups by the Department of Health.

Such medical screening, as a specific category of preventive health behaviour, has been extensively investigated. This is probably because for such programmes to be cost effective it is important that most women attend. Another reason might be that as a group these behaviours have one common factor, i.e. they correlate with one another (Harris and Guten, 1979). Moreover, recent technological innovation has added another dimension to this domain of study (Calnan and Rutter, 1986).

Whilst such programmes for the detection of early cancer have long been made available for women, no equivalent programmes exist for men. This is despite the fact that preventive tests do exist in areas of male health where incidence rates are considerable, for example in prostrate cancer (Sladden and Dickinson, 1993). However, recently attention has focused on the need for a re-evaluation of cancer prevention for males (Friman et al, 1986).

Professional Health Checks

Recent years have witnessed a substantial increase in the provision of health checks as part of secondary prevention in general practice in the UK. This trend has been further encouraged by the introduction of the new general practitioners contract in April 1990, which put a greater emphasis on preventive services. Particular emphasis has been focused on the contract's dual goal of "the initial surveillance for disease, disability and other health problems, and general advice and counselling on the maintenance of good health and wellbeing by the adoption of a healthy life style" (D.O.H., 1989). Both these goals can be achieved through the offering of health checks. However, patient response to such invitations has been mixed. For example, Pill et al (1988) report only a 53 percent attendance rate at health checks.
Under the 1990 contract, therefore, GPs have the responsibility to check for TC as part of cancer screening and to educate men about TSE and how to perform the procedure (Vogt, 1992). Whilst 70 percent of GPs report having received training in the procedure, only 10 percent actually carry it out routinely on patients (Singer, 1993). This is despite the fact that the vast majority of GPs feel that they ought to (Sladden, 1985).

In any case, where screening and education are administered, the effectiveness of GP encouragement and teaching of the TSE procedure remains inconclusive. Whilst breast screening research suggests that where GPs recommend self screening, women are more likely to carry it out (Craun and Deffenbacher, 1986), GP teaching of TSE was found to be relatively ineffective in bringing about positive preventive action (Sheley, 1991). In contrast, GP teaching of TSE, when compared with merely giving out health promotion leaflets, has been significantly more effective (Dach, 1989). As for professional health checks on asymptomatic men, little information is available on the sensitivity, specificity, or positive predictive value of testicular screening.

However, a disturbing finding has been that when patients present their GP with a TC, it is often misdiagnosed at first (Bosl et al, 1981). This study shows that after the first consultation the cancer was not suspected in 43.8 percent of patients. These patients were first diagnosed as having either infection, trauma, hydrocele or benign problems. The reasons for this misdiagnosis are not entirely clear. However, it has been suggested it may be a reflection of the difficulty in making a diagnosis - other lesions may be present, or there may be clinical error.

A further study carried out at Wellington Hospital, New Zealand reports 50 percent of all tumours as being detected at an advanced stage of cancer. Not surprisingly, an urgent reduction of the interval between recognition and treatment of tumours has been called for (Meffan et al, 1991).

There is clearly an urgent need to determine the reasons for such misdiagnosis. This is not only because it directly endangers life, but also because the resulting lack of self efficacy of GPs may impact on attitudes to screening and the subsequent teaching of TSE in general practice. Where GPs do not succeed in making accurate diagnoses it is perhaps
not surprising that they are reluctant to teach their patients. Moreover, poor diagnostic skills demonstrated by GPs may be responsible for the lack of consideration given by health care providers to the setting up of professional (GP) screening programmes for testicular cancer screening. Such regular professional screening has been deemed unjustified by many health care providers on the grounds of health economics. This is mainly because the numbers of cases affected by TC are relatively small. Another reason may be the inability of GPs to diagnose testicular cancer correctly and promptly.

As has been suggested above, GP attitudes and behaviour (determined at least in part by poor diagnostic success), may directly and/or indirectly influence self screening practice of their patients. GP success in recommending BSE to women suggests that men may also be persuaded to self screen if their GP recommends it and teaches the procedure. It is paramount, therefore, for research to determine what prevents GPs from carrying out regular testicular screening and teaching the procedure to their patients.

Self Screening Practice
Self examination as a health behaviour differs from other health behaviours in important ways. Self screening carried out for the purpose of disease detection aims to discover specific signs or symptoms associated with disease. Such goal directed "searching" is typically the prerogative of the medical expert. However, in the case of self screening, the lay-person is expected to decide, without the expertise of a health professional, whether an abnormality is present or not. Self screening thus requires at least some of the knowledge and diagnostic skills normally conferred to the physician.

The advantage of self screening over professional screening is evident. The individual is in the best possible position to recognise body changes including changes in the appearance of testes. The health professional has no such immediate information and may require better defined signs and symptoms to make an accurate diagnosis. The resulting delay may have important consequences for the prognosis of the disease. However, if poor GP diagnostic skills are responsible for the high failure rate to diagnose TC after an abnormality has been detected by the patient himself, the benefits of self screening are seriously undermined.
A number of plausible reasons for GP inaccuracy in diagnoses come to mind. They include embarrassment, lack of self efficacy, negative attitude to screening, lack of training, and time pressure to name but a few. Such reasons have the potential to directly or indirectly impact on self screening practice.

The obvious complexity of the issues surrounding testicular screening warrants closer investigation. In particular, there is a need to elucidate the motivational processes underlying such action. It is clear that where diagnostic accuracy might impact on self screening practice, ways must be found to improve on professional diagnostic skills. However, research in this area of health has rarely been carried out.

Although less attention has been paid to self examination as a method of prevention compared with other medical screening practices, the bulk of research in this area has concerned itself with breast self examination (BSE). BSE has long been recognised as an effective method of disease detection and is recommended by the Department of Health (Hill et al, 1988). However, this fact does not appear to have much bearing on the way BSE is perceived. It seems that women tend to put their trust into medical screening technology rather than their own ability to detect abnormalities. In a study comparing women's beliefs and feelings about breast screening and breast self examination, Calnan (1986) showed that women show greater preference for screening technology than for taking responsibility for identifying abnormalities themselves. However, an interesting finding was that where women were confident about being effective, they were more likely to perform BSE (Hill et al, 1985). There has been little research into perceptions of GP effectiveness in this area.

Testicular self examination (TSE) has been a more recent phenomenon on the medical horizon. This is probably because recent treatment successes have made survival from testicular cancer more likely. It appears that men have only recently woken to the realities of disease prevention in this area. Voices can now be heard insisting upon equal time for male health promotion.
Testicular Self Examination

The extent to which findings in the area of breast cancer self screening can be generalised to testicular self screening remains necessarily speculative. This is not least because males and females tend to differ in the way they respond to health care provision and to prevention (Verbrugge, 1980). As for the practise of TSE, studies have long reported on the effectiveness of regular self screening in diminishing the morbidity, mortality and the economic impact associated with the disease (National Cancer Institute, 1985).

However, reports show that there is generally very little awareness of TSE and it is seldom practised. Indeed, some studies have reported as many as 70 percent of college students being unaware of the procedure (Martin et al, 1987). In a more recent study Neef et al (1991) report TSE practice rates of only 8.4 percent. Moreover, such low rates of self screening practice are also very common outside the UK. A large scale European study carried out by Wardle et al (1994) reports 87 percent of men never having practised TSE. The study also showed considerable variation in TSE practice across countries ranging from 76 percent of German men to 98 percent of Icelandic men reporting no TSE. Only 3 percent of the sample reported regular self screening practice. In addition, measures of importance showed that men rated TSE as less important than women and attitude to TSE in males was a significant predictor of TSE practice. These findings suggest that young men in Europe are unaware of the value of this comparatively simple method of early detection of cancer. In this regard, the implications for health promotion are clear.

However, it is interesting to note that despite the evidence documenting the lack of awareness of the disease, it appears that adolescents are not being taught about TC and TSE (Klein et al, 1990). This is particularly striking as the benefits of teaching TSE have been clearly demonstrated (Neef et al, 1991). For example, having been taught how to carry out TSE appears to be a significant enabling factor whilst, having discussed TSE within the last six months seems to be a significant reinforcing factor. This study suggests that where awareness of TSE exists, or where men are personally instructed in the practise of TSE, positive action is more likely. It is remarkable, in this context, that having learned about TSE through written material was not significantly related to monthly TSE.
Awareness is clearly a most important factor in determining uptake rates and as previously mentioned, misconceptions about cancer and cancer screening may also have a role to play. In this respect, it has been shown that TC is often seen as a disease of older age groups (Goldering and Purtell, 1984).

However, other more psychological factors are also implicated. An interesting contradiction lies in the fact that despite the considerable value of TSE in saving lives, there is an apparent reluctance in young men to adopt the practice (Conklin et al, 1978). On the other hand, the most common reason for practice was that men were prevention orientated and that they wanted to be safe.

It is clear from the above that findings are inconsistent and there is, therefore, a great need for further research into the factors which might operate as barriers to self screening, over and above the mere lack of knowledge and awareness of the practice.

In this regard, it appears that emotional factors such as fear of cancer and embarrassment have a role to play in self screening practice (Neef et al, 1991; Testicular Tumour Group). Most studies have reported embarrassment as a factor in TC prevention. It has been shown that although many men reported embarrassment concerning TSE, this did not however prevent them from self-testing once they were aware of the disease (Conklin et al, 1978).

Anticipated embarrassment about the prospect of a professional health check may also be implicated in decision making. This is partly suggested by the fact that men delay consulting their GP after an abnormality has been detected by them (Culp et al, 1973). This delay may have dire consequences for the individual in terms of disease prognosis. Another reason for the delay in seeking medical advice may be that men have doubts about the efficacy of diagnosis. There is evidence suggesting that men doubt their own and professional ability to detect TC by hand (Sheley et al, 1991). One can see how such self and other's efficacy factors can have a bearing on motivation to practice. As mentioned before, in this connection, women's attitude to technology has been favourable over their own manual detection skills concerning BSE. Such lack of confidence in self and other's ability to detect disease may also influence men's motivation to screen.
Furthermore, health behaviours such as smoking, drinking of alcohol, regular exercise and seat-belt use (health concern) have also been examined as correlates of preventive self screening. The finding was that students who exercise, do not smoke or drink alcohol and use seat-belts also reported regular TSE practice. This is in direct contradiction of earlier findings suggesting the relative independence of health habits (Langlie, 1977; Mechanic, 1979). In addition, non-practitioners reported that they would practice TSE regularly if they had more information and received instructions on the proper technique, or if they thought they were at risk of developing TC. These findings point to the need for investigating the more psychological determinants of TSE practice.

The above findings suggest that a multitude of factors involved in decision making about screening might explain why men do not look after their testicular health. Whilst knowledge and awareness of the disease are clearly a pre-requisite to action, there is a clear need for psychological explanations concerning self screening practise. This is also supported by evidence to suggest that males are less likely to carry out preventive practices than females (Verbrugge, 1980). Such sex differences in behaviour have been found in other areas of health and this implicates socio-psychological factors as determinants of preventive action.

**Sex Differences in Health**

There is considerable literature to suggest that males and females not only behave differently with respect to their health care, but also achieve different outcomes (Verbrugge, 1980). The bottom line is that, on a biological level, sex differences in mortality rates suggest men's health to be inferior to that of women. Explanations for these findings have been diverse and fall into two categories.

On the one hand it has been suggested that biological pre-disposition determines such sex differences in mortality rates (Testosterone Hypothesis). Males have higher rates of mortality for all major causes of death, except for breast cancer. Evidently, men's life span is up to 8 years shorter than that of women. On the other hand, environmental factors are also implicated in mortality rates. It has been shown that black people have higher mortality rates associated with all causes of death compared to white people (NCHS, 1984). Although this could be construed in terms of the genetic hypothesis, the fact that
males of both races share the same sex chromosomes, suggests this difference in mortality may be seen as environmental.

With regard to morbidity, the picture is equally unclear. It has been suggested that men's health is better than that of women (cited in Travis, 1988, p.4). However, data interpretation has to be approached cautiously because common indicators of health i.e. visits to GP, number of hospital admissions and self reports of health status, are open to misinterpretation. For example, frequent visits to the GP may have less to do with the general health status of women and more to do with the relative ease of adopting a sick role behaviour. Where males would loose out on earnings, by visiting the GP a woman gains reassurance concerning her own and her children's health (Marcus and Seeman, 1981).

However, the finding is that men, compared with women, are less likely to use GP services (Verbrugge, 1976). This pattern of behaviour holds true across all age groups. Similarly, hospitalisation rates are lower for males than they are for females, with the exception of accident admissions and poisonings. Men also have shorter stays in hospital than women (Verbrugge, 1976). In this context it is interesting to note that men are less interested and less concerned with health compared to women (Hibbard and Pope, 1983). Perhaps more to the point is the fact that men are less willing than women to report symptoms of ill health (Waldron, 1983b). Moreover, on a social-cognitive level, many behaviours associated with health can be at least partially explained by sex differences in beliefs about medicine, rather than actual symptoms. For example, women appear to have a stronger belief than men in preventive medicine and the efficacy of medical treatment (Cleary et al, 1982).

Another approach to sex differences involves reporting biases. For most illnesses, sex differences appear only in the incidence of disease - once a formal diagnosis has been recorded, the prognosis and course of disease is quite similar for women and men (Waldron, 1983b). This suggests the possibility of some selection process that simply delays the entrance of the patient to the health care system. As has been implied here, several authors have proposed that females are more willing to report symptoms than are men (e.g. Verbrugge, 1976).
A look at the way the male and female body has been culturally perceived historically, as strong and weak respectively, might contribute to reasons for the sex differences found in health research. In this context, it is easy to envisage the implications of a reporting bias in action here confounding any genuine biological differences in health that may exist. Thus, issues of male gender identity may be pertinent to the reporting of health status. Additionally, findings of embarrassment about TC screening suggest sexuality to be an important issue. Both issues of sexuality and gender identity may thus be sensitive issues in health research and therefore require special consideration.

**Sensitive Issues in Health Research**

Although there have been few attempts by the empirical literature to define what is meant by sensitive, a sensitive issue is commonly considered as an area of social life that is taboo, emotive or related to dread (Lee, 1993). Moreover, sensitive issues in research are implicitly defined in relation to the way in which they are measured, e.g. the likelihood of response bias including untruthful and evasive answers (Rogers et al, 1982). Accordingly, Sudman and Bradburn (1982) put the emphasis on the existence of threat which leads to response bias. On the other hand, there may be qualitative differences in sensitivity concerning health issues (Singer, 1978). These might involve differential perceptions of stigma, taboo and consequences. Similarly, certain health issues may give rise to differential levels of threat, embarrassment, ridicule and rejection.

Due to the private and emotionally charged nature of TC, and particularly TSE (Neef, 1991), common sense defines testicular health as a sensitive issue in health education. Moreover, stress within health education and research concerning TC, may derive when conventions of privacy are violated and individuals are asked to reveal what is considered as private.

**Threatening Research Issues**

Sensitive research is defined as an activity which produces threat to the individual and results in unreliable, logically inconsistent and evasive answers (Dalton et al, 1994; Rogers et al, 1982; Bradburn et al, 1989). Likewise, threat can be seen as deriving from reporting something that is outside the norm (Sudman and Bradburn, 1982). Lee (1993) suggests three broad areas within which research might be threatening. Firstly, research might be
threatening in the private domain, where the intrusive threat deals with areas which are private, generally involving sexual behaviour and finance. This kind of threat may be situationally or culturally dependent. In addition, research may be threatening because of the way the topic is emotionally charged (stressful). Or it may be threatening because a topic is sacred, involving values and beliefs. A second area within which research might be threatening is where there is the threat of sanction, that is, where fear of consequences, misrepresentation and stigmatisation exist. A third area includes political threat, where balance of power situations exist. In this regard, Barnett (1996) concludes that there is a need to explore empirically the different types of sensitivity as well as the extent to which such different sensitivities might be differentially susceptible to response bias(es).

It is safe to say, however, that TSE is a behaviour of the private domain. Therefore, the issue may incur intrusive threat when encountered in health education and research settings. Thus it follows that methodological controls may be necessary in these settings to ensure that threat is minimised.

**Limiting Response Bias**

The response bias associated with sensitive issues research (i.e. the over and under reporting of behaviour, intention and attitudes) has implications for theory development and practice in health education. The need for a solid theoretical basis in programme design, programme delivery and programme appraisal, puts the focus firmly on the minimisation of response bias.

There are typically two main ways by which such bias can be minimised. Firstly, by careful consideration of mode of questionnaire administration, and secondly by paying special attention to questionnaire format. For example, research has demonstrated that the questionnaire structure itself can affect the way in which sensitive issues are answered (Giles and Fields, 1978b). Moreover, it has been shown that question wording is a crucial element in maximising the validity of survey data obtained by a question asking process (Sudman and Bradburn, 1982). The assumption is that respondents wish to manage impressions of themselves in order to maintain their standing in the eyes of the interviewer (Lee, 1993). Sudman and Bradburn (1974) suggest a number of dimensions which can be varied to reduce under reporting on sensitive questions. These include the careful
framing of questions: open versus closed questions; long versus short questions; familiar versus unfamiliar wording. There is tentative evidence to suggest that choice of response format has an impact on response rates. For example, one study showed that "format induced response rate" (categorical vs. continuous answers) was more prevalent in sensitive compared with non-sensitive job satisfaction items (Giles and Field, 1978b).

The implication of these findings for research concerning TC prevention are evident. As an emotionally charged issue of the private domain, TSE may lend itself to the pitfalls of response bias. Therefore, efforts must be made to limit untruthful reporting in this area by applying appropriate methodological safeguards. This is because theory development and theory application in health education depends for its success on research which provides a true picture of people's attitudes, motivations and behaviours.

The numerous interpretations and explanations of data pertaining to health status, indicate that health care is not a matter of simple biology but also includes social psychological factors. Health care therefore, must be seen simultaneously as biological and behavioural, as well as being both an individual and social phenomenon.

The sex differences observed in many areas of health care pose further important research questions pertaining to men's motivation to self screen. In addition they highlight the limitations of research relating to TSE as merely descriptive and point to the need for deeper examination of psychosocial aspects of the behaviour. Whilst issues of culture, sexuality, age, socio economic background and education have been shown to be important in TC prevention, most studies in this area have been descriptive in nature and dealt with very limited outcome measures. There is thus a need to initiate research which attempts to elucidate the motivational factors underlying decision making about TSE.

The purpose of this investigation then is to determine why men fail to look after their testicular health or conversely, what motivates men to take up positive action. Before describing the empirical work we will turn to SCMs which have been used to explain preventive health behaviour.
In an excellent recent publication by Mark Conner and Paul Norman, titled "Predicting Health Behaviour" (1996), the authors provide a comprehensive account of current research into five of the most commonly used SCMs including the Health Belief Model (HBM), the Theory of Reasoned Action/Planned Behaviour (TR/PB), Protection Motivation Theory (PMT), Health Locus of Control (HLOC) and Self Efficacy Model (SE). The next chapter draws on Conner and Norman's work, particularly in describing the SCMs under current investigation, including the HBM (Sheeran and Abraham, 1996), and TR/PB (Conner and Sparks, 1996).
CHAPTER 3
REVIEWING SOCIAL COGNITION MODELS

This chapter will review three of the most frequently used social cognition models (SCMs), namely the health belief model (HBM), the theory of reasoned action/planned behaviour (TR/PB) and precaution adoption theory (PAT). There are two major aims to this review. The first is to highlight the similarities and differences among the models and the problems associated with them. The second aim is to compare the models in terms of their abilities to predict the practice of testicular self screening (TSE).

Social Cognitions: What are they?
Social cognitions concern themselves with the way in which a person makes sense of his or her social environment (Fiske and Taylor, 1991). This "social cognitive" approach which construes the individual as a thinking organism has become dominant in much of social psychology. It starts from the assumption that social behaviour is best understood as a function of people's perception of reality, rather than as a function of an objectively described environment. In health, such social cognitive perspectives have in common the assumption that a person faced with decisions about health is rational and deliberate and that the process of decision making is volitional (Kuhl, 1984; Weinstein, 1984; Heckhausen, 1991; Baggozi, 1992, 1993; Gollwitzer, 1993). The present investigation attempts to examine the assumption of rationality, which underlies such a social cognitive perspective, in cancer prevention.

The Decision Making Process
The process of decision making itself can be described as self regulation, incorporating notions of self perception and other's perception in relation to goal attainment. According to Fiske and Taylor (1991), self regulations are "mental and behavioural processes by which people enact their self perceptions, revise their environment so as to bring about outcomes in it in line with their self perceptions and personal goals" (pp 181).

In clinical psychology too, motivation toward self regulation of behaviour has been described as central to bringing about behaviour and cognitive change (Bandura, 1982). Thus, models of cognition in health can be seen as having their roots in this tradition. According to Gollwitzer (1990) the self regulation process distinguishes two distinct
phases involved in goal attainment. These are motivational and volitional phases. The motivational phase involves the consideration of incentives and expectations of behaviour and ends with a definite goal to be pursued. The volitional stage, in contrast, involves planning and action toward the set goal. Most of the research carried out to date has concerned itself with motivational aspects of behaviour rather than the volitional ones. Only relatively recently have models been developed to redress the balance, by explaining the role of cognitive variables in volitional processes (e.g. Kuhn, 1984; Weinstein, 1988; Heckhausen, 1991; Bogozi, 1992, 1993; Gollwitzer, 1992) with some application to health behaviour (e.g. Schwarzer, 1992; Weinstein, 1988).

Although not yet fully prescribed, models such as the Protection Adoption Process Model (Weinstein, 1988) postulate a series of stages involving phases of decision making which are both volitional and motivational regarding hazard prevention. It is this stage approach postulated by Weinstein with which the present investigation is particularly concerned.

Social Cognition Models (SCMs)

SCMs have been used to describe and explain health related behaviour. They have also been used as basis for intervention in health care and research and less frequently in health promotion. Two broad types of SCMs have been applied. The first type is composed of attribution models and is concerned with individual's causal explanations of health related events. Research using this model has mostly focused on how people respond to a range of serious illnesses, including cancer (Taylor et al, 1984) and coronary heart disease (Affleck et al, 1987) rather than on health enhancing behaviours of healthy individuals. However, a study to synthesise the two approaches, including components of the HBM and Attribution Theory, has been carried out by King (1982) who found a variety of linear relationships between HBM items and causal attributions (e.g. illness commonness; illness controllability). King's findings support her assertion that causal attributions act both in conjunction with other health beliefs and in some cases directly in their effect on health behaviour. According to King there appears to be a case for incorporating an element of specific causal explanation (rather than the generalised LOC) to increase the predictive power of the models.
The second type of SCM concerns itself with aspects of an individual's cognition in order to predict future health related action. Such models include the HBM, first originated by Rosenstock (1966) and later revised by Becker (1974), the HLOC (Wallston et al 1978), PMT (Maddux and Rogers, 1983), the TR/PB (Ajzen and Fishbein, 1980, Ajzen, 1988, 1991) and SE (Bandura, 1982, 1991). Other models less often used include Self Regulation Theory (Leventhal et al, 1984), the Transtheoretical Model of Change (Prochaska and DiClemente, 1984), PAT (Weinstein, 1988) and the Theory of Trying (Bagozzi, 1992). Many of these theories have not been widely applied as yet. For this reason, the PAT has been included in the present investigation into TC prevention.

An Expectancy Value Approach

All SCMs provide a basis for understanding the determinants of behaviour and behaviour change. All these models also have in common the idea that human behaviour is rational and that behaviour is the end result of decision making based on deliberate information processing of available information. Most of these models postulate decisions to be the end result of a cost benefit analysis of the likely outcomes of the behaviour in question. As such they have roots in Expectancy Value Theories (Peak, 1955) and Subjective Expected Utility Theory (Edwards, 1954). It is assumed the individuals are motivated to maximise outcomes and choose actions which provide the greatest expected utility. Such cost/benefit judgements underlie many of the SCMs including the HBM, HLOC, PMT, TR/PB, SE and PAT.

The idea that an individual's beliefs, specifically those beliefs about outcomes, might provide the link between social background and behaviour, is anchored in the conceptual base of SCMs. The relationship between distinct health beliefs, and between health beliefs and behaviour, was conceptualised primarily in terms of "valence" (Levin, 1951). That is, the rendering of behaviours more or less attractive. This resulted in an expectancy value approach to behaviour in which events perceived to be more or less likely were seen to be positively or negatively evaluated by the individual. Specifically, the likelihood of experiencing a health problem, the severity of this problem, and the perceived benefits of the health behaviour, in combination with its potential costs, were seen as key beliefs guiding subsequent health behaviour. It is the expectancy value approach in relation to TC prevention which is to be validated by the present investigation. Three of the most
frequently used Value Expectancy Models are to be investigated in this research project: the HBM, the TR/PB and PAT.

**Health Belief Model: An Overview**

In this section, three models are critically reviewed, namely the HBM, TR/PB and PAT. These models have been selected because of their diverse properties and historical backgrounds. The models' conceptual and structural attributes are contrasted and their effectiveness in explaining and predicting health behaviour are reviewed. The main criticism of the models will also be outlined. Collectively, the three models embrace and highlight the problems surrounding SCM theorising. Each model embraces some of the pertinent issues currently under consideration in social cognitive theorising.

**Background and description of Health Belief Model**

The HBM is the oldest and most widely used of the SCMs. The model was specifically developed to identify appropriate targets for health education programmes (Hochbaum, 1958; Rosenstock, 1966). This was because it had become clear that health education programmes were ineffective in lower socio-economic groups. There was clear evidence that demographic variables such as SES, gender, age and ethnicity affected the extent to which people adopted health behaviours or used health services. The resulting model was applied to preventive behaviours and later usage extended to other areas, such as compliance with medical regime and health service use (Becker et al, 1977).

Early research included comparisons of attenders and non-attenders to X-ray screening (Hochbaum, 1958), prospective designs (Kegele, 1963), and intervention studies (Haefner and Kirsh, 1970). These studies demonstrated that key health beliefs provided a useful framework for understanding individual differences in health behaviour and for designing behaviour change interventions. The model which derived from this early research provided an important step forward for both health service research and social cognitive theory. It resulted in establishing social cognition modelling as central to health service research programmes.
The HBM comprises six independent constructs, focusing on two aspects of individual representation of health and health behaviour; threat perception and behavioural evaluation. The perception of threat is seen as dependent upon two beliefs, perceived susceptibility to illness and anticipated severity of the consequences of such illness.

Behavioural evaluation also consists of two sets of beliefs - benefits of the recommended action and costs (barriers) of the action. In addition, cues to action are seen as a trigger to health behaviour. These can be internal, for example in the form of symptoms, or external in the form of a health education message. Moreover, a person's general health motivation (readiness to be concerned about health) was included by Becker et al (1977b) in a later version of the model.

The HBM did not indicate any clear operationalisation instructions linking perceived susceptibility and severity to threat and action, nor did they suggest a formula for creating an overall behavioural evaluation measure. Although it had been suggested by Becker (1977b) that perceived benefits were weighted against perceived barriers, the model has typically been operationalised as a series of six independent variables which potentially account for variance in observed or reported behaviour. Because the six constructs are only loosely defined, researchers have differed in the way the constructs have been operationalised (Rosenstock, 1974).

In a recent meta analysis, Harrison et al (1992) have pointed to the lack of operational homogeneity of the model and stated that this continues to weaken the HBM's status as a coherent psychological model. Others have criticised the model for being merely a collection or list of variables, not an explanatory model in its true sense (e.g. Weinstein, 1988).

Application and research strategies
The health belief model is the most frequently used model in health research. This is probably because it has good face validity and is "user friendly". This may also explain its frequent use by non-psychologists. The model has been applied to a broad range of behaviours, including preventive health behaviours, such as health promoting behaviours and health risk behaviours, as well as vaccination and contraceptive practices. Other
broad areas of investigation are sick-role behaviours and health service use and treatment adherence.

Examples of the early research include preventive behaviours, such as x-ray screening for TB, the uptake of genetic screening (Becker, 1975), breast cancer screening (Calnan, 1985), cervical screening (Simon and Das, 1984), dental screening (Kegeles, 1963), vaccination (Cummings et al, 1979), contraceptive use (Eisen, 1985), smoking (Gianetti et al, 1985) and alcohol use (Beck, 1981).

A review of this early research was carried out by Becker et al (1977a) and later by Janz and Becker (1984) when other health behaviours had been added to the list of studies. These reviews revealed a great diversity of health behaviours as well as a large range of sample and data collection methods including self-report measures. Later studies added physiological measures (e.g. Bradley et al, 1987), behavioural observation (e.g. Alagna and Ready, 1984) or medical records (Orbell et al, 1995) to the list of studies. The majority of studies using HBM have employed self-report questionnaires, some have utilised structured interviews (e.g. Cummings et al, 1982). Random sampling has commonly been employed, as have socio-economic status as well as ethnic and cultural background sampling (e.g. Becker et al, 1974).

**Effectiveness of HBM**s

There have been two quantitative reviews of research using the HBM (Harrison et al, 1992; Becker et al, 1984). Moreover, a vote count procedure and a meta analysis have been carried out to quantify the effect sizes of the studies reviewed.

The vote count procedure (see Cooper, 1986) involves calculating a significance ratio "whereby the number of positive and statistical significant findings for the HBM dimensions are divided by the total number of studies which found significant levels for that dimension". Thus significance ratios tell us the percentage of times each HBM construct was significant in the predicted direction across the studies under consideration.

Overall, the finding has been that barriers to health action are the most reliable predictor of behaviour, followed by susceptibility, benefits and then severity. According to the vote
count across 24 studies of preventive behaviour, barriers were significant predictors in 93 percent of hypotheses, susceptibility in 86 percent, benefits in 74 percent, and severity in 50 percent of hypotheses. Cues to action and health motivation components have not been included in either of the analyses. This is probably because these factors have mostly been ignored in empirical tests of the HBM. One reason for leaving out these components might be the lack of clear construct definition (Grady et al, 1983). For example, family experience with cancer was found to be significantly associated with screening uptake although the variable was not labelled as "cue to action".

Health motivation has generally been measured by one item measures, usually expressing general concern over health, but some psychometric scales also exist (Champion, 1984). Moreover, findings are mixed and point to problems with the discriminant validity of the health motivation construct. Further research is needed to clarify the relationship between this variable and related constructs such as HLC (Wallston and Wallston, 1982) and health value (Kristianson, 1985).

Whilst findings from the vote count procedure suggest the HBM to be an effective model, this type of quantification strategy is questionable. This is because significance ratios only tell us how often HBM components are significantly associated with behaviour, not how big the effect of a given component is. Moreover, the method does not take into account important methodological aspects such as sample size, type of measurement (e.g. multiple or single item measurement), type of associations found (e.g. bivariate versus multivariate associations).

For this reason, Harrison et al's (1992) meta analysis of the HBM is considered the superior method of establishing effect size because it takes account of aspects of methodology. The meta analysis involved converting results from HBM components and behaviour into a common effect size, namely Pearson's r. A weighted average of these effect sizes was then computed for each component (see Rosenthal, 1984).

Findings show that across studies, the average correlation between HBM components and behaviour were small but significant (0.15, 0.08, 0.13, -0.21 respectively). Individual components account for between just 0.5 and 4 percent of variance in behaviour across
studies. The meta analysis also revealed a difference in effect between cross-sectional and longitudinal studies. Both benefits and barriers had significantly larger effect sizes in prospective compared with retrospective research. Overall, the analyses revealed that HBM components are very often important predictors of behaviour but their effects are small.

When evaluating the overall usefulness of the HBM it must be considered that Harrison adopted extremely strict criteria for inclusion into their review so that the effect sizes they obtained are based on relatively small numbers of subjects (N = 3515). Another point worth mentioning is that Harrison et al's effect sizes also show considerable heterogeneity, pointing to design and measurement differences across studies or different conceptualisation of components that were influencing the results.

It can be concluded that whilst the predictive utility of the HBM has been shown, poor operationalisation and failure to check reliability and the validity of the constructs is obscuring the true value of the model.

Additive versus multiplicative components

A further issue has been frequently discussed by researchers, namely the combining of HBM components. It has been argued that a number of constructs e.g. susceptibility and severity, should be combined as a single construct, "threat", rather than treated as separate components. Likewise, benefits and barriers should be combined in a single index by being subtracted from one another (Gianetti et al, 1985). However, it appears that the expectancy value structure of the model is violated by the combination of variables into a single index and therefore represents a faulty operationalisation of the concepts (Feather, 1982). Weinstein (1988) has argued that there is a qualitative difference between benefits and barriers which requires them to be treated as separate constructs. On the other hand, where the operationalisation of all the constructs can not be adequately carried out, factor and reliability analysis might be performed to determine which of these barriers and benefits can legitimately be combined (Abraham et al, 1994).

A separate issue concerns whether susceptibility and seriousness should be combined additively or multiplicatively as the HBM expectancy value structure would suggest.
Although the interaction hypothesis has not been supported when tested from a protection motivation perspective (Rogers and Mewborn, 1976). Weinstein (1988) and others suggest that at least for some health behaviours, the multiplicative approach more accurately represents the threat component than an additive one. Weinstein points out that the severity component might reach a certain magnitude to take effect in health decisions, but once that magnitude has been reached, decisions are solely a function of perceived susceptibility.

The mediation hypothesis
Another pertinent issue has been whether health belief components can mediate the impact of past experience or social structure position. Findings in this area of research have been inconclusive, suggesting the need for longitudinal studies (Cummings, 1979; Bentler and Speckart, 1979).

The issue as to whether HBM components mediate the effects of socio economic position upon performance of health behaviours has also revealed mixed results. Cummings et al (1979) found that SES was not related to health beliefs, though both SES and beliefs were significantly related to inoculation behaviour in bi-variate analysis. Orbell et al (1995) on the other hand, found that perceived susceptibility and barriers entirely mediated the effects of social class upon uptake of cervical screening. The issue as to whether HBM may be more applicable to middle class populations because of their "orientation toward the future" (deliberate planning), remains unresolved.

More research is clearly needed to determine the impact of SES upon health beliefs and health behaviour. There is a clear need for research to discriminate between the effects of cognitive factors and other factors, including financial constraints, cultural effects, and health system barriers upon the likelihood of action (Rundall and Wheeler, 1979).

The HBM has often been described as a mere list of variables and has not changed since its inception 30 years ago. Since then more comprehensive models of cognitive pre-requisites to action have been developed. However, despite the shortcomings mentioned above, the HBM continues to be widely used.
The present investigation has included the HBM to determine its use and effectiveness in relation to TC prevention and in relation to the two other models under consideration, including the TR/PB.

The Theory of Reasoned Action/Planned Behaviour

Background

The TRA was developed by Fishbein and Ajzen (1975), as a result of research into the attitude-behaviour relationship. It was later revised by Ajzen to take account of planned behaviour (Ajzen and Fishbein, 1980). Although the TRA, unlike the HBM, was not specifically designed for health research, it has been widely applied in this area. As a more comprehensive theory of behaviour, it is often seen as better representing the complexity of human behaviour than the HBM. Despite the fact that it has its origin in social psychology, it is frequently considered as having extended the HBM. This is partly because the theory adds a social/cultural dimension to theorising about illness and health.

Specific contributions of TRA

Whilst retaining many of the facets of HBM theorising (e.g. expectancy value framework, threat hypothesis), the TRA put forward a new variable, intention, as an intervening factor between attitude and behaviour.

Moreover, a socio-cultural dimension was also postulated. According to the theory, one factor shaping our behavioural intention is subjective norms - our beliefs about whether significant others approve of our behaviour. The theory suggests that in forming a subjective norm, we take account of the expectations of significant others in our environment. These normative beliefs lead us to formulate our subjective norms.

A further innovative addition by the authors of the TRA is the principle of compatibility (Ajzen and Fishbein, 1985). This comprises a method for guiding measurement of theory components. Inherent in the notion is the idea that each attitude and behaviour has four basic elements: action, target, context and time and that specific attitudes should be used to predict specific behaviours. The assumption is that the correspondence between attitude and behaviour will be greatest if both are measured at the same level of specificity.
with respect to each of the four elements. The overall aim being to increase predictability of the components.

**Multiplicative aspects of the TRA**

From the above, it can be seen that the Fishbein and Ajzen approach to measurement of attitudes is clearly specified. This attention to precision, concerning the measurement of components, is also extended to elucidating the process of decision making and attitude formation. The authors specify how variables of the model should be combined and weighted (a multiplicative structure) to best describe the process and to allow for the best possible prediction.

Such a multiplicative structure more readily reflects the complexity and interactive nature of human behaviour. This is in contrast with HBM, which assumes a simple additive structure considering only static beliefs, strength and valences, rather than process.

Thus, precise rules determine the way in which attitudes lead to behaviour, feeling threatened, and the influence of significant others and control factors are predicted. More specifically, each outcome evaluation is weighted by the corresponding likelihood ratings, so that attitude is a product of belief likelihood and evaluation of the belief. Similarly, subjective norm is the product of belief likelihood and motivation. Also, in case of the extended model, the theory of planned action (TR/PB, Ajzen, 1985), perceived control is a product of facilitation or inhibition of performing the behaviour.

**Description of the Theory of Reasoned Action**

The theory postulates that the behaviour will be carried out if it is intended to be carried out. Thus intentions represent a person's motivations to perform the behaviour. That is, a conscious plan or decision to carry out the action. The theory asserts that attitudes toward a specific behaviour exert their influence upon that behaviour through the impact of intention to perform that behaviour. Therefore, the theory attempts to explain how cognitive events, such as attitudes, are transformed into observable behavioural events through the mediator of intention. The theory therefore considers volitional behaviours only. Other behaviours not freely available to the person because of lack of opportunity,
skills, or resources are not considered by the theory and are likely to be poorly predicted by the components of the theory.

The theory of reasoned action was extended by Ajzen (1988) to widen its applicability. This was achieved by incorporating explicit considerations of perceptions of control over performance of the behaviour. The notion of control is important because it extends the predictions of the theory beyond easily performed, volitional behaviours to those more complex goals and behaviours which are dependent upon performance of a complex series of other behaviours, but which are often of considerable importance in terms of health outcomes. Whilst the link between intention and behaviour reflects the fact that people tend to engage in behaviour they intend to perform, the link between behaviour and perceived behavioural control is more complex. The suggestion is that people will be more likely to engage in attractive behaviours that they have control over, rather than those they have no control over. As measures of actual control are difficult to obtain, perceived control is used as a proxy measure.

**Determinants of intention**

Intention is seen as being predicted by three independent facets. Attitudes, subjective norms and behavioural control. Attitudes, as has been mentioned above are those cognitions which evaluate the behaviour. However, subjective norms, being an individual's beliefs about what significant others would wish him/her to do, are seen as assessing the social pressure an individual is under to carry out a behaviour. Behavioural control on the other hand, is the perception by the individual of whether the behaviour is easy or difficult to perform. For example, a behaviour which is liked will be more easily executed than a behaviour which is disliked.

The Theory of Planned Behaviour, therefore, is an extension of the earlier Theory of Reasoned Action. It extends the TRA by filling in some of the elements left out by the theory. In this case, a self efficacy component has been added (perceived behavioural control), whereby the individual is required to make an assessment of his/her own ability to perform a behaviour.
In contrast to models such as HBM the TR/PB is a comprehensive theory of behaviour which holds that all influences on behaviour will be conveyed via the components of the theory. The theory describes fully the process of attitude formation and how this leads to behaviour.

Application of the TRA
The TRA has been widely used in Social Psychology. Although individual components of the model differ in explanatory power (Vallerand et al, 1992), the model has successfully predicted behaviours such as dating and studying behaviour (Bentler and Speckhart, 1981), consumer choices, occupational choices (Ajzen and Fishbein, 1980), and breast/bottle feeding (Manstead, 1983). The model has also been used to guide research in the health field. Here it has successfully predicted weight loss (Ajzen and Fishbein, 1980), exercise (Bentler and Speckart, 1981), smoking (Fishbein, 1980), use of mammography (Montano et al, 1991), the use of dental floss (Toneatto et al, 1987) and use of contraception (Pagel and Davidson, 1984).

More recently, testicular self screening has been added to the list of preventive behaviours researched. Bruebaker et al (1990, 1992) have used the revised TRA (Fishbein and Ajzen, 1980) to examine health promotion interventions.

Criticism of TR/PB
Compared with the HBM the TR/PB has been under used in the health field. This is despite the fact that the model has many superior features. However, the complexity of the TR/PB is evident and it is precisely for this reason that critics have labelled the theory as impractical and too elaborate (Fazio, 1986). Some researchers see the reason for its under-use as residing in the nature of psychology research in the applied settings. They see the development of appropriate measures as too time consuming, as new beliefs have to be assessed for each behaviour and population (Wallston and Wallston, 1984).

As much of the health service research is not conducted by psychologists and not always guided by psychological theory, a less powerful model, which nevertheless has good face validity, may well be the preferred model (Marteau, 1989).
The reluctance of non-psychologists to use psychological theories in health promotion has also been observed by Hochbaum et al (1992). The authors confirm that health education programmes tend to be based on common sense grounds rather than psychological theory. Reasons given for this are that psychological theories are generally perceived as impractical and that practitioners are not trained in their use (Hochbaum et al, 1992).

One major criticism, however, is levelled at the model itself, namely the inclusion of intention as an outcome measure. Critics hold that behaviour should be the only legitimate outcome measured to validate the model, and that intention should be included only as a mediating factor. This critique is often related to the intention-behaviour gap which is frequently encountered in health behaviour research, and seen as a grave limitation of SCMs generally (Orbell, 1994).

The present investigation will apply TRA/PB to determine its usefulness for TC prevention and to compare the theory with the two other SCMs under investigation.

**Stage Models (Background)**

A step by step analysis carried out by Weinstein (1992) of four most frequently used social cognition models, also including HBM and TRA, has suggested a number of critical issues pertaining to the testing and development of the models. As a result, Weinstein has emphasised the need for a better understanding of key variables and their origins. He drew attention to the need to re-examine their underlying concepts and phenomena. He advocated the use of carefully controlled tests of the variables to determine whether the effects are additive or multiplicative. Most importantly, he proposed a more dynamic approach to decision making about prevention, that is, to look at preventive health behaviour in terms of a series of stages, with different issues and a different prediction rule at each stage.

In recent years, a number of stage approaches have been developed, apparently as a result of limitations encountered by single prediction rule models. Many of these stage models are still poorly prescribed and are relatively untested compared to other SCMs. However, all stage models of decision making attempt to explain the determinants of behaviour. In particular, they suggest that different cognitions may be important at different stages in
promoting behaviour. In the health fields this makes them particularly relevant to health promotion initiatives.

The first model to promote the idea of a stage approach in the health field was the transtheoretical model of change (Prochaska and DiClimente, 1984). This model has been widely used in the investigation of addictive behaviours. Other stage models followed suit such as Heckhausen (1991), Schwarzer (1992), Baggozzi (1992, 1993) and Gollwitzer (1993). All these models have in common the notion that people move from stage to stage over time. Of particular interest to the present discussion are both Gollwitzer's and Baggozzi's models. This is because they focus on the social cognitive variables, important in the action and maintenance stage. Therefore, these models attempt to explain more precisely what it is that makes people act to protect themselves.

The Precaution Adoption Process Model

In 1988, Weinstein proposed Precaution Adoption Process Model. The model postulates a sequence of five basic stages of decision-making:

Stage 1 - "unaware of the issue"
Stage 2 - "aware but not personally engaged"
Stage 3 - "engaged and deciding what to do"
Stage 4 - "planning to act but not having acted".

If the conclusion of the decision making stage is not to act, an additional stage is postulated. This stage is however not en route to action:

Stage 5 - "acting".

A sixth maintenance stage has been added to indicate repetitions of preventive behaviours wherever necessary.

Although Weinstein points to the similarity of the PAT to the Transtheoretical Model of Behaviour Change, he stresses a number of important differences between them. One difference is in the distinction between relatively novel hazards (e.g. radon testing, TSE) and those with which people are well familiar (e.g. smoking, diet). It may thus be important to distinguish between people who are unaware of an issue.

Another difference concerns the pre-contemplation stage. Here Weinstein's model
suggests a difference between people who are "seriously contemplating" change and those who are not. This group includes those who have already decided to act and those who are undecided. It may also be important to differentiate between them.

A central feature of this model is that personal susceptibility is treated as a series of stages rather than as a single dimension. The idea here is that people are unlikely to take precautions unless feeling vulnerable. They also feel optimistically biased in judging their personal risk (Weinstein, 1980).

**Precaution Adoption Process Theory: Advantages of Stage Models**

Stage models such as PAT have been developed largely in response to shortcomings encountered by models with alternative structures (e.g. the HBM and TR/PB).

Although the PAT has not yet been widely applied, it has been used successfully in a series of studies on home radon testing (Weinstein and Sandman, 1992). As do other SCMs, stage models take an over-riding cognitive perspective and stress a person's rational decision-making ability, in terms of the costs and benefits involved in the uptake of protective action. However, there exist a number of important differences between these and other types of SCMs.

Firstly, and perhaps most importantly, stage models are able to account for changes in behaviour over time. These models are able to accommodate the fact that barriers may prevent people from taking action or otherwise inhibit the decision making process.

In this way, stage approaches differ from other theories in at least two important ways. Firstly, a stage theory suggests that people at different points in time of the protection adoption process behave in qualitatively different ways and secondly, that the kind of intervention needed to move people closer to action will vary from stage to stage. Transition to the next stage can be viewed in terms of barriers to be overcome before action is taken.

A stage perspective thus suggests that variables which are important at one point in time (at one stage) may not be important at another. For example, factors that lead someone
to decide on the uptake of a preventive behaviour may not be the same factors which eventually lead to action. Thus according to stage theory, interventions must be closely tailored to the intended audience focusing on specific barriers that might hinder movement to the next stage.

A related issue concerns the fact that other expectancy value theories tell us nothing regarding the origins of beliefs about prevention. As we have seen, a stage approach has the potential to demonstrate how beliefs change over time, with the influx of new information, stages being defined in terms of beliefs held about a hazard situation. A person reaches a certain stage when he or she accepts the idea that defines that stage. Stages are also cumulative in that a person reaching a certain stage must also agree with the statements that define all previous stages. In addition, movement between stages may be both forward and backward.

**Empirical Issues**

Expectancy Value Theories such as HBM and TR/PB apply a single prediction rule, which implies that nothing will change except the value of the variables in the equation from the moment a person learns about a health hazard to the time of precaution adoption. Such continuum models are relatively easy to test. The success of such a model is judged by the strength of the correlation between the value of the prediction equation and the amount of action taken.

In contrast, a stage approach postulating changes in belief and possibly behaviour at every stage of decision-making necessarily requires a multiple prediction approach with hypotheses being tested at every stage. For example, beliefs about susceptibility are not imposed on the respondent by allowing a "don't know" response. Such an unawareness stage has not been postulated elsewhere. The static conceptualisation of the risk component adopted by other models is thus modified by Weinstein in order to facilitate a stage approach which offers greater insight into risk perception and how this important predictor changes (over time) with the influx of new information.

Because stage models have explicit structure, substantially more data are needed to determine their accuracy. Thus, there is a need for a longitudinal approach and the testing
of cognitions immediately after risk information has been received by respondents, and before they have had an opportunity to change their behaviour. It is only then that causal inferences can be made about perceived susceptibility and behaviour. In addition, criteria for placing individuals at a particular stage must be developed (e.g. the "optimistic bias" stage characterised by a lack of personal susceptibility). Moreover, subjects must be followed up over time in order to test the accuracy of a stage approach and to determine whether there is movement between stages, or whether people think and behave differently at different stages of decision making. The obvious complexity of the stage model, may not allow the testing of all aspects and assertions simultaneously.

The intention - behaviour gap

Clearly, stage approaches such as PAT are able to deal with many of the problems left unresolved by traditional single prediction rule models. In particular, the intention - behaviour gap which has plagued research using expectancy value models especially TR/PB.

There are many examples demonstrating that behaviour does not necessarily follow on from intention to act (e.g. Trandis, 1980; habitual behaviours). Sheppard reported intention - behaviour correlations of 0.10 - 0.94 indicating that many people who intend to perform a behaviour fail to do so.

It is stage models that have the potential to demonstrate where such qualitative differences in belief exist between people who intend to act and those who actually carry out a behaviour. Interventions based on such knowledge might lead to new insights into preventive behaviour.

The present investigation aims to determine whether stages of decision making also apply to self screening practice.

Unrealistic optimism

In addition, PAT is able to deal with a Cognitive Bias Factor concerning not only health research. The consistent finding of "unrealistic optimism", that is, people's tendency to consider themselves to be less susceptible to health problem's than the average person
Evidence of this phenomenon has been found for a wide range of positive and negative events. This tendency or bias toward events may have obscured many findings in health research. It has also been postulated that people demonstrate such optimistic bias for motivational reasons amongst others. This may be particularly important in times of stress or when feeling threatened, where the person is motivated to alter their perceptions so that an event or situation is less risky or threatening (Kunda, 1987).

Focus on familiar hazards
Most investigations have focused on familiar hazards, such as smoking, drinking and medical screening. This is true for most studies using SCMs including stage approaches, such as the Transactional Model of Behaviour Change (Prochaska and DiClemente, 1987). Less well known areas of prevention have been relatively neglected by such research. For this reason, little is known about the various degrees of knowledge and awareness and their impact on perceived susceptibility and preventive action.

Weinstein's PAT is particularly suited in application to the investigation into less known preventive behaviours (e.g. protection from radon gas and testicular cancer self screening). This is because his stage approach is able to accommodate "don't know" answers and thus plot the progress of decision making from a relative lack of awareness to action.

Finally, the need to postulate stages rather than strength of a belief (a belief's position on a continuous scale) noted earlier became particularly clear in respect to people's beliefs about a risk situation (Perry and Mushkatel, 1984).

PAT sees these susceptibility beliefs as dichotomous variables; a person has or has not reached a particular stage (e.g. beliefs in general or personal susceptibility, awareness of a threat). This does not mean, however, that the criteria that define the stage have only two levels (belief or dis-belief). It is assumed that people are able to distinguish between levels of risk to which they are vulnerable (e.g. the difference between serious risk and negligible risk) but that they also perceive differences in each category of risk. A stage
model implies that a qualitative change occurs in behaviour and thought, when each of these beliefs passes a threshold.

By postulating stages in risk perception over time (longitudinal design) one can speculate how one might eliminate the problem with interpreting correlations between risk perception and risk behaviour (usually encountered when dealing with cross-sectional survey data). As has been pointed out by Weinstein (1993), two correlations are used to examine two important questions. Firstly, do people's perception of personal risk correctly reflect the extent to which precaution are taken (or risk behaviours are carried out). Secondly, do perceptions of high personal risk cause people to take more or less preventive action. Often, both questions are answered using the same correlation. As Weinstein (1993) has pointed out, many investigators use research designs which are inappropriate for the hypothesis they wish to test, or look at the wrong correlations to answer the questions they have posed.

**Criticism of Stage Models**

The criticisms levelled at stage model are generally those also applying to other SCMs. These are mainly concerned with the individualistic nature of the models at the expense of more contextual factors. However, the difference between "traditional" SCMs and stage models is primarily that stage models do attempt to explain how people change, not simply why they do. This means that the stage approach is particularly suited for health promotion intervention. However, a stage approach to decision making has recently been criticised for suggesting that there are specific interventions that can be matched with each stage to improve outcome (Davidson, 1992). The author draws attention to some unresolved questions concerning such stage models as the trans-theoretical model. For example, he noted that some successful individuals are not aware of contemplating, actioning or maintaining behaviour as the model maintains.

A further critique concerns the complexity of the approach in terms of its explicit structure. A stage model requires considerably more data to determine the accuracy of stages (e.g. a longitudinal approach). The obvious complexity of the model makes it difficult to test its assertions simultaneously. This might limit the model's applicability and
usefulness. According to Davidson (1992) "stages of change have been remarkably resilient to measurement and factor analytic duplication".

Weaknesses of stage models have also been commented on by Johnston (1994) who pointed out that Weinstein's proposal that social cognition components have their predictive power at different stages (which is supported by evidence, e.g. Weinstein and Sandman, 1992) needs to acknowledge that "none of the SC variables were effective in predicting behaviour in those who had decided to act - once the behavioural intention had been reached, no other predictor was consistently predictive in prospective studies". She noted then that the most serious problem for SCMs has been how to make the leap from intention to behaviour.

Evaluation of Social Cognition Models

As for SCMs generally, qualitative and quantitative evaluations have been carried out to establish their reliability, validity and relative effectiveness. Although reviews of theories of health protective behaviour exist (e.g. Becker and Cummings, 1991), they have overlooked the similarities of the theories under review and do not offer a point by point comparison of the models. Such a rare empirical investigation has been carried out by Weinstein (1992) who undertook a step by step comparison of four SCMs (including the HBM, TRA, SEU and PAT). The aim of this comparison was to point out the similarities and differences of the models in order to highlight their strengths and weaknesses.

Although few quantitative investigations have compared SCMs to establish their relative effect size, meta analyses have been conducted on studies using the TRA and HBM (e.g. Sheppard et al, 1988; Harrison et al, 1992). These analyses have demonstrated that while SCMs have generally provided an important framework for considering social psychological determinants of behaviour, they account for only small amounts of variance. Generally, the components of SCMs have been reported to predict only between 10 and 30 percent of total variance of preventive action (Sutton, 1995).

It is this reality which has caused leading researchers to comment on the limitations of the theories and put forward suggestions as to how improvements might be achieved (Health Psychology Conference, Nottingham, 1995). For example, Sutton called for a
reassessment of the criteria used for judging the effectiveness of SCMs, whilst Sheeran and others emphasised the need for adopting a more varied research programme.

It is the aim of this investigation to address some the limitations mentioned above by adopting a multi-method approach to data collection. Special attention will be paid to the shortcomings of the models in an attempt to overcome some of the barriers to theory development.

As has been shown in the previous section, the three models under consideration are characterised by their diverse empirical structures and prediction rules as well as by their varying emphasis on predictive components. This makes comparison and contrasting of the models very pertinent, particularly where effective explanations are sought to underpin programme development. This, it must be remembered, is the ultimate purpose of this investigation: the development of an integrated health education programme to promote TSE in adolescent school children.

Before reporting on the qualitative part of this investigation, therefore, a review of the research methodology adopted in this area will be presented in the next chapter.
CHAPTER 4
METHODODOLOGICAL REVIEW INTO TSE

There has been no formal review of research into Testicular Cancer Prevention to date. This may be because relatively few studies have been carried out in this area (Rosella, 1994). However, with recent advances in the treatments of testicular cancer, making prevention a real option, a corresponding increase in studies into self screening practice has been observed.

Overall, the research into testicular cancer prevention may be described as atheoretical. Few theories have been used to guide investigations. The models which have been applied include the HBM and TR/PB. The use of Stage models, such as the PAM, have not been reported. However, one model frequently applied to intervention studies in health education is a planning model developed by Green et al (1980). The PRECEDE model differs from other models by focusing on environmental - contextual factors of behaviour change rather than individualistic ones. It is primarily concerned with determining the most important factors to be addressed by health education.

Studies into TC prevention tend to fall into four broad categories. These include epidemiological and other surveys, theory guided studies, intervention studies and evaluation studies. Most studies have used survey questionnaires and few have adopted more complex quasi experimental designs using control groups (intervention), or have taken a longitudinal perspective.

Survey Studies

Whilst epidemiological studies have been concerned with describing the extent of the problem concerning TC and who is affected (e.g. Rimpela et al, 1987), others have sought to determine the characteristics associated with self screening practices (e.g. Rosella, 1994). Many of these studies have aimed to determine the psycho-social correlates of TSE and have investigated variables such as barriers to screening, knowledge and awareness, beliefs, attitudes and intentions (e.g. Singer et al, 1993).

The majority of studies have been carried out on student populations, including a large scale investigation in Europe into health behaviours (Wardle and Steptoe, 1991). Some
studies have been conducted in health clinic settings. Such atheoretical investigations have mainly been concerned with describing the characteristics of people who do and do not self screen in order to incorporate such factors into programme development. These studies have given little explanation as to the process of decision making involved in self screening behaviour. Another type of survey, using a postal questionnaire design, has involved GPs and their role in screening and education (e.g. Vogt and Hales, 1992). These studies have measured GP perception, attitude, intention and behaviour with regard to professional screening and practice-based teaching of TSE (Sladden et al, 1995). It has been shown that many GPs are uncertain about the screening tests available for TC screening. The authors stressed the need for the introduction of evidence-based guidelines for GPs, to convince them of the effectiveness of such screening. Others have concluded that valuable opportunities for teaching the skill of TSE in general practice are clearly being missed (Cook et al, 1995). This conclusion is particularly significant in the light of an earlier finding which showed that having been taught TSE is a significant enabling factor for self screening (Neef et al, 1991).

The bulk of survey research in this area, however, consists of studies seeking to determine men's awareness and attitudes to TC and TSE (e.g. Singer et al, 1993; Wardle et al, 1994).

Theory-Guided Studies

In contrast, explanation and prediction of self screening practice has been the aim of studies guided by SC models. The use of such theoretical models has served a dual purpose. Firstly, they have been used to elucidate the decision making process involved in behaviour change (e.g. Steffen and Gruber, 1991). The authors of this study tested Fazio's hypothesis that direct experience enhances attitude-behaviour consistency. Secondly, such studies have been used to inform the development of health promotion programmes (Neef et al, 1991). The authors of this study applied the PRECEDE model to categorise significant variables that influence monthly TSE practice. The HBM has also been successfully applied (McMaster et al, 1994). The authors reported significant relationships between health beliefs and TSE practice.
Longitudinal design

Bruebaker and his colleagues (1990, 1991) conducted a series of rare quasi experimental studies in this area, using a control group design and a theory-based strategy. In this regard, a questionnaire, operationalising the components of the TR/PB, was used prior to an audio tape intervention containing a persuasive message (designed according to TR/PB). Follow-up measures of TSE and other outcomes were then taken to establish the effectiveness of the intervention and thus to establish the value of the theory. Bruebaker and his colleagues concluded that the TR/PB was an effective model to predict self screening behaviour and worthy of being used as a framework to examine interventions aimed at improving health behaviours (Bruebaker and Fowler, 1987; Murphy and Bruebaker, 1990; Bruebaker and Wickersham, 1991).

A more recent study also using the TA/PB for guidance confirmed the above results by reporting the predictive power of attitudes to TSE and subjective norms, in terms of intention to self screen. McCaul et al (1993) found perceived behavioural control (also included in the study) to be a better predictor than self efficacy. These findings appear to confirm the predictive value of TR/PB in testicular cancer prevention.

Evaluation Studies

Outcome evaluation studies

The majority of intervention studies, however, have not been so carefully designed and have mostly been conducted without theoretical underpinnings and control group design. The aim of most of these studies was to determine, in a comparative way, which type of health education intervention is most successful. These studies are based on the assumption that any type of intervention will make a difference to preventive action. In particular, by way of increasing knowledge and awareness. It is this type of study which makes up the bulk of research in this area. Such evaluation studies have made use of many different kinds of interventions, including written material (e.g. Ganong et al, 1987; Dachs et al, 1989), videos, plastic dummies (e.g. Finney, 1995), instruction/teaching type and patient survivor talks (e.g. Marty et al, 1986), GP talks (e.g. Rodrigues et al, 1995) and modelling (e.g. Walker et al, 1989).
Process evaluation studies
Programme evaluation is an important part of health education practice (WHO, 1981). This is not least because health education is a multi-disciplinary endeavour and as such needs to take account of psychological and other perspectives. The evaluation of health education programmes, in terms of component effectiveness (process), have rarely been carried out. This is despite the fact that it is generally seen as vital to explain the relative importance of variables involved in behaviour change. This is particularly true for the appraisal of health promotion in naturalistic settings (Sheiham, 1978). No research to date has conducted such investigations in the area of testicular cancer prevention.

Research Aims and Objectives
The primary intention of the present research programme is to develop a theoretically justifiable health education programme to promote TSE. A major part of this aim is to identify an effective, possibly hybrid social cognition model to predict health protective action in relation to testicular cancer.

The three Social Cognition Models discussed above have been selected for comparison on the basis of their diverse empirical structures and prediction rules, to demonstrate which model is best suited to guide the development of a health promotion programme. The following section outlines the research strategies adopted in this investigation, to deal with the conceptual and methodological problems outlined in chapter three. Overcoming the barriers to model development will be attempted on four levels of operation, namely at the methodological, empirical-statistical, conceptual-operationalisational and measurement level as follows.

Methodological level
A qualitative approach in the form of an open ended questionnaire survey, focus group discussions, and in-depth interviews, will be applied to identify the relevant themes and representations of cancer screening. The aim is to confirm the components of SCMs, to achieve conceptual differentiation of the components and to determine possible novel representations. The overall aim of the investigation is to inform the subsequent quantitative analysis of knowledge, beliefs and cognitions. However, data from the
analysis will also be relevant to the development and targeting of the testicular health programme.

One aim is to explore the best possible way to measure levels of general knowledge and awareness of cancer. Awareness is an explicit component of PAT, as knowledge is a prerequisite to action and can be seen as an intrinsic part of all social cognition models.

**Empirical-structural level**

Importantly, the present investigation challenges the assumption of a single prediction rule, that is, that the relationship between model components are both fixed and linear and uni-dimensional. To clarify the causal direction of the models' belief-behaviour relationship, a prospective design will be adopted. Thus, an intervention study will be designed to test the intention-behaviour relationship as well as the stage approach to decision making. In particular, it is sought to determine the characteristics associated with the action stage of prevention. Moreover, the aim is to see whether knowledge, awareness, specific beliefs such as risk perceptions and other beliefs, change over time with the influx of new information and thus bring people closer to action. However, the application of multiple prediction rules will allow cognitions and behaviour to move forwards as well as backwards in the decision making process.

Furthermore, the issue as to how variables should be combined to bring about behaviour (additive versus multiplicative association between components) will be tested by applying the appropriate calculations and statistical procedures (i.e. to compute risk perception index, cost benefit index etc.).

**Operationalisational level**

Special attention will be paid to the operationalisation of model constructs. Many constructs are very broadly defined and often somewhat simplistic as a result of their expectancy value definition. For example, concepts such as costs and benefits (or pros and cons) are in need of qualitative distinction as is risk perception. Further elaborations of constructs (as suggested by Weinstein) will be implemented. These may be variables outside the expectancy value framework of decision making. Such items may all be included as multiple item measures.
Moreover, testicular self examination as a "sensitive health practice" may not lend itself to the sole rational mode of expectancy value definitions, without the consideration of affective emotional facets. Novel components derived from qualitative and idiographic methods may be included. On the other hand, the role of cognitions such as knowledge and awareness, clearly pre-requisites to action, needs to be clarified. The importance of knowledge of reproductive biology particularly needs elucidation. This is because it is often assumed in health promotion that people have the basic knowledge needed to understand medical recommendations.

**Measurement level**

Greatest attention will be paid to measurement of constructs and variables. Researchers have used many different approaches in their search for the ideal probability scale. The general finding has been that five and seven point scales represent the optimal number of scale divisions (Rohrman, 1985). Thus a five point Likert scale is to be used in the present study to measure beliefs and probabilities. A variety of other scales are to be incorporated to avoid tiresome repetitions and facilitate responses, e.g. rating scales, multiple choice, diagrammatic representation, dichotomous scales and categorical scales.

**Validity and reliability**

Greatest attention will be paid to reliability and the internal validity of measures. Multiple item measurement will be included wherever possible to increase concept validity e.g. to assess behavioural control, self efficacy and susceptibility. A number of open-ended measures will also be used to avoid pre-conceived ideas of the researcher. Item construction will be conducted carefully with response bias in mind.

**Reporting bias**

In a previous section, bias has been addressed in relation to sensitive issues research, particularly where people feel threatened as a result of their responses. Response bias also applies to issues where the individual feels that a particular answer is socially desirable. Thus such "social desirability bias" needs to be controlled for. Great care will be taken to eliminate such bias through randomisation of items and open acknowledgement on the questionnaire of a tendency to bias as well as through appealing to respondents to answer...
honestly. We will now turn to the qualitative section of this thesis and begin by discussing the rationale for using such methods in the investigation into preventive cancer screening.
CHAPTER 5
INVESTIGATING SOCIAL COGNITIONS:
USING QUALITATIVE METHODS

Improving the predictive power of SC models in cancer prevention requires the scrutiny of old concepts. Conceptual differentiation of old predictors and generation of novel ones can only be successfully carried out using "sensitive" methodologies. As representations of cancer prevention change over time, with the dissemination of information in society, novel representations may occur and need to be taken account of. Qualitative methods are the most logically appropriate methods to elicit these representations. This is because people's representations of health and illness prevention are a result of complex interactions of environmental and social influences, emotional factors and individual differences in information processing (Leventhal, 1980). These representations are subject to change and must necessarily be examined anew.

Although quantification will ensure that findings can be generalised to populations, quantitative methods are necessarily crude methods of inquiry. As feminist psychologists have argued, quantitative research means fixing meaning (e.g. Griffin, 1986). Through qualitative investigations, all aspects of a subject domain, including those beyond the researcher's experience, are covered and can be incorporated in the investigation. Where responses to pre-determined variables are quantified, one runs the risk of testing irrelevancies and/or leaving facets out.

The argument as it applies to testicular cancer prevention is that delicate issues require sensitive methods of investigation. Researchers cannot know what experiences lie beyond the boundaries of gender, class, race, and culture, nor what representations of illness are harboured. What they can do however, is facilitate disclosure of what lies beyond the defensive boundaries of the human construct system. In this way he/she can ensure that what will subsequently be investigated and quantified is actually relevant to the research question at hand, that nothing important has been left out, and the issues are salient to participants. Where qualitative and quantitative methods are integrated to complement each other in this way, findings are bound to be more accurate in explaining preventive action. Cancer prevention programmes can subsequently be designed with greater confidence.
Triangulating Methods

Investigations which make use of a variety of methods draw on the strength of each method. Findings can be relied upon with greater confidence and certainty. Data from a variety of methods including focus groups, in-depth interviews, open-ended questionnaires, field work and survey research can be compared to see whether the results of the different studies are complimentary. This method of analysis (Triangulation) using qualitative data from different sources has been described by Fielding and Fielding (1986). Addressing the same research topic from different perspectives to see whether the same results can be achieved, triangulation can be usefully employed on qualitative and quantitative data to cross-validate the findings. Here, a triangulation approach provides a powerful means for analysis and interpretation of data. Whilst convergent findings will support and validate the study findings, divergent findings will uncover biases inherent in the measurement instruments or methods used and point out strengths and weaknesses. The integration of qualitative and quantitative methods, therefore, will provide useful insights into the empirical reality of cancer prevention research. Moreover, the need to improve SCMs has long been recognised as has been the development of effective health promotion programmes to prevent TC. One utility of improved explanatory powers of models would be the more effective design of health promotion programmes. Qualitative methods are an effective way of providing rich description and explanation of local phenomena and can be used to improve, if only indirectly, the effectiveness of scientific theory as well as the effectiveness of health promotion programmes. In addition, qualitative methods have considerable face validity which might convince health educators to make greater use of psychological theory in programme design. However, qualitative methods must be carried out with conviction to achieve optimal results. They must be skillfully executed and analyzed. Limitations of the methods must be acknowledged. Clearly the integration of quantitative and qualitative methods will minimise the drawbacks of either method used on its own. Where the aim is to develop effective health education, the integration of the two methods will ensure the best possible results in testicular cancer prevention.

We will now turn to discuss the rationale of three qualitative methods used in the present investigation, namely focus groups, in-depth interviews and open-ended survey questions.
Focus Groups

Advantages of focus groups
Focus groups are used to gain first hand knowledge from specific groups of people about their social realities.

The advantages of focus groups relative to other research methods are that they are flexible in that they can be organised within a very short period of time. They can be used for a wide range of topics including sensitive ones. The discussion of issues and the exchange of ideas has the advantage of resulting in information which might not otherwise have been obtained. The stimulation of the group discussion encourages disclosure giving instant feedback on other members' opinion. Furthermore, the moderator is able to observe non-verbal communications alongside verbal expressions displaying emotions such as anxiety, anger and discomfort (Basch, 1987).

Limitations of focus groups
As with other methods, there are a number of disadvantages associated with focus groups. One of the main disadvantages is that focus group data do not allow generalisations to be made to other groups or the wider population. It is interesting to note that the very positive characteristics named above can compromise the generalisability of the method. For example, the interactive nature of the group makes the group unique and thus prevents generalisation. Group dynamics can vary as a result of self selection of group members and other factors (e.g. personality characteristics of participants). Moreover, as the findings rely heavily on interpretation, evidence may be unwittingly sought by the researcher to support pre-conceptions (Basch, 1987).

Use of focus groups with quantitative methods
Although focus groups are valid methods of inquiry in their own right, they are often employed in conjunction with quantitative methods. Increasingly researchers are recognising the benefits of combining qualitative and quantitative procedures, resulting in greater methodological strength of research design.

Focus groups can be used in a variety of different ways in relation to quantitative methods. They can usefully be employed before, during or after quantitative investigations.
is, they can be used to help explain findings or can lead to initiate further quantitative investigations. Focus groups may be used at the same time as quantitative methods, using "triangulation" where two or more methods are used at the same time to address the same issue and confirm findings.

Where focus groups precede quantitative procedures, the focus group interview can help the researcher learn the vocabulary and discover the thinking pattern of the target audience. In addition, they can provide clues as to special problems that might develop in the quantitative part of the investigation, e.g. the survey questionnaire might have an illogical sequence of questions that confuses respondents, omits important response choices, or fails to ask critical questions. Qualitative procedures such as focus groups enable researchers to get in tune with respondents and discover how individuals see reality. These insights can then be used in questionnaire construction which allows the researcher to make inferences about larger populations.

Open-Ended Questionnaire Survey

Whilst open-ended self reports are often employed as part of quantitative research surveys, they can also be used in qualitative inquiry. In general, there are two aspects to every survey questionnaire: its content and its format. Ideally, questionnaire content is best restricted to a single issue. As regards to questionnaire format, there are a number of reasons why an open-ended format is desirable. Firstly, an open-ended format is useful when the researcher does not know all the possible answers to a question. Secondly, when the range of possible answers is so large that the question would become unwieldy in multiple choice format. Thirdly, when the researcher wants to avoid suggesting answers to the respondents. Furthermore, when the researcher wants answers in the respondents own words. One advantage of open-ended questions is that the format allows the respondents to answer in their own words. In this way they are very useful in determining the salience of opinions. The assumption is that those items which stand out in a person's mind will be answered first. Finally, an open-ended format minimizes bias as there is no possibility of the researcher influencing the respondent. Open-ended questionnaires are useful to find out which topics should be included in the questionnaire.
The Individual In-Depth Interview

Interviewing is probably the oldest and most frequently used method of inquiry in the clinical and health fields. Depending on the goals (clinical or research) and theoretical persuasion (e.g. cognitive, behavioural) of the interviewer, the interview proceeds with varying degrees of structure, specificity and focus. There are two types of interviews used in the health field, both having clinical and research application. One type is the structured-empirically derived interview and the other is the unstructured interview. An example of a structured interview is Rosenhan's (1978) interview to detect Type A Coronary Prone Behaviour. Another example is provided by Gorden et al (1980) who developed a structured procedure to survey patients' cancer related psycho-social problems. The purpose of this interview was to determine priorities for intervention. Most structured interviews aim to assess specific problem areas and empirically derived constructs. With increased structure has come the opportunity to attend to issues of reliability and validity.

The unstructured interview

The unstructured interview in contrast is characterised by its relative lack of attention to psychometric development. Amongst the unstructured category of interviews, the degree of structure varies greatly. For example, the cognitive-behavioural interview is one which proceeds in a relatively structured way with a relative emphasis on specification and quantification. The focus of the interview and its structure are likely to be a function of the specific purpose of the assessment. However, specific characteristics of the interviewee and interviewer are likely to be more important in the scheme of things than the particular orientation of the interviewer.

The in-depth interview

The most crucial component of the in-depth individual interview, a special form of unstructured interview, is the technique employed. The researcher follows the interviewee's answer with a special request for more information. Ideally, the interview must meet two requirements. First, it must not bias the accounting process. Second, it must ensure a socially effective interaction that helps the informant to report adequately, that is, within the frame of reference within which the intensive interview is conducted.
To avoid bias, the interview must be non-directive. Questions must not be asked in a leading way or directly, as this exerts pressure on the respondent to answer in a particular way (Brown and Sime, 1981). In order to obtain people's views on a given subject, great skills are required of the interviewer (Lofland, 1971). Not only must the interviewer continuously monitor his/her own performance in relation to the questions, the questions must be determined by the interviewees' responses.

The cognitive behavioural interview

The cognitive behavioural interview is one which has a theoretical base and as such has several important functions and goals (Beck, 1978). First, it is designed (as are other interviews) to identify and specify potential target behaviours or problem areas. As the interviewee is unlikely to present his/her problem head on, it is important for the interviewer to remain open to a wide range of problems.

In addition, specific cognitions (internal processes) may be identified as target behaviours for further analysis and potential intervention. The cognitive behavioural interview thus emphasises the topography of each problem identified. In accordance with the cognitive-behavioural perspective, the focus of the interview is on the interviewee's report of specific cognitions, behaviours, affects, and psychological responses that precede, accompany, and follow the target behaviour as well as the environmental conditions associated with the response. The interviewer is careful to focus on the temporal association of these cognitive, affective, and behavioural events; their specificity, versus generalisability across situations; the frequency of the occurrence and so forth. In this process the interviewer continues to generate hypotheses concerning each problem behaviour and possible controlling variables.

The cognitive interview

Another such interview where the theoretical orientation of the interviewer is important has derived from Personal Construct Therapy. This interview technique is based on Personal Construct Psychology (Kelly, 1955). According to Bannister and Fransella (1986), Kelly's theory is stated at a very abstract level so as not to limit its application to particular human circumstances. This makes it possible for the theory to be applied in circumstances such as interviewing for the purpose of research rather than therapy. Kelly
elaborated the implications of his ideas in ways that are explicit and testable, and provided methods (e.g. the repertory grid method) for doing so. Kelly proposed that the person be construed as a scientist, and the whole of his theory is an elaboration of this analogy. It includes the ideas that the person in everyday life builds a theory of the world, formulates hypotheses from the theory, applies them to specific situations, tests them and evaluates the results. Kelly saw people as rational beings which has lead his theory to be classed as a cognitive one. However, Kelly himself has denied this and has stressed his disbelief in the emotion-cognition dichotomy implicit in the notion of cognition. According to his postulate, representations of past events are located, as it were holistically, in the personal construct system which is accessible through therapy. These events include meanings attributed to them by the individual which include those which cannot be put into words.

By way of PCT, involving the use of clearly specified procedures (e.g. laddering and pyramiding), hierarchically arranged constructs are made explicit. The following chapter will present three qualitative studies including focus groups, in-depth interview studies and an open-ended survey. The three methods have been chosen to provide a comprehensive and in-depth account of the general domain of health and illness and the specific domain of cancer screening. By employing three diverse methods, it was anticipated to cover the subject area in breadth and in depth. 1. Focus groups were employed to take advantage of their strength to stimulate discussion and facilitate verbal exchange and expression of ideas. 2. Open-ended questionnaires were used to allow for non-threatening, thoughtful responding to a limited number of specific questions. 3. The in-depth interview was employed to encourage reflective responses and explore deeper emotion laden constructs.

Each method, with its own particular strength and focus, was to be employed so as to facilitate access to different facets of the human construct system. The aim being the ultimate "exposure" of people's feelings, perceptions, memory, thoughts and experience concerning illness prevention. Moreover, in line with the overall purpose of this investigation these qualitative studies aimed to establish whether "traditional" components of SCMs were reflected in people's accounts and/or whether novel ways of looking at health and illness prevention existed. For this purpose, findings from the three studies were subjected to an inductive coding procedure. This is essentially a "grounded approach" first advocated by Glaser and Strauss (1967). The procedure involved "chunks" of conversation taken from the tape recording being summarised into a single
notation - "a unit of meaning" - and recorded. These "units of meaning" were then coded or categorised by two people independently before being subjected to the ultimate objective, namely to match the observation to a set of traditional SCM concepts. Codes were kept semantically close as much as possible to the term they represent and new categories were constructed as seen fit for the data. Findings will be used in two ways, firstly to inform the development of a survey questionnaire to investigate men's testicular health and secondly, they will serve the development of a health promotion programme to promote testicular self screening in young men.
CHAPTER 6
STUDY 1
EXPLORING REPRESENTATIONS OF HEALTH AND ILLNESS:
A FOCUS GROUP STUDY

Introduction

This study was the starting point of the investigation into illness prevention. The aim was to gain an understanding of people's representation of health and illness through spontaneous discussion. It was hoped to obtain an overall picture of the subject domain by exploring, in the broadest possible way, people's thinking about health, their motivations, their feelings and their behaviour. Through unstructured exchange of ideas, feelings and opinions, people's own expressions were expected to provide valuable descriptions and insights. It was anticipated that the focus group would cover more or less spontaneously, issues of health protection and illness prevention. The assumption was that health can realistically only be discussed in relation to illness, as a health - illness continuum. However, where issues of prevention were not spontaneously addressed, prompting was permitted to guide the discussion. By encouraging participants to speak freely about matters of personal concern, it was hoped that the study would reveal the language, the expressions, categories and terminology used by people to describe their perceptions of health.

Method

Subjects

Twelve men and twenty women aged between 19 and 55 years with a median age of 32 years participated in 6 discussions. Four groups were run at Surrey University consisting of first year undergraduates from Psychology, Sociology and Nursing. One group consisted of professional men and women, including managers, lawyers, dentists, accountants, and other workers from the voluntary sector.

Materials

The materials used were a tape recorder, a demographic questionnaire, a discussion prompt guide, a list of questions, refreshments.
Procedure
A prompt-guide was prepared by the moderator and co-moderator to act as discussion aid. Open-ended questions were prepared and questioning was practised. Each moderator was given certain tasks to perform during group discussion. The moderator was primarily concerned with "focusing" the discussion and keeping the conversation flowing. The co-moderator was concerned with taking notes to identify key questions.

Group members were recruited on campus, at work and from friends. Students were approached and asked whether they would be interested in participating in a discussion about health. A meeting room at Surrey University was used. Group Members were seated in a circular arrangement, with a microphone placed in the centre. To begin with, all participants were given a demographic questionnaire to establish their age, sex, SES, study discipline, professional background. The purpose of the discussion was then explained by the moderator. The ground rules were laid down and the brainstorming exercise was introduced. The session developed as follows: "This group discussion is part of a study into health behaviours carried out at Surrey University. We are interested in what motivates people to look after their health. First, we would like to get an idea of what you think people understand by the term health. Second, we would like you to think about the kinds of factors that make it difficult or easy for people to undertake positive health action. Let's begin with a brainstorming exercise to elucidate the question - what is health?".

It was correctly anticipated that the discussion would cover more or less spontaneously, issues of health protection and illness prevention including cancer screening. The assumption was that health can realistically only be discussed in relation to illness, as a health-illness continuum. A number of prompts were used in the form of open-ended questions. For example, "why do people resist the offer to undertake preventive screening?". Group facilitators took great care not to influence the discussion in any way. Whenever the discussion deviated from the broad subject domain, the facilitators used the phrase: "may I get back to the issue of . . . you were saying that . . . could you elaborate on . . .". The aim was to use open-ended questions to promote self-disclosure without setting strict boundaries, but keep the discussion focused on the broad subject domain of
health and illness. The length of the discussion was approximately 50 minutes. A debriefing session followed to capture the essence of the meeting and take notes.

Analysis of Data
Simple thematic content analysis was carried out in the naturalist tradition. This meant keeping as close as possible to the original data. From tape recordings a list of units of meaning was compiled (Tables 6.1, 6.2). Broad themes, issues and patterns were then discerned from the data and grouped together according to content, context and relationship (Tables 6.3 to 6.6). A judge was employed to verify the categories by repeating the procedure. No attempt was made to quantify the responses.

Results
Scoring reliability was high with only one item of disagreement namely 'health is a modern concept'. The response was re-scored and included into a 'political' category.
Definitions of health and illness, and emerging issues (as units of meaning and as categories) are displayed below. As can be seen from Table 6.1, emerging definitions of health from the brainstorming exercise can be categorised as having an internal versus external focus. On the one hand, health was defined as: 1) an internal state of positive wellbeing 2) the absence of illness and disability 3) a state which is taken for granted 4) a state which motivates to action, which denotes self control. On the other hand, health was defined with an external focus including notions of: 1) external control 2) misuse and commercial exploitation 3) peer pressure 4) learning/teaching of habits 5) beauty 6) good living conditions 7) good health care policy.
Table 6.1: Emerging definitions of health in focus group data

<table>
<thead>
<tr>
<th>Health is . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>* a modern concept</td>
</tr>
<tr>
<td>* subjective</td>
</tr>
<tr>
<td>* a state of wellbeing</td>
</tr>
<tr>
<td>* a state of being taken for granted</td>
</tr>
<tr>
<td>* not being ill</td>
</tr>
<tr>
<td>* the absence of disability</td>
</tr>
<tr>
<td>* a motivator to action</td>
</tr>
<tr>
<td>* vanity</td>
</tr>
<tr>
<td>* self control</td>
</tr>
<tr>
<td>* involves control over environment</td>
</tr>
<tr>
<td>* involves control over situations</td>
</tr>
<tr>
<td>* a concept to impose social control with</td>
</tr>
<tr>
<td>* a commodity to be marketed</td>
</tr>
<tr>
<td>* good health care policy</td>
</tr>
<tr>
<td>* good living conditions</td>
</tr>
<tr>
<td>* beauty</td>
</tr>
<tr>
<td>* peer pressure</td>
</tr>
<tr>
<td>* learning of good habits</td>
</tr>
</tbody>
</table>

Table 6.2 indicates that definitions of illness are characterised by a focus on personal, affective attributes concerning loss and searching. For example illness was defined as: 1) loosing control 2) feeling weak 3) feeling unmanly 4) being irrational 5) being unstable 6) being restricted. But also as: 1) seeking professional help 2) seeking benefits of illness 3) gratification and attention.

Table 6.2: Emerging definitions of illness in focus group data

<table>
<thead>
<tr>
<th>Illness is . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>* being restricted</td>
</tr>
<tr>
<td>* being mentally unbalanced</td>
</tr>
<tr>
<td>* being irrational</td>
</tr>
<tr>
<td>* being unstable</td>
</tr>
<tr>
<td>* seeking professional help</td>
</tr>
<tr>
<td>* seeking benefits of illness</td>
</tr>
<tr>
<td>* feeling weak</td>
</tr>
<tr>
<td>* feeling unmanly</td>
</tr>
<tr>
<td>* seeking gratification</td>
</tr>
<tr>
<td>* seeking attention</td>
</tr>
<tr>
<td>* losing control</td>
</tr>
</tbody>
</table>
From the definitions of health and illness reported above it is clear that health means different things to different people. For the purpose of clarity, these definitions have again been categorised in Table 6.3 below. It is apparent from the table that many salient issues concerning health and illness are those previously described by social cognition theorists. Notions of rationality, control, cost and benefit, habit and attitudes appear to remain important notions concerning health and illness.

Table 6.3: Emerging categories in focus group data: Definitions of health and illness

| * changeability          |
| * subjectivity           |
| * positive state of action |
| * asset                  |
| * secondary gain         |
| * vanity                 |
| * beauty                 |
| * strength               |
| * personal control       |
| * external control       |
| * dominance              |
| * habit                  |
| * dependency             |
| * restriction            |
| * weakness               |
| * manipulation           |
| * loss                   |
| * political              |

Emerging issues which derived from spontaneous discussions rather than from direct and focused attempts to define health and illness are tabled below. Table 6.4 comprises general themes, whereas Table 6.5 and 6.6 consist of issues with an affective focus. From Table 6.4 it can be seen that response categories cover a wide range of issues including knowledge, finance, social and lifestyle factors, and irrationality.
From Tables 6.5, and 6.6 it is apparent that affective issues are prominent in relation to illness topics. Themes of fear and anxiety appeared to focus on both the personal (the body) and on relationships. It is interesting to note that embarrassment was an issue in both categories.

**Table 6.5: Emerging themes in focus group data: Emotion-centred/body focus**

- * fear of death,
- * fear of treatment
- * fear of pain
- * suffering
- * embarrassment

**Table 6.6: Emerging themes in focus group data: Emotion-centred/relationship focus**

- * fear of isolation
- * abandonment
- * rejection
- * dependency
- * fear of loneliness
- * being pitied
- * being un-loved
- * fear of being let down
- * embarrassment
Moderators' Subjective Report

As is also apparent from the tables above, there were two distinct strands of issues which dominated the discussions about health. These issues were concerned with control over health, and fear of illness and its consequences. Whilst one strand (focusing on health) had a rational-cognitive expression, the other (focusing on disease), had a negative-affective expression.

Overall, group participants were much concerned with health as a socially constructed, modern, phenomenon. They were particularly concerned, however, with the mis-use of the concept by politicians, health care providers, and entrepreneurs. Participants were deeply suspicious of the motives underlying attempts at "health promotion" by these parties and expressed disapproval of their "self-serving" motives ("health a commodity to be marketed"; "government profits from tobacco revenue").

Cynicism derived from an awareness of growing, seemingly unsolvable problems within health and social services, to provide a public service which is geared toward the protection of health ("lack of real preventive services in medicine"; "the problem of elderly care in the light of a growing geriatric population"). Government departments, it was held, are "beating around the bush", they are "avoiding the real issues" which were expressed as "a cost-effective patient is a dead patient". The overwhelming impression here was that people remained unconvinced of the Department of Health's attempts at and motives for health promotion. In the face of long waiting-lists for treatment, suggesting massive under funding of the health service, low priority for prevention was suspected.

Issues of control

A discussion concerning the practice of euthanasia emerged in this context and issues of "control over your own life" as contrasted with "government control over our lives" were discussed. It was held that if governments want to improve ("have control over") our health, they must be seen to "get their house in order first of all". This process could begin, by "stopping the promotion of un-healthy behaviours" in our society over which the individual has little or no control" (e.g. pollution, smoking, pesticides, food additives, etc).
The reporting of health recommendations

The "self-serving" style of the media when reporting health matters was addressed with similar cynicism. Health news was described as sensational and confusing. In particular "the ever changing", often contradictory reports of "what is good or bad for us". Reports on risk factors and health recommendations ("what we should or should not eat in order to stay healthy") were often met with disbelief. Whilst all discussion groups touched upon these issues to a greater or lesser extent, middle aged professionals took the most extreme stance in expressing doubt, disbelief and disapproval.

Rationalisation of health behaviour

The impression was that people met attempts at health promotion by health care professionals with scepticism and disbelief. Such perceived "expert created chaos and obvious uncertainty" was used by them to justify their own negative health habits ("if you smoke you die, if you don't smoke, you die too"; "you might as well live it up"; "who wants to grow old, be a burden to everybody"; "as a society we can not afford to be healthy"; "I want to go with a bang and not linger with Alzheimer's"). This type of rationalisation was prevalent in all groups. Such rationalising was perceived in others (e.g. peers), or expressed by those who aimed to justify their own "bad" health habits (e.g. smoking, drinking, diet, lack of exercise).

Taking good health for granted

Young people particularly admitted to "taking good health for granted", conceiving of health problems as something associated with older age groups. Health behaviours which were carried out by this age group were often carried out for non-health reasons such as vanity ("looking good"), peer pressure ("my friends go to the Gym") and family pressure ("my mother is keen on healthy eating"). A related issue here is fatalism. The idea that one must "not look for trouble", "what will be will be".

Fear and dread of illness

A further issue which emerged frequently and predominantly in all discussions was that of fear or dread of serious disease, specifically fear of cancer. It was pointed out that "fear of cancer is only one aspect of fear that exists in society today". That "fear is a widespread syndrome of our time". Fear arousing issues concerning health screening
could be categorised as having either a body-focus or a relationship-focus. Accordingly, fears relating to treatment ("hair loss") and medical procedures ("pain, mutilation"), outcomes of treatment ("it did not work"), implications for significant others ("what will happen to my children"), efficacy of coping with negative outcome ("that I will go to pieces") and finance matters were expressed ("who will pay the bills").

The general impression was that people's perception of society was negative - that all was not well with society. For example, being afraid, being worried, being stressed were seen as part of "the fabric of modern life", and that it had become the norm to have to conquer these fears and worries to survive. Such rationalisation, as well as denial and fatalism may therefore be seen as adaptive coping strategies adopted by the individual of a "fearful" society.

Discussion

The objective of the focus group study was to determine through discussion, the way people perceive health and illness matters. The aim was to gain an overall picture of the subject domain of health and illness by exploring people's thinking and feeling.

Health an ambiguous concept

The most prominent issue which emerged from focus group discussions has confirmed what has been shown in health behaviour research generally. That is, that health is an ambiguous concept which varies in subjective meaning. The important role of subjective interpretation of health and health enhancing behaviour can be noted along the health-disease continuum. The research discussed in chapter two supports this proposition. Here, it has been shown that many of the health behaviours people do carry out have not been consistently demonstrated as being beneficial. Yet, these behaviours are carried out because people appear to have idiosyncratic criteria about their protective effects (Harris and Guten, 1979). Further support for the heterogeneous nature of the health concept derives from findings showing that health behaviours do not correlate with one another (Harris and Guten, 1979). That is, people who carry out one type of health behaviour (e.g. exercise) do not necessarily carry out another type (e.g. regular preventive screening). In this context, it is clear that the conceptual differentiation between health enhancing and illness preventing practices, suggested elsewhere, must be taken note of.
Health a multifaceted concept
A prominent finding has been that health was strongly thought of as a multi-faceted entity. It was perceived as a subjective state of wellbeing (taken for granted), as a modern commodity to be marketed (as in health and beauty) and as an entity to be manipulated (media reports). The most outstanding issue here concerned the notion of control. Firstly, government health promotion was perceived as a form of social control. Secondly, there was a general perception of lack of personal control (concerning environmental and situational aspects of health). Perceptions of personal lack of control complemented the largely negative attitude and low motivation as regards to preventive action.

In the light of these negative perceptions it is easy to see why people find it difficult to adhere to health recommendations and why such perceptions may undermine what might be important health messages based on medical research. To the extent that individuals' representations of health and illness are influenced by society, its institutions, and a mediadominated way of life, it is perhaps not surprising that many people today lack the motivation to comply with health recommendations. The implications are that effective health promotion requires a concerted effort by society and its institutions to create the conditions under which individual self protection might flourish.

Health is taken for granted
It is interesting to note that the themes delineated from focus groups support the notion of health and illness as separate entities rather than one continuous dimension.

Findings of the present study show that health and illness were referred to differentially. Health was discussed in terms of the rational-objective, whilst illness was discussed using affective expressions. Moreover, it appeared that group participants could also be differentiated in terms of those discussing health matters with a rational-external focus (policy, effectiveness, use, mis-use) and those discussing disease matters with an affective-internal focus (fear, threat, dread, risk). Whether these effects are within or between subjects effects is a matter of empirical concern and a testable hypothesis. A negative attitude toward illness is perhaps not surprising considering the good-bad dichotomy inherent in the health concept. However, what is surprising is the relative absence of a
positive emotional orientation towards health. On the other hand, if health is taken for
granted, it is not surprising that the disease dimension has greater saliency and conjures
up significantly more negative associations. This would explain the much greater
prevalence of negative affective expressions derived from focus group discussions.

**SCMs and affective components**

To the extent that fear issues have been salient in discussions about health and illness
prevention, it is proper to suppose that such affective components ought to take a more
prominent place in SC theorising. Especially as many of the "traditional" SC components,
despite their modest predictive power, appear to have been confirmed by focus group
discussions. For example, beliefs about seriousness and severity ("cancer can kill"); cost-
benefits of action ("for the sake of the children"); outcome expectancies ("for my peace
of mind"); significant others' wishes ("my mother wants me to"); attitudes ("smear tests
are not hundred percent effective"); cues to action ("especially if there is something on TV
about cancer"); awareness ("I have heard of testicular self screening"); knowledge ("I
know I should screen because"); behavioural control/self efficacy ("I always have the best
of intentions"). These SCMs components have all been the subject of discussion in focus
groups. These findings provide confirmation that social cognitive components are still
relevant in theories of prevention.

However, present findings also suggest that emotional components are important in the
health/illness domain.

The findings, thus, provide support to those who argue that affective components ought
to be given their "proper" place in the scheme of things as they are characterised by their
relative absence in SC theorising. Present findings suggest that affective components
ought to be given a higher profile in SC theorising so that better predictions and
explanations might be achieved in cancer prevention. The present findings show clearly
that affect, as a multi-faceted concept, is in need of careful investigation.

**Reasons for further qualitative research**

Although issues of fear were salient to the discussion, the limitations of focus groups in
exploring these at greater depth were apparent. Despite frequent prompting, people
appeared unwilling to discuss such personal matters as fear of disease and worry about
prevention in the presence of others. It was decided, therefore, to seek elaboration of these emotional issues, by conducting individual in-depth interviews and by open-ended questions. By-passing the public nature of focus groups and opting for the anonymity of the interview and the relative privacy of open ended questions was hoped to create the conditions for honest, unbiased disclosure. In this way, it was thought possible to gain valuable knowledge and understanding of the meaning of fear in relation to cancer screening. Moreover it was hoped to learn about people's idiosyncratic interpretations of such a fear arousing event as cancer screening. In addition, open-ended questions were expected to provide a more comprehensive outline of the parameters of the cancer screening domain.

STUDY 2
ASSESSING FACETS OF PREVENTIVE CANCER SCREENING:
AN OPEN-ENDED QUESTIONNAIRE STUDY

Introduction
The present study was designed as an extension of the previous focus group investigation into health and illness to the more specific domain of cancer prevention. The aim was firstly to determine the parameters of the subject domain, that is, to determine the topics which should be included in further quantitative survey research. Secondly, the study aimed to establish the most salient issues of decision making to warrant further in-depth investigation.

The open-ended question format was chosen to allow respondents to report, in their own words and at their own pace, the issues they knew to be important and pertinent. The assumption was that an open-ended questionnaire format would reveal the most salient issues concerning decision making about cancer screening. It was thought that issues of greatest concern to people would be reported because they reside at the forefront of their memory. Moreover, the open ended format of the study was favoured because response bias is minimised in that subjects are able to respond without social pressure. Questionnaire items were restricted to one issue only, namely decision making in cancer prevention. This format was expected to encourage optimal responding.
Method

Subjects
A convenience sample of eighty subjects from diverse backgrounds were asked to complete the questionnaire. The employment status of respondents included university student, line manager, secretary, receptionist, project manager, social worker, counsellor, GP, dentist, care assistant, housewife, gardener, porter, fireman. Forty completed copies were returned. There were 15 male and 25 female respondents whose ages ranged from 15 to 55 years with a mean age of 32 years.

Procedure

The Questionnaire. A two item questionnaire was designed to obtain subjects' opinion about the factors that might influence peoples' decision making about preventive cancer screening. The questionnaire comprised of two open-ended questions. Question 1. What might be the factors (reasons) which make people want to take up preventive cancer screening? Question 2. What might be the factors (reasons) which prevent people from taking up preventive cancer screening?

Subjects were approached in their place of work (the voluntary sector, social service department, the community) and asked to distribute the questionnaires amongst their friends, family and colleagues. They were informed about the purpose of the study. A collection box was placed at reception to collect completed copies of the questionnaire.

Data Analysis. Thematic Content Analysis was carried out by sorting the responses (units of meaning: Tables 6.7 and 6.9) into independent categories of issues (refer to Table 6.8 and 6.10). A judge was employed to verify the categories by repeating the procedure. No quantification of responses was carried out.

Results
Scoring reliability was high but there was disagreement about the inclusion into categories of three response items; perverseness, protective of health and confirmation about good health. These items were re-judged and then categorised independently.

Tables 6.7 and 6.9 below depict facilitators and barriers to cancer screening as typical
response units of meaning. Tables 6.8 and 6.10 depict the discrete categories of responses as confirmed by judges.

Facilitators to uptake

Table 6.7 depicts the facilitators of cancer screening. These include knowledge about access, procedure, opportunity and risk factors. A degree of planning and preparation were also seen as facilitating screening action. Moreover, the wishes and needs of significant others were considered motivating factors. A positive attitude to health generally and health promotion specifically were named as important facilitators to action. Where cancer screening was seen as part of general health care with a focus on the confirmation of good health rather than the detection of illness, preventive action was seen as being facilitated. Screening for the purpose of early detection and diagnoses was perceived as an important tool for planning and preparation of health care. It was perceived as a tool for remaining in control of health, for being re-assured and for peace of mind. Personal experience with the disease, e.g. a significant other is affected or concern for significant others' wishes, have also been reported as facilitators to action.

Table 6.7: Typical response units of meaning concerning reasons which encourage screening up-take

* afraid of cancer
* protection of health
* personal experience with an illness
* awareness, information, publicity
* availability, easy access
* risk factor knowledge
* risky behaviours
* family responsibility
* GP suggestion, health promotion
* part of routine health care
* need for re-assurance
* peace of mind
* confirmation of good health
* knowledge of the importance of early diagnoses
* knowledge of the seriousness of the problem
* wanting to plan ahead
* to be prepared
* to learn about the screening procedure
* in preparation for the real thing
Table 6.8 below depicts the scoring categories of facilitating issues as they have been verified by a judge. It is clear from the table that many of the traditional social cognitions associated with preventive screening continue to be the subject of people's concern in this area.

**Table 6.8: Categories of issues concerning the reasons for taking up preventive screening**

- * fear of cancer (affect)
- * protection of health
- * personal experience
- * knowledge, awareness
- * access
- * significant others
- * health promotion
- * beliefs about seriousness
- * planning
- * benefits
- * perceptions of susceptibility
- * positive attitude

**Barriers to uptake**

From Table 6.9 it can be seen that, embarrassment was named as an important affective barrier to cancer screening. No reasons were given as to the cause of such embarrassment. On the other hand, reasons for a negative attitude to screening were detailed, reporting distrust of expert evidence regarding the effectiveness of screening. Moreover, lack of knowledge and information were also seen as a barrier. Likewise, difficulty of access to screening facilities, family responsibilities and costs along with perceptions of being susceptible to developing the disease. Awareness of risky lifestyle habits was also seen as a hindrance to screening. Further barriers named in the study include denial, fatalism, and optimistic bias. A rare but interesting response was that of perverseness and obstinacy.
Table 6.9: Typical response units of meaning concerning reasons which prevent screening up-take

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>fear, worry, dread, scared, deep-rooted fear</td>
</tr>
<tr>
<td>fear of dying</td>
</tr>
<tr>
<td>fear of treatment</td>
</tr>
<tr>
<td>fear of the truth</td>
</tr>
<tr>
<td>fear of false positives</td>
</tr>
<tr>
<td>fear of obtaining positive results</td>
</tr>
<tr>
<td>fear of seeing GP</td>
</tr>
<tr>
<td>denial</td>
</tr>
<tr>
<td>family responsibilities</td>
</tr>
<tr>
<td>doubt about accuracy of medical research</td>
</tr>
<tr>
<td>unrealistic optimism</td>
</tr>
<tr>
<td>embarrassment</td>
</tr>
<tr>
<td>dreading screening procedure</td>
</tr>
<tr>
<td>not making the time</td>
</tr>
<tr>
<td>barrier to ask GP</td>
</tr>
<tr>
<td>family history of cancer</td>
</tr>
<tr>
<td>being a high risk candidate</td>
</tr>
<tr>
<td>perverseness, obstinacy</td>
</tr>
<tr>
<td>not being &quot;ready to go&quot;</td>
</tr>
<tr>
<td>lack of knowledge of signs and symptoms</td>
</tr>
<tr>
<td>lack of trust in test results</td>
</tr>
<tr>
<td>lack of knowledge of availability</td>
</tr>
<tr>
<td>not knowing about procedure</td>
</tr>
<tr>
<td>lack of confidence</td>
</tr>
</tbody>
</table>

Table 6.10 depicts the coding categories of barriers to screening as verified by the judge. It is clear from the table that some of the categories can be mapped neatly against traditional social cognition components. Notably negative attitudes, perceptions of susceptibility, self efficacy and control components and the costs of screening.
Table 6.10: Categories of issues concerning reasons against the uptake of screening

<table>
<thead>
<tr>
<th>* fear of cancer (affect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>* denial</td>
</tr>
<tr>
<td>* family responsibility</td>
</tr>
<tr>
<td>* costs</td>
</tr>
<tr>
<td>* lack of knowledge</td>
</tr>
<tr>
<td>* embarrassment</td>
</tr>
<tr>
<td>* barriers</td>
</tr>
<tr>
<td>* risk factors</td>
</tr>
<tr>
<td>* self efficacy/control</td>
</tr>
<tr>
<td>* perception of susceptibility</td>
</tr>
<tr>
<td>* negative attitude</td>
</tr>
</tbody>
</table>

Summary of Results

From Table 6.9 it can be seen that a disproportionate number of questionnaire responses are concerned with fear (being afraid, being scared, being worried) and lack of knowledge (procedural, signs, symptoms). Little detailed information was provided by subjects about the nature and causes of their fears. Notably, the affective facets of cancer prevention (e.g. deep rooted fear of cancer, fear of dying, fear of treatment) have been named as both facilitators to action as well as barriers to screening.

Discussion

The purpose of this study was to determine the reasons for and against the uptake of cancer screening. The aim was to incorporate findings from this study into a quantitative survey questionnaire to establish the factors associated with decision making in cancer screening. The wider aim was to see whether traditional components of SCMs are still relevant. In fact, confirmation of the appropriateness of social cognitive factors through qualitative methods was a pre-requisite for testing the assumptions of these models in subsequent survey enquiry.

Social cognitions and decision making

The above findings provide clear confirmation of the importance of social cognitions in decision making about cancer prevention. Health beliefs, attitudes to screening and social influences, perception of risk, significant others influence, cues to action, unrealistic optimism, knowledge and awareness factors were all named as important barriers and/or
facilitators to action. In addition, these findings act as a validity check on the focus group results.

An interesting finding was that subjects reported positive attitudes to health and health promotion to be facilitators of action. This appears to complement findings from focus group discussions which suggest that where health is taken for granted, perceived as a marketable commodity and perceived to be undermined by government action, barriers to screening are an inevitable consequence. These findings endorse the TRA in regard to its prediction that attitudes to screening are important determinants of intention and preventive behaviour.

Affective components of decision making
A further aim of this study was to determine possible novel components which might increase the predictive and explanatory power of SCMs. In this study, as well as in focus group discussions, affective components stood out clearly in importance and beckon to be included into theorising about preventive action. These emotional factors under consideration include fear, dread, perverseness, and embarrassment. However, in this study many of the affective responses give no indication as to their cause or personal meaning. For this reason it was decided to further explore these emotional facets of decision making of cancer prevention in in-depth interviews.

Positive health cognitions: an artifact
It is interesting to note that the survey appears to have been more successful in considering health facets as opposed to illness facets. This is despite the fact that the questionnaire focused on preventive cancer screening and not on health. This is contrary to findings from focus groups where disease was the main focus of discussion despite health being the topic under consideration. The survey reported the reasons which might encourage screening uptake as follows: wanting to protect health, wanting confirmation of good health, receiving health promotion, enhanced knowledge of health matters, making screening a part of routine health care, a positive attitude to health and health promotion. As can be seen, positive health was given a much higher profile in questionnaire responses. Whatever the underlying reasons for the discrepancies revealed
by the different methods, the relative dominance of affective responses in this study is also evident.

The next section will report on a study using the in-depth interview method to explore idiosyncratic meanings of cancer prevention with particular emphasis on emotional aspects of decision making.

STUDY 3
ASSESSING AFFECTIVE FACETS OF CANCER PREVENTION: EXPLORING THE PERSONAL CONSTRUCT SYSTEM

Introduction

The aim of the present study was to elicit the idiographic ways in which people view decision making about cancer screening. Through the in-depth interview, it was hoped to explore the thoughts and feelings associated with cancer prevention. The interview technique employed in this study was based on Personal Construct Theory (PCT, Kelly, 1955). A fundamental postulate of PCT is "that a person's processes are psychologically channelized by the way in which he anticipates events"

Kelly describes hierarchically organised structures of layers of emotional and cognitive elements, which make up a person's construct system. Moreover, he conceptualises the construct system as being composed of a finite number of dichotomous constructs to be explored in therapy.

Kelly (1955) specifies a number of methods by which the constructs can be accessed. One such method is the in-depth interview. By employing specific interview techniques named "Laddering and Pyramiding" the interviewer (therapist) is able to elicit increasingly superordinate or subordinate constructs of higher or lower order of abstraction (Landfield, 1971). These techniques have been successfully employed in therapy and in research to explore a person's own view of the world. According to Barrineau and Bozarth (1989) "the difference between therapy and heuristic research of the Person Centred Model is a moot one. The model, for therapy, promotes the actualising tendency. The model for
research, promotes the same process, that includes for the participants, clarity of discourse" (p 469).

The authors make the distinction between therapy and research simply in terms of therapeutic and research intention. Throughout, the therapist facilitates the actualising process while the researcher collects data as the self-searching process unfolds. The discovery process draws upon the tacit knowledge and intuition of both the interviewee as well as the interviewer (Moustakas, 1981).

The aim of this study is to use the in-depth interview by employing pyramiding and laddering techniques to explore further some of the issues which emerged in focus group discussions. In particular, to elucidate what it is about cancer screening that is most fear arousing and embarrassing, and to explore the meaning of these emotions.

**Method**

**Subjects**
Seven subjects were asked to participate in taped interviews concerned with preventive cancer screening. Three male and 4 female subjects were interviewed. The age of interviewees ranged from 16 to 55 years. There were students with a median age of 28 years, school children, a professional man, and a middle aged women. The interviews took place at a comprehensive school, in the work place, at home. At their own request, two interviewees (girls) were interviewed at the same time.

**Preparation**
An interview guide was produced beforehand, based on findings from focus groups and open ended questions. Prompts to ensure the elaboration of issues such as fear, worry, dread, embarrassment, denial, stigma, risk, perverseness and fatalism were prepared. Questioning techniques were based on PCT. The line of questioning was largely determined by the responses of the interviewee. As the interview proceeded, the interviewee was prompted to elaborate, according to the interviewing principles of laddering and pyramiding. The interviewer/researcher (author) was an experienced counsellor with one year training in the techniques.
Procedure

Interviews were conducted in schools, people's homes and in their place of work. Each interview was taped and lasted between 20 to 40 minutes. The interview began as follows:

"I am conducting a study into health behaviours. I am very interested to learn what you personally think and feel about preventive cancer screening. To begin with, I am interested in why you (or anyone) might want to take up preventive screening, or as the case may be, disregard the offer to take up preventive screening". This first part of the interview was intended as "a warm-up" to relax people and lay the condition for deeper probing of the construct system.

The issues of special interest (e.g. embarrassment) were prompted as follows: "In previous group discussions people have mentioned embarrassment as a reason for resisting preventive cancer screening. Can you think of reasons why embarrassment might influence the uptake of preventive screening? I am now particularly interested in the way you personally feel about this issue". In accordance with PCT interview technique, the interviewee would then be asked to elaborate their response by expressing the meaning of the opposite pole of the adjective used earlier e.g. what does it mean to you not to be embarrassed. The purpose is to elaborate the construct system and to leave nothing ambiguous or open to interpretation. However, this is not the only method being usefully employed during the interview. Methods may be derived from other types of cognitive counselling. The choice was a matter of theoretical consistency. After the interview, notes of impressions were taken.

Analysis of data

Simple thematic content analysis was again carried out. Each person's interview was examined for themes and trends. The first part of the interview (intended as a warm-up) was omitted from the analysis because no new information had been forthcoming. Instead, special attention was paid to the six themes derived from earlier studies (e.g. fear and embarrassment). Each prompted issue was then examined for evidence of further elaboration of meaning and novel affective expressions. The units of meaning were noted down, scored and then compared and contrasted with those from focus groups and survey studies.
Results
High scoring agreement was achieved, confirming the categories as novel and affective. Table 6.11 below shows the elaborations or themes which resulted from the 7 prompted interviews.

In general, interviews were characterised by a difficulty in getting interviewees to talk freely about their emotions (despite much prompting). Although an attempt was made to cover all selected issues, this was not always possible for reasons of time constraints. However, fear and embarrassment were addressed in all seven interviews. Some interviewees did not respond to the prompts, however, reporting that the issue was not relevant to them.

From Table 6.11 it can be seen that the meaning of fear and embarrassment was thoroughly elaborated by interviewees and a wide range of personal constructs were exposed. This was particularly true for anticipatory events. As for other prompted issues, particularly vanity and stigma, they were less readily addressed and more often dismissed as irrelevant. Perverseness and obstinacy, for example, whilst causing much reflection, prompted interviewees to 'guess' about the behaviour of others rather then to draw on their own experience.

Table 6.11: Categories of constructs by focus group theme/prompt

<table>
<thead>
<tr>
<th>Theme/Prompt 1: Fear</th>
</tr>
</thead>
<tbody>
<tr>
<td>anticipated coping, death, decay, terminal, disease, disablement, dependency, loss, pain, physical reaction, dread, coping, isolation, disintegration, chaos, crisis, existential angst, reflection, re-evaluation, regret, distraction, unloved, unvalued, burden, suffering, terror, anxiety, contemplation, vulnerable, fear of not coping, pre-occupation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme/Prompt 2: Embarrassment</th>
</tr>
</thead>
<tbody>
<tr>
<td>anticipation of future embarrassment, privacy, shame, dread, exposure, vulnerability, pride, lack of confidence, vanity, self image/concept, determination, reason, contemplation, alternatives, wishful thinking, awareness, emotional, indignation, resignation, unpleasant, sensitivity, exposure, need, burden, intrusion.</td>
</tr>
</tbody>
</table>
Table 6.11 (contd)

<table>
<thead>
<tr>
<th>Theme/Prompt 3: Vanity</th>
</tr>
</thead>
<tbody>
<tr>
<td>body image, self image, self esteem, self confidence, pride.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme/Prompt 4: Stigma</th>
</tr>
</thead>
<tbody>
<tr>
<td>isolation, self esteem, dirty, leper.</td>
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</table>

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<thead>
<tr>
<th>Theme/Prompt 5: Perverseness</th>
</tr>
</thead>
<tbody>
<tr>
<td>obstinacy, knowing, self-reflection, awareness, suspending action, deliberate, reckless, bloody minded.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme/Prompt 6: Fatalism</th>
</tr>
</thead>
<tbody>
<tr>
<td>luck, scary, helplessness, denial, fear.</td>
</tr>
</tbody>
</table>

Discussion

Interviewer's report

The in-depth interview was employed to further examine people's emotional concerns regarding cancer screening. Another reason for applying the more sensitive interview technique was to examine whether emotions matter in cancer prevention. This is because of criticism often levelled at the cognitive behavioural perspective which draws attention to the fact that affective facets of prevention have been relatively neglected in SC theories of prevention.

Below is a discussion of the most prominent issues and constructs relating to embarrassment and fear. The original (abridged) interviewee expressions are placed in brackets and marked by quotation marks.

Anticipated embarrassment

Embarrassment was anticipated and reported in relation to both cervical and testicular screening. Adolescent school children anticipated feelings of "shame" and "embarrassment" about exposing their "private parts" to a doctor. They reported feeling...
vulnerable and "uncomfortable". Others perceived this type of screening procedure as a necessary intrusion ("I suppose one has to go") which caused nevertheless resentment and strong emotions ("I would hate it").

**Embarrassment as a relationship issue**
Both young girls and boys felt that they would rather not go to their "own" family doctor for screening. The personalised aspect of the doctor-patient relationship would "definitely" prevent them from going for a smear ("My GP has known me since I was small, I'd rather die!"; "no way"). Embarrassment would even be a factor when making an appointment for a smear test, as "the receptionist would also know". The situation was felt as embarrassing on three accounts: firstly, "people would know" that they had or were having sexual intercourse. Secondly, they felt "shy" about their nakedness in particular where the doctor was male. However, embarrassment would still be a factor in the presence of a female doctor. Boys too felt strongly about screening performed by the family doctor and preferred a non-personal consultation by a male doctor elsewhere.

**Embarrassment and self confidence, self esteem**
A third factor was that they (girls) felt unconfident about their bodies. This was expressed as "I am too fat". They preferred a place such as a "Well Woman Clinic" where they could be anonymous ("it's not so bad to show your bits to a stranger"). This was also expressed by males in relation to GP testicular cancer checks ("a man has got his pride").

**Embarrassment and stigma**
Embarrassment was also a factor in the perception of the disease itself. Here self esteem and self concept consideration were apparent. Cervical cancer implied multiple partners, promiscuity ("people will think you have been sleeping around"). The thought of living with the stigma should there be a problem with an abnormal smear, was perceived as a definite barrier to action. For males, a special "Walk-In" clinic for "Male Health" ("like the VD clinics") was seen as one way of eliminating the embarrassment factor and avoid the stigma associated with STD clinics. This was also seen as encouraging male preventive health care generally.
Fear and anxiety

Fear was one of the most diverse emotions described in the interview. Many different types of fear were reported. They ranged from being afraid of dying, to the fear of not being able to cope with the possible psychological consequences of having cancer ("I would be afraid of going to pieces"; "I do not think that I would be able to cope with cancer"). Most importantly, interviewees reported that the thought of cancer induced a sensation of dread ("it scares me silly") and an impulse to stop thinking about it ("It's too gloomy"; "I must do something about it, but not now"). Others reported a past pre-occupation with disease. In particular when external reminders "jog one's memory" (e.g. "you read in a magazine about cancer"; "someone you know has got cancer or died of it"). Fear of finding a problem (e.g. lump), in particular when self screening was expressed by both male and female interviewees. This was perceived as a barrier to screening by some ("I always ask myself when in the shower about to examine my breasts: is it a good time, could I cope with finding a lump. There never seems to be a good time"). As one male student put it: "If you self screen regularly, you will probably find something at some point - too much tension about that situation - if it happens, things can be done"). Interviewees talked about a deep rooted fear, a feeling of dread, an anxiety which arrives almost spontaneously when contemplating self screening for cancer ("there is instant terror - you stop to think"). Followed by the response of ("I don't want to know"; "I arrive at doing it sometimes but mostly I need to psych myself up - It takes a while - Once I have done it, it feels great"). Where the interview achieved to elucidate the meaning of fear, death was at the forefront of people's accounts ("the end of everything"). A most frightening aspect of death was not so much the fact of death but "the way you die - before you die you suffer pain, disablement, you might become a burden, the people you love might cut you off, they may feel that one can catch cancer and turn their back on you"; "it doesn't bare thinking about".

Perverseness and fatalism

It was in the context of being prompted on the "perverseness" issue that people reported a "pervers" awareness of the need for screening ("you know you ought to, it frightens you, but you just don't care") accompanied by some anxiety and a stubborn "obstinacy" to avoid action.
The probing of reports of fatalism revealed that people were not very motivated to explore the issue further. It was made quite clear that there was no more to be revealed. Responses included ('when you have got to go, you have got to go: ' there is nothing anyone can do')

**Vanity and stigma**

Most interviewees denied that vanity played a role in decision making concerning cancer screening when prompted. However, for the school girls interviewed, vanity was closely tied up with body and self image and embarrassment ("I am too fat, it would be embarrassing"). They anticipated that their self confidence would not "stand" such an intrusion ("I would rather die").

As with vanity, interviewees found it difficult to see stigma as having an effect on their decision making as regards to cancer screening ("I suppose one would feel a bit like a leper").

**Main finding of the interview**

The main finding of this study was that affective reactions (e.g. anticipatory coping) appear to play an important part in decision making about cancer screening. In-depth interviews revealed people's tendency to anticipate problems should they be affected by serious disease. This appears to be a cause of anxiety and worry ("If I had cancer, I don't think I would cope"). Moreover, in-depth exploration also revealed anticipatory embarrassment in the face of preventive screening (cervical, testicular, prostrate cancer), particularly in relation to professional screening ("the thought of being touched by another man"). The interview revealed these factors to be barriers to screening.

Anticipated coping with cancer is concerned with the imagery and cognitive elaboration, should cancer develop in the future (e.g. "If I had cancer, I don't think that I could cope!"). The concept contrasts with that of self-efficacy of coping with the screening procedure (i.e. an individual's perception of his/her own ability to carry out an action). Self-efficacy has been shown to be an important predictor of preventive behaviour (Bandura, 1977). The assessment of cognition such as anticipated coping in the form of thought listing has been carried out by Kendall et al (1979) and Genest et al (1977).
Research into anticipated coping

Recently, there have been a number of studies into coping which have included variables which are anticipatory in nature, involving imagery and cognitive elaboration. Anticipatory regret (Mitchell, 1996), and anticipatory grief (Gilhooly, 1994) have been investigated in relation to coping in care-giving. Moreover, research in the area of preparation for surgical intervention suggests that patients' prior cognitions and feelings are linked to their experience of surgery (Chaves and Brown, 1978; Genestet et al, 1977). It has been thought that, to the extent to which people anticipate negative feelings before undertaking an action, they will be more cautious (Janis and Man, 1977). In a recent study anticipated affective reactions have been investigated in relation to the prevention of Aids (Richard et al, 1995). The authors showed that anticipated affective reaction such as worry and regret predicted behavioural expectations over and above the components of the theory of reasoned action.

Further evidence of the possible relevance of anticipatory coping in cancer prevention comes from research in the area of therapy. Anticipatory coping plays a significant role in cognitive therapy (Beck, 1967, 1976) and has been associated with the reduction of anxiety in patient populations. Moreover, Cognitive Elaboration, as a related psychological phenomenon is widely researched in particular in relation to memory (Paivio, 1969; Neisser, 1982). If anticipatory coping with cancer as a form of cognitive elaboration of an emotion focused variable could be established as a predictor of preventive action then appropriate intervention in the form of cognitive re-structuring could be designed and incorporated into health promotion programmes to encourage the use of more appropriate and helpful (cognitive) coping strategies. This would lend support to those health educators who have long called for health promotion to go beyond the mere dissemination of information and knowledge and focus on the empowerment of message recipients (through the provision of coping strategies) to counteract the barriers of preventive action.

The present study has discovered a number of affective components, novel types of variables, including anticipated coping with cancer and anticipated embarrassment. These novel components were included in subsequent survey research to be assessed for their predictive power. Anticipated coping with cancer was operationalised as a multiple item
predictor of TSE. This was because the variable appeared to incorporate a strong affective component of cancer prevention. As social cognition models of prevention have traditionally focused on the rational nature of decision-making, at the expense of affective components, anticipated coping and embarrassment as emotion-focused predictors attempted to redress the balance.

**Triangulation**

Following Denzin's (1978) classic distinction, triangulation was carried out to compare three qualitative methods of investigation. The aim was to triangulate the data sources which have different strengths so that they can compliment each other. The idea is to note any contradictions and inconsistencies and to double-check the findings. Triangulation is helpful in reducing what Mark and Shotland (1987) call "inappropriate certainty". It may lead to corroboration or what Green et al (1989) see as something like a confidence interval.

Section 1-14 comprises SCM components
Section 15-24 comprises novel components
Section 25-28 comprises components derived from interviews.

NB. Traditional SCM components, depicted in Table 6.12, which derived from interviews, are restricted to those which emerged as a result of prompting. Data which derived from the 'warm-up' part of the interview have been excluded to avoid repetition.

From the table (section 1-14) it can be seen that SCM components have been confirmed by the three studies. However, novel components have also been determined (section 15-24). Most importantly perhaps is that four components have emerged from the in-depth interview as a result of prompting the emerged issues of fear and embarrassment (section 25-28).
Table 6.12: Triangulation of three qualitative methods

<table>
<thead>
<tr>
<th>SCM Components</th>
<th>Focus Groups</th>
<th>Open-ended Questions</th>
<th>In-Depth Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. susceptibility</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>2. severity</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>3. benefits/attit</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>4. barriers</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>5. cues</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>6. signif. others</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>7. norms</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>8. control</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>9. self efficacy</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>10. cancer knowledge</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>11. reprod. knowledge</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>12. bias</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>13. info seeking</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>14. anticipated regret</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<tr>
<td>15. cognitive elaboration</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>16. planning</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>17. experience</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>18. behaviour/ habit</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>19. vanity</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>20. fatalism</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<tr>
<td>21. perverseness</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>22. stigma</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>23. fear of TC</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>24. embarrassment</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>25. anticipated coping</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>26. self esteem</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>27. preoccupation</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>28. self concept</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

General Discussion

Three qualitative studies were carried out to gain an overall picture of what concerns people have about health and disease, how they interpret their actions and what meanings they assign to their feelings, motives and behaviours. The overall aim was to use the findings of this investigation as a basis for further quantitative investigation and the development of a health promotion programme.
Focus groups were conducted to assess the representations of health and illness. Open-ended questions were used to determine the parameters of the cancer screening domain. Finally, in-depth interviews were carried out to explore the personal construct system in relation to cancer screening and gain a deeper understanding of affective components associated with cancer protective action.

**Contributions and limitations of qualitative methods**

Each qualitative method used in this investigation contributed to the understanding of health and disease prevention, bringing with it its own strength and weakness. The scope of the qualitative investigation was determined, in part, by the limitations of each method used. For example, focus groups were limited in providing a more in-depth understanding of affective issues, neither were they adequate in fully outlining the parameters of the subject domain under investigation. Several shortcomings were apparent.

Firstly, it appeared that the public nature of the focus group method was not optimal for the disclosure of personal, intimate, potentially threatening material. This may have resulted in the relative absence of personal, affective expressions from the discussion. Secondly, group dynamics may have lead to the apparent polarisation of issues. This may have lead some issues rather than others to become salient and take on an unrealistic (exaggerated) importance. Thirdly, the "public nature" of the method may have facilitated the elaboration of topical issues because participants felt "safe" to discuss topics which are impersonal and public, rather than personal and private. It appeared that participants were lead by the topicality of the issue and much influenced by the current political climate. They seemed to "take flight" behind such topicality instead of reflecting on the more personal aspects of the issue. In this way, the focal discussion of "prevention in the context of health service reform" may have further detracted from the exploration of affective, personal concerns.

The decision to continue the qualitative search for meaning and insight through employing open-ended questionnaires and in-depth interviews, was based on two considerations. First, affective components had been relatively neglected and required a more in-depth approach, and second, the emphasis on disease matters rather than health warranted the more direct inquiry into cancer screening.
The open-ended survey and in-depth interview lead to further elaboration of the representation of health screening, both in breadth and in depth. The survey revealed a comprehensive picture of current perceptions of the cancer screening domain also confirming the findings from focus groups. In addition, it demonstrated people's considerable emotional concerns. The prevalence of the emotional responses and the relative lack of depth provided evidence for the need for further in-depth exploration of affective issues.

The interview proved to be a valuable tool for researching affect despite the need for much prompting. It was clear that most interviewees found it difficult to express their feelings, perceptions and opinions. The difficulty appeared to be associated with having to make explicit that which had not yet been sufficiently processed. That is to say, interviewees had not thought about many of the issues under consideration. This was particularly striking in school children.

The present qualitative investigations into health and illness prevention were not aimed at interpretation nor the construction of theories of prevention. The naturalistic approach to data analysis used in this investigation was to ensure that data remained as close as possible to their original form. In this way, it was thought to differentiate the concept of cancer prevention in order to inform the measurement construction for subsequent survey research. The aim was to use the findings of this investigation to formulate workable hypotheses for further quantitative investigation and for the development of a health promotion programme.

**Application of findings to survey**

The results of the present investigation demonstrate the importance of qualitative methods to the investigation into health behaviour and health promotion. The three studies have lead to an ever increasing depth of knowledge and understanding of the issues involved in disease prevention. Findings will be used as a basis for further quantitative investigation. Overall, the multi-method qualitative investigation has shown that social cognitions play an important role in people's decision making about cancer screening. In this way the investigation has confirmed the continued validity of components put forward by SCMs. Beliefs about cancer, attitudes to screening, the influence of significant others, perceptions
of normative behaviour and perceptions of own abilities to act have all been reported to be important barriers and/or facilitators to preventive action.

A most important finding has been that affective components such as fear of cancer, anxiety about cancer screening and embarrassment have emerged as prominent themes throughout this investigation. More specifically such findings as anticipatory coping and anticipatory embarrassment were found to be important. Such emotion-focused variables have been de-emphasised in SCMs. Particular attention will therefore be paid to the operationalisation of affective components including the anticipation of coping with cancer, fear of cancer and embarrassment in subsequent survey research.

It has been argued that much of coping with stressful events (including decision making about cancer screening) is anticipatory in nature. In fact, it is in accordance with Kelly's fundamental postulate that people are motivated and directed by their anticipation of events. Kelly proposed that the basis of a person's anticipation of future events was the themes or regularities observed in the past. Examples of anticipatory coping responses include thoughts and feelings experienced by individuals prior to exposure to aversive and stressful events. It has been hypothesised that the nature of these feelings or thoughts (possibly as a response to a cue) are likely to be associated with a person's response to the prospect of cancer screening.

Embarrassment has been a second major factor of importance throughout the investigation. As an emotion-focused predictor of preventive action, embarrassment is hypothesised to be a major barrier to cancer screening, affecting both intention to screen and uptake of preventive screening.

Anticipation of events, including the anticipation of coping and embarrassment related to disease prevention are likely to involve imagery processes including the rehearsal of behaviour. It is important to acknowledge the theories which describe mental imagery as a form of implicit action rehearsal (e.g. Marks, 1995). In this regard, research involving introspective reports on imagery experience has shown that individual differences exist in the vividness by which different groups of people imagine events (Isaac and Marks, 1994). These findings support the theory that mental imagery plays a key role in the planning and
implementation of action. This is likely to be relevant to decision making in health promotion.

Application of findings to health promotion
Survey research has generally shown that knowledge about preventive screening is necessary but not sufficient for action. For this reason, effective health promotion in this area requires an in-depth understanding of why people feel embarrassed (i.e. what situational and/or personal facets are the cause of embarrassment). Only then will it be possible to develop ways in health education to deal with counter-productive emotions and cognitions and promote more positive attitudes to screening.

Qualitative findings suggest that health education in cancer prevention must go beyond the dissemination of information and knowledge, but must also concern itself with the psychological processes which undermine positive action. For this reason quantitative investigation must follow qualitative inquiry to establish generalisability, and the validity of psychological theories. There is a great need for plausible explanation in health promotion. In fact, the need for solid psychological underpinnings in health promotion has long been recognised (Hochbaum, 1992). Therefore, confirmation (through quantification) of the importance of psycho-social factors (derived from qualitative studies) will improve the status of SCMs and thus encourage the use of these theories in health promotion. Taking account of psychological factors will enable health promotion/education to deal pro-actively with both the emotional and cognitive barriers to screening.

The implications of the present investigations are that health education programmes must also involve the teaching of skills for effective coping with a threatening message. Programmes which also incorporate affective components will lead to the empowerment of individuals, and raise self esteem and self confidence. They are more likely to succeed in changing behaviour and inducing positive preventive action.

The findings of this study were used to inform a quantitative survey and to develop a health promotion programme to promote self screening in young men. Initially, they were used to develop an information intervention in the form of an information booklet. This will be reported on later in this thesis.
We will now turn to the next study of this investigation and report on the evaluation by school pupils of a video based health promotion programme.
CHAPTER 7
EVALUATION IN HEALTH PROMOTION:
A METHODOLOGICAL REVIEW

Introduction
The WHO describes health promotion as the process of promoting health, involving political change, as well as enabling people to take more control over their health and equipping them with the means for well-being. Approaches to health promotion therefore, include five main areas:

1) the medical approach which aims to identify those at risk from disease
2) the behaviour change approach which aims to encourage individuals to take responsibility for their own health and choose healthier living
3) the educational approach which aims to increase knowledge and skills about healthy lifestyles
4) the empowerment approach which emphasises work with clients or communities to meet their perceived needs
5) the social change approach which aims to address inequalities in health based on class, race, gender and geography.

A distinction is often made between health promotion and health education. Whilst health education is seen as an integral part of health promotion stressing individual responsibility, health promotion, on the other hand, takes a wider view of health, involving policy development and political advocacy. Both are different in aim but are part of the wider process of building healthy public policy and promoting the health of the nation.

The growth of health promotion as a discipline, has been accompanied by the discussion of the role of evaluation within the process. Thus, the WHO has expressed the need for evaluation, as an important part of health education practice (WHO, 1981). As a relatively new discipline, health promotion has been expected to prove itself according to accepted scientific criteria. Moreover, health promoters have had to demonstrate hard results in order to compete successfully for resources in today's political climate. This has meant that practitioners are required to build into their programmes the opportunities for evaluation.
Is health promotion effective?

With the arrival of AIDS in the 1980s, and subsequent high profile health promotion ventures, more than ever the question has been asked, is health promotion effective? Whilst this question is simple enough, the answer is inevitably more complex. This is not least because available criteria for success in health promotion appear to match the diversity of programme design.

Moreover, many examples of large and small scale intervention appear to support the supposition that all is not well in health promotion and that success is, at best, limited. For example, the AIDS campaigns of the 80's were deemed ineffective by many, as they failed to bring about the desired behaviour change in the heterosexual population (e.g. Jarlais and Friedman, 1988; Siegel and Gibson, 1988). A further illustration of failed health promotion effort are smoking prevention campaigns concerning teenagers, which appear to have only limited success in persuading teenagers to quit. In fact, there is evidence to show that in some age groups, e.g. girls, an increase in smoking has occurred, despite much health promotion input and persistent high profile media attention (Foulds, 1995).

In contrast, however, there are successful health promotion projects such as the North Karelia Heart Disease Prevention Project (1985). Whilst not without its critics, this large scale project has been successful in reducing mortality rates. However, success or failure are difficult to judge, particularly where large scale interventions are concerned, as long term follow-ups are not always practical or cost effective.

However, much health promotion is carried out on a smaller scale and at local level. This includes primary prevention, work site health promotion, secondary prevention and health education, all having different criteria for success. Despite this difficulty, however, attempts have been made to determine the effectiveness of health promotion interventions more formally. To this end, a number of surveys have concluded that the majority of health promotion interventions are effective (Green and Lewis, 1986; Gatherer et al, 1979). For example, Gatherer et al (1979) have found that 85% of 62 studies reported improved knowledge levels, 65% of 39 studies reported changed attitudes in the desired direction, and 75% of 123 studies reported behaviour change.
Evaluating the effectiveness of a health promotion intervention, therefore, requires a judgement to be made about what criteria to use as a measure of success. There is a need to be clear about whether the aim of the intervention is to be: change of knowledge, change of attitude or change in behaviour. Moreover, the different approaches to health promotion and its multi-disciplinary nature all place different emphasis on what is a successful outcome. Although any type of health promotion intervention, will have some degree of success, there is in general no information about the effectiveness of different methods and strategies. Moreover, where objectives are set, they are often arbitrary (Naidoo, 1996). Subsequently, the setting of required targets is equally difficult. The "Health of the Nation Targets" have been criticised precisely for this reason. They are accused of failing to take account of local variation when setting targets for achieving objectives, so that for some areas, targets are too modest and for others they are too ambitious and very unlikely to be met (Mihill, 1992).

**Why do we need to evaluate?**

Health promotion is a humanitarian endeavour but contrary to common belief, as a service it does not save money. Thus, the dictum "prevention is better than cure" supports the humanitarian argument for health promotion and not the economic one. For example, a person who gives up smoking improves his/her health but subsequently lives longer, uses up a pension and requires much medical care in old age. It follows then that health promotion needs to be evaluated in order to be cost effective and competitive.

Moreover, evaluation in health promotion contributes to the building up of a knowledge base. Furthermore, evaluating activities helps to inform future planning (preventing re-invention of the wheel) by informing other health promoters of different methods and strategies. Evaluation, therefore, contributes to the accountability and development of health promotion practice and, thus, it is an important aspect of the health promoter's work. As evaluation is an activity which also consumes resources, decisions must be made carefully as to whether, when and how to evaluate. Moreover, these questions should be considered at the outset of any planned health promotion intervention. Therefore, although for practical reasons, it is not always possible to carry out an evaluation (e.g. fieldwork limitations), wherever possible, evaluation should be carried out.
Definition of evaluation

Health promotion comprises different types of activities and events, at different periods of time. A distinction is, thus, usually made between process, impact and outcome evaluation.

Process evaluation is concerned with the process of programme implementation. It addresses people's perceptions or reactions to the health promotion programme and also identifies the factors which support or impede its aims and activities. Process evaluations employ a wide range of qualitative methods including interviews, diaries, observation and content analysis of documents. These methods reveal a particular programme's success or failure, however, no generalisations can be made from this type of data.

Such qualitative evaluations are crucial for health promotion. This is because it is not enough to demonstrate behaviour or health status change, after all they are constantly changing independently, without the intervention of health promoters. It is also necessary to understand how health promotion interventions are interpreted and responded to by different groups of people.

Outcome evaluation, in contrast, is usually concerned with identifying a particular effect. Thus impact and outcome effects tend to be differentiated. Impact refers to immediate effect and outcome refers to the more long-term effect of a programme. Impact evaluation can be built into the programme at the end stage whilst outcome evaluation, is usually aimed at determining a more long-term behaviour change. Amongst the outcome evaluations the preferred method is the use of control group designs to avoid the danger of attributing all behaviour change to the health promotion intervention and therefore of over-estimating its influence. Outcome evaluation is the preferred method because it measures sustained changes over time. Both impact and outcome evaluations are measured numerically and this increases credibility, because "hard data" are seen as more factual than "soft data" used in process evaluation.

Another way of categorising different types of evaluation is in terms of the objectives set. These tend to include changes in knowledge, attitude, and behaviour, as well as change in the environment. They may be measured by policy analysis, mass media analysis,
alteration of legislation and direct measures of the physical environment. Changes in health status provide another set of objectives and can include service uptake, risk factors and morbidity and mortality rates.

Problems with evaluation
A number of difficulties are typically encountered in health promotion evaluation, of both a theoretical and practical nature. In theoretical terms, because of the multifaceted nature of the health concept, there is no consensus as to how best to measure health. Thus, for those who subscribe to the medical model, measures such as morbidity and mortality data are available. For those who adopt a more holistic model of health, socio demographic data are available. Whilst the educational model requires measures of attitude change and empowerment. It is here that psycho-social models have a role to play in the evaluation process, moreover to look at change in attitudes and beliefs.

The issues raised here are whether health should be perceived as having more than just biological elements, whether health involves individual or community responsibility, whether health is seen in terms of medicalisation or "the living of life". The decision as to what needs to be measured in order to assess the effectiveness of a given intervention, therefore, is determined as much by the particular philosophy or theory of health promotion adhered to, as by the specific context of programme implementation, or the particular definition of health used. Although it is a golden rule in health promotion to measure the objectives set in the planning of the programme, in practice this proves difficult, especially where research is not theory guided.

Validity of interventions in health promotion
The question of validity (of how confident one can be that the observed changes are, in fact, changes which occurred as a result of the intervention) is paramount. In the light of the fact that knowledge, attitudes and behaviour in health are constantly changing, regardless of health promotion input, controls need to be implemented to ensure a degree of scientific rigour. Quasi experimental designs are one way to ensure the validity of health promotion programmes in terms of behaviour change with greater certainty.
It is also possible to use qualitative methods of evaluation, to gain a more detailed picture of how the programme has affected people. These are used in small scale studies and are descriptive rather than explanatory and predictive, and the findings can not be generalised. The strength of such methodology lies in the fact that there is a high degree of confidence that identified effects are real and result from the programme. Both control intervention evaluations, as well as qualitative studies are valid methods which can be used to isolate the effects of health promotion interventions.

**Timing of the evaluation**

The timing is a particularly important feature of a health promotion evaluation. An immediate evaluation may only identify part of the effect of an intervention and a long term assessment of the changes may be necessary. Green (1977) identified five time effects which contribute to the problem of short-term versus long-term evaluation. These include:

1) delay of impact where the effects of a programme may not be immediate
2) decay of impact where observed post changes are not sustained over time
3) borrowing from the future where the programme may speed up changes which would have happened anyway
4) adjusting for secular trends, were an observed trend must be taken into account, and
5) backlash effect were an effect may occur when the programme finishes due to certain expectations which have not been met.

Whilst there is no solution to these problems, the evaluator must be aware of the importance of timing in evaluation.

**The role of psychology in health promotion evaluation**

The difficulties surrounding evaluation in health promotion highlights the need to utilise theoretical models to guide not only the development of interventions, but also the evaluation of such programmes. Setting objectives for programme evaluation entirely without the use of theory not only makes it difficult to determine which outcomes to measure but importantly it provides little information about why and how a given programme has an effect. Despite the insistence of social scientists that their theories have much to offer health promotion, very little psychological theory is being used in health
promotion programme design. Thus, where practitioners have used theory, they tend to be applied partially and opportunistically.

Although psychological perspectives have been built into current models of health promotion planning, they appear rarely to be used. Such rational planning models set objectives to be reached, specific goals to be achieved. These models also include evaluation as an important means of measuring whether these goals have been achieved. For example, PRECEDE is one model which is more geared toward behaviour change. Others are more specifically adopted for educational interventions (Tones, 1974) or health authority/service planning (Berry, 1986). However, in practice, these models are little used to guide interventions. In this regard, according to Hochbaum (1992), health promotion in general tends to be based on common sense grounds with a minimum of psychological theory. Here, Hochbaum gives three essential reasons for "why practitioners hardly ever use theories in their work" including:

1) a perception of impracticality
2) a holding of unrealistic expectations, and
3) a lack of training in theory use.

Further confirmation of this apparent reality of health promotion practice is provided by Naidoo and Wills (1996) who conclude,

"In reality, planning health promotion is a more complex process than the planning models suggest. This is because rational decision making is only one factor in determining what actually happens. Many other factors are also important including historical precedent, enthusiasm of key people, and the political context. So it is unlikely that any health promotion intervention proceeds exactly along the lines indicated by a planning model, but that does not mean models are not useful. Models help structure activities and can act as a checklist to ensure important stages are not missed out. They are there to be modified in the light of experience, not to act as straight jackets" (p. 235).

Theory-lead programme evaluations

Intuitively, successful health promotion design must depend, to a large extent, on the knowledge base of theories of behaviour change. It is in this area that psycho-social theories, particularly SCMs, have an extensive knowledge base to be tapped (Hochbaum,
1992). The TRA has been successfully applied by Bruebaker (1992) to guide both programme intervention, as well as evaluation to prevent TC. In this post intervention control study, the TRA was shown to be a valuable framework for examining interventions aimed at modifying health behaviours. However, whilst most interventions are bound to have some degree of success, without any baseline and normative information, the effectiveness of any programme intervention can not be properly assessed. Similarly, without any theory to guide the intervention, evaluation will not permit inferences to be made concerning the reasons why people do not take up recommended action. The consequences are that valuable information will be lost to programme designers (Hochbaum et al, 1992).

The next section will report on an evaluation study carried out as a first step of an investigation into the promotion of testicular self screening.

**STUDY 4**

**AN EVALUATION OF A HEALTH PROMOTION PROGRAMME TO PROMOTE TESTICULAR SELF SCREENING IN YOUNG MEN**

**Introduction**

Health promotion efforts in cancer prevention aim to convey the message that "prevention is better than cure". In particular, they stress the importance of early detection of cancer in order to prevent the spread of the disease to distant organs. In addition, health promotion packages aim to impart information about risk factors, as well as of medical and procedural aspects of preventive screening.

Although the practice of regular TSE has been recommended to men (American Cancer Society, 1989), national screening programmes to prevent TC do not exist in Britain. However, there are some health promotion programmes available to men. They consist mainly of information leaflets in doctors' surgeries and presentations given by nurses, sometimes supported by videos as well as health promotion leaflets. However, little information is available about the effectiveness of such programmes, nor the wider impact they may have on school children.
Evaluation of health education interventions such as TC prevention, usually involves control group designs and behavioural outcome measures. However, the limitations of such quantitative methods in health education have been noted (Basch and Gold, 1986). Whilst it is clearly important to measure the amount of behaviour change in health education, other more qualitative outcomes are also important. The advantages of such qualitative enquiry in naturalistic settings, have been widely recognised (Barnett et al, 1993) and the appraisal of the constituent parts of a programme is seen as vital (Sheiham, 1978). Such naturalistic evaluation in the classroom for example, could answer effectively which variables should be measured and how and what procedures are responsible for the results of the intervention (Broughton, 1991).

To the extent that message recipients act in the desired way, a given programme might be deemed effective. However, if the intervention is to realise the wider aim of health promotion, process evaluation must also be carried out and measures of acceptability included.

However, such evaluations have rarely been carried out. It is clearly important therefore, to determine the acceptability and appropriateness of a package to its audience, especially where sensitive issues are concerned. Health education research has largely ignored such a "user perspective". Indeed, there are no studies to date which have evaluated health education programmes concerning TSE in term of acceptability and appropriateness. The assumption here is that where such user perspective is considered, valuable insights will be gained about such facets as message delivery, the teaching environment, the health educator, and the student.

Thus, the primary aim of the study in question was to determine how acceptable school children have found a video-based health promotion programme. This study had a qualitative focus and the information was used to develop a psychologically based new programme to promote TSE in school children. A further aim was to establish whether TSE really is a sensitive issue in health education. This was to be achieved by determining the existence of response bias. Findings of this study were used to underpin the development of an empirically sound survey measure to assess people's beliefs, attitudes, perceptions and intentions regarding TC prevention.
Subjects
Sixty school boys aged 15 to 18 years participated in a school based evaluation of a health promotion video. Their social class background, based on the occupation of a parent, was predominantly working class. The boys were mainly English and of traditional Christian background. Subjects were drawn from the fifth and sixth form of a comprehensive school in Surrey. All boys were requested to participate as part of their normal health education tuition. Parental consent was obtained beforehand.

Table 7.1: Demographics of sample

<table>
<thead>
<tr>
<th>Boys</th>
<th>N = 60</th>
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<tbody>
<tr>
<td>Age Range</td>
<td>5 - 18 years</td>
</tr>
<tr>
<td>Median</td>
<td>16 years</td>
</tr>
<tr>
<td>Country of origin</td>
<td>England</td>
</tr>
<tr>
<td>Social Class of parent</td>
<td>Manual</td>
</tr>
<tr>
<td></td>
<td>45 %</td>
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<tr>
<td></td>
<td>Skilled</td>
</tr>
<tr>
<td></td>
<td>40 %</td>
</tr>
<tr>
<td></td>
<td>Professional</td>
</tr>
<tr>
<td></td>
<td>15 %</td>
</tr>
</tbody>
</table>

Procedure
The study was carried out in the context of a one hour health education class. Pupils attended their usual health education sessions, typically held in their classroom or in the TV lounge of the school. A video recorder was set up in the classroom beforehand. The researcher was introduced to the students by the health education co-ordinator. The aim of the session was explained to the pupils who were fully informed of the purpose of the study. In all, 5 sessions consisting of small groups of approximately 10 boys were conducted. A 10 minute health education video concerning TSE was then shown with and without the presence of their tutor. Prior to the video showing, a questionnaire measuring knowledge, awareness, intention and TSE practice was completed by pupils. After the video, intention to screen was assessed by head counts. This was followed by the completion of an evaluation questionnaire, also measuring intention, and a short discussion of the video content. After the video viewing the children were given an answer sheet (knowledge quiz) and a cancer prevention information leaflet. Six weeks
later a follow-up measure, presented and collected by their class teacher, was completed by a subgroup of 18 boys.

The video
The health promotion video was obtained from the local health education service. The ten minute video was developed by the Yorkshire Urological Cancer Research Group. It was factual, with a bio-medical emphasis, and was characterised by its explicit nature including a graphic demonstration of an ultrasound investigation and a testicular self screening procedure.

Measures
Measures of knowledge, intention, planning and practice were taken prior to the video intervention and at 6 weeks follow-up. A post intervention measure of intention was taken using a categorical questionnaire format (yes/no), immediately after the intervention and at six weeks follow-up. Immediately after the video, head counts were carried out of those who intended to screen. This was followed by an 8-item open-ended video evaluation questionnaire measuring likes and dislikes, emotional reaction, personal preferences and perceived benefits. Finally, class discussions and observations were recorded.

Table 7.2 depicts the sequence of measures presented at three time periods.
Table 7.2: Time sequence of measures

<table>
<thead>
<tr>
<th>Time 1 (pre-video)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>* Knowledge of reproductive biology (diagram 8.4)</td>
<td></td>
</tr>
<tr>
<td>* Knowledge of TC and TSE (multiple choice 8.6)</td>
<td></td>
</tr>
<tr>
<td>* Awareness of TC and TSE (5-point Likert scale 8.2)</td>
<td></td>
</tr>
<tr>
<td>* Practice of TSE (categorical scale, yes/no 8.13)</td>
<td></td>
</tr>
<tr>
<td>* Intention to self screen (yes/no, don't know 8.13)</td>
<td></td>
</tr>
<tr>
<td>* Planning self screening action (open-ended 8.11)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 2 (post-video)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>* Video Evaluation (open-ended questions 7.1)</td>
<td></td>
</tr>
<tr>
<td>* Intention to self screen (yes/no, don't know 7.1)</td>
<td></td>
</tr>
<tr>
<td>* Intention to screen (head counts)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 3 (6 week follow-up)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>* Knowledge of reproductive biology (diagram 8.4)</td>
<td></td>
</tr>
<tr>
<td>* Knowledge of TC and TSE (multiple choice 8.6)</td>
<td></td>
</tr>
<tr>
<td>* Awareness of TC and TSE (5-point Likert scale 7.2)</td>
<td></td>
</tr>
<tr>
<td>* Practice of TSE (categorical scale, yes/no 7.2)</td>
<td></td>
</tr>
<tr>
<td>* Intention to self screen (yes/no, don't know 7.2)</td>
<td></td>
</tr>
<tr>
<td>* Planning self screening action (open-ended 8.11)</td>
<td></td>
</tr>
</tbody>
</table>

Appendices indicated in brackets.

Analysis of data

Univariate analysis, testing the difference between pre-post intervention means (t-test), were carried out on the data. Simple content analyses were conducted on responses from questionnaires and field work observations. Responses were ordered and units of meaning were categorised according to issues. An independent judge was employed to verify the response categories.

Results

Analysis of change

A t-test comparison of means was performed on measures of knowledge and awareness. Table 7.3 below shows the pre and post intervention comparisons of mean (and standard deviations) of knowledge and awareness. Table 7.4 shows the frequencies for planning, intention and practice of TSE. From Tables 7.3 and 7.4 it can be seen that all measures,
including knowledge, awareness, planning, intention to screen and self screening practice, have increased at 6 weeks follow-up.

Prior to the video intervention, knowledge of cancer and reproductive biology were very low. Despite the significant increase in cancer knowledge of an average of 7.4 questions correctly answered out of 16, knowledge remained relatively low after the intervention. Moreover, there was a significant difference in mean between pre and post video awareness of testicular cancer and TSE. Awareness had increased on all 7 items measured.

**Table 7.3: Comparison of means for variables measured pre-video and at 6 weeks follow-up**

<table>
<thead>
<tr>
<th>Variables</th>
<th>pre-video mean (sd) N = 60</th>
<th>6 weeks mean (sd) N = 34</th>
<th>max poss score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of Biology</td>
<td>0.2 (0.4)</td>
<td>5.6 (3.0) **</td>
<td>16</td>
</tr>
<tr>
<td>Knowledge of TC, TSE</td>
<td>1.8 (1.6)</td>
<td>9.2 (3.7) **</td>
<td>16</td>
</tr>
<tr>
<td>Awareness of TC, TSE</td>
<td>2.0 (1.8)</td>
<td>3.0 (2.4) *</td>
<td>7</td>
</tr>
</tbody>
</table>

* < 0.01  
** < 0.001

Furthermore, Table 7.4 shows that before the intervention, few of the boys (10%) reported some planning ideas. Immediately after the video an increase to 33% was observed.

An interesting finding was that before the video intervention only 13% of boys reported intention to screen, and there was no change in intention, as determined by head counts, immediately after the intervention, however, a marginal increase of intention to 20% was observed in questionnaire responses, with 70% non-intention and 10% missing data. In contrast, at 6 week follow-up, 67% of the boys expressed intention to screen. It is an interesting finding, then, that intention to screen immediately after the video remained low, yet 6 weeks later nearly 70% of pupils responded positively to intention.
As for TSE practice, only 6% of the sample practised TSE before the intervention. This increased to 61% after the video. Thus, despite the considerable increase, nearly 40% of pupils reported non-practice.

Table 7.4: Percentages of Pre and Post Intervention for planning, intention and practice of TSE

<table>
<thead>
<tr>
<th>Variables</th>
<th>pre-video</th>
<th>6-weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoughts about Planning</td>
<td>10% yes</td>
<td>33% yes</td>
</tr>
<tr>
<td>Intention to screen</td>
<td>13% yes</td>
<td>67% yes</td>
</tr>
<tr>
<td>Practise of TSE</td>
<td>6% yes</td>
<td>61% yes</td>
</tr>
</tbody>
</table>

Qualitative evaluation

Simple content analysis revealed categories of issues from responses to 8 open-ended questions as well as from class discussions. The tables below depict a summary of these categories of findings. Typical examples of responses and their description are depicted in appendix 7.3.

Table 7.5: Summary of findings of issues derived from post video class discussions.

<table>
<thead>
<tr>
<th>Negative Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>* disgust, graphic TSE procedure</td>
</tr>
<tr>
<td>* disgust, graphic ultrasound</td>
</tr>
<tr>
<td>* embarrassment</td>
</tr>
<tr>
<td>* fear/anxiety</td>
</tr>
<tr>
<td>* non-intention to screen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>* information gained re. TSE</td>
</tr>
<tr>
<td>* skill learned TSE</td>
</tr>
<tr>
<td>* awareness re. TC</td>
</tr>
<tr>
<td>* reassurance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reported Preferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>* private access to information</td>
</tr>
<tr>
<td>* computer packages</td>
</tr>
<tr>
<td>* literature</td>
</tr>
<tr>
<td>* videos</td>
</tr>
<tr>
<td>* use of humour</td>
</tr>
</tbody>
</table>
### Table 7.5 (contd)

<table>
<thead>
<tr>
<th>Class Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>* refusal to watch</td>
</tr>
<tr>
<td>* body language</td>
</tr>
<tr>
<td>* expressive language</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>* confirmation of embarrassment</td>
</tr>
<tr>
<td>* cause of embarrassment</td>
</tr>
<tr>
<td>* reasons for non-intention</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>* unsympathetic</td>
</tr>
<tr>
<td>* surprised</td>
</tr>
</tbody>
</table>

### Discussion of Findings

It was the aim of this study to determine how acceptable school boys found the video-based health promotion programme. A further aim was to observe whether increases in intention, practice, awareness and knowledge of TC and TSE could be observed at six weeks after the intervention.

**Embarrassment: A barrier to screening**

Although the intervention appears to have had a positive effect on self screening practice of the majority, a considerable proportion of boys were non-practising at follow-up (almost 40%). This was matched by negative attitudes to screening and to the programme (38%). Furthermore, boys deemed the video programme as utterly unacceptable.

How can such a high degree of negativity and non-practice be explained, despite the considerable health education input? It is the open-ended questions which have provided a number of reasons for non practice (refer to appendix). The primary reasons given were embarrassment ("a bloke's got his pride"), fear and denial (e.g. "don't care"; "don't want to know"). Moreover, a large proportion of questionnaire responses had sexual connotations, suggesting anxiety about the involvement of sexual body parts ("the man touching the other bloke's testicles"). There was much worry, even fear response ("it is very scary"). As cancer remains largely undiscussed in society at large, school children
may harbour unexpressed anxieties about the disease (Bendelow, 1996). Such an "emotional double bind" in cancer prevention may be detrimental for adolescents who struggle to come to terms with sexuality and the prospect of adulthood.

**Long-term versus short-term action**

Whilst a significant increase in practice was observed 6 weeks after the intervention, it cannot be assumed on the basis of these data, that this pattern of behaviour will be sustained in the long term. Moreover, longitudinal studies have not been carried out to demonstrate regularity of uptake of TSE over time. In support of this contention is the finding that a threatening message tends to bring about short-term rather than long term behaviour change (Leventhal, 1967). The implications are that health behaviours which require regular long-term execution and commitment, as is preventive screening, may not be sustained over time. It is the experience of fear and embarrassment caused by the message, which might prevent such long term behaviour change. Furthermore, there is evidence to suggest (refer to chapter 11) that subjects react to the initial exposure to a message concerning the practice of TSE (e.g. the questionnaire) with swift action.

In addition, post intervention discussion with boys revealed embarrassment associated with other areas of cancer prevention. For example, embarrassment might prevent pupils from seeking further information, from seeking and engaging social support, from making appointments with the GP, or from seeking medical advice. Embarrassment has been shown as an important factor in testicular cancer prevention (Neef et al, 1991), particularly as a factor in delaying diagnoses. There is evidence to suggest that men delay consultation with the GP by an average of three months after an abnormality has been detected by them (Yorkshire Urological Cancer Research Group, 1991).

**Effects of negative emotions on knowledge and awareness**

Although knowledge and awareness in this study increased significantly, knowledge was still unexpectedly low after the intervention. It could thus be argued that non-practice of TSE might result from impaired knowledge acquisition. In this regard, there are several ways in which emotional factors may have an impact on knowledge and information. Firstly, anxiety, fear and embarrassment, resulting from first-time exposure to the issue, may affect knowledge and awareness by interfering with information processing. It is also
conceivable that vital information necessary for practice is missed. Furthermore, through
distraction from information relevant to decision making, such emotional factors may
influence motivational processes. Moreover, emotional stress and embarrassment,
resulting from the explicit nature of the video may have adversely affected the acquisition
of knowledge. Indeed, there is much evidence to suggest that anxiety impairs learning
(e.g. Lay, 1983).

Effects of negative emotions on decision-making
A further reason for non-uptake is suggested by strong emotional reactions concerning
the graphic demonstration of the TSE procedure. Disapproval of the programme and its
content, was expressed in terms of disgust by the boys ("the video is disgusting"). The
assumption here is that adolescents who are trying to come to terms with their growing
sexuality, may simply require a more "measured" approach to self care of their intimate
sexual body parts. The boys were clearly offended by the explicit nature of the video and
may simply have reacted against the "insensitive" nature of such an intervention. Thus
their dismissal of the health message may simply have been a by-product of objections to
an offensive health education programme.

Moreover, it could be argued that the high attrition rates observed are evidence of such
a "reactionary" response. A substantial number of children failed to complete the
questionnaire, in part or completely. Whilst organisational limitations at school clearly
influenced rates of questionnaire completion at follow-up (only 36% completion rate) the
high overall attrition rate may be seen, at least in part, as a refusal by pupils to respond to
the questionnaire. Between 6% and 16% of boys refused to complete the evaluation
questionnaire.

Sensitive issues and response bias
A further reason for the high level of non-practice may be that TSE, as a sensitive issue,
may incur reporting bias. The study has demonstrated some evidence of response bias as
regards to the reporting of intention. Moreover, much confusion is associated with
sexuality in adolescents and many factors may operate as barriers to successful health
promotion and research in this sensitive area. Furthermore, matters of sexuality can be
a great source of taboo at all ages, but especially at the time of adolescence when attitudes
to sexuality are still developing. As regards to cancer prevention concerning reproductive "sexual" body parts, it is conceivable that pre-conceptions of what is acceptable sexual behaviour and cultural taboos about sexuality, prevent people from answering honestly. The implications are, therefore, that the issues surrounding embarrassment need to be given special consideration in health education research and practice.

**Effects of embarrassment on intention**

Embarrassment in the presence of others, may explain the high levels of non-intention observed immediately after the intervention. Moreover, head counts showed the boys to be rather more non-committal about performing TSE in the future. Here, it is interesting to note, that this apparently negative response to self screening, was not reflected in the high levels of screening up-take and future intention observed at follow-up. It is also noteworthy that the practice of TSE, in the face of embarrassment, has been reported in other studies (Neef et al, 1991). Present findings therefore demonstrate the existence of response bias and thus confirm TSE as a sensitive issue in health education and research. Findings show logically inconsistent answers to the measurements of acceptability, intention and behavioural practice. For example, boys expressed simultaneously low post-video intention to screen (suggesting a negative attitude to TSE) and high levels of satisfaction with having learned about TSE (being able to "save themselves").

Furthermore, these findings contrast markedly with reports of high levels of behavioural practice and behavioural intention at six week follow-up. It is notable that long term evaluations such as these are open to criticism on the grounds of lacking a control condition. In such a situation, observed changes of behaviour can be attributed to factors other than the intervention. However, it is also significant that post-video intention was measured in two ways, by head counts and by closed questions at 6 week follow-up. Thus, the resulting diversity of responses between the two measures (although small), draws attention to the need to choose appropriate methods of assessment to control response bias. However, the findings demonstrated illogical, inconsistent attitude-intention responses and provide clear confirmation of response bias, and thus confirms that TSE is a sensitive issue in health education. Pupils were motivated to withhold information and/or give untruthful answers when asked about their intention to screen in class.
The need for private access to information?

An important finding was that boys wished to be given the opportunity to access such sensitive information in private, so as to avoid embarrassment in front of others. Boys also suggested how information could best be obtained privately. Preferred options included interactive computing, CD Rom and literature. Videos were dismissed as learning tools only in conjunction with interactive classroom sessions. Further suggestions concerned themselves with the reduction of embarrassment in the face of sensitive issues. Here, a more humorous approach was favoured, such as cartoons, comic strips and computer animation. Edelmann (1987) describes the use of humour as a face saving device in embarrassing situations. Another suggestion was the use of a celebrity in programme design. This was felt to be an important facet of a programme in order to convey "respectability".

The wish to be more private when learning important but sensitive information, is a direct result of the embarrassment felt. This might be expected particularly as the boys were forced to deal with a "private" issue in public. In this regard embarrassment has been described by Edelmann (1994a) as an expression of fear of public humiliation,

"Embarrassment results when an unwanted event causes one to present oneself in a way which fails to meet one's own standard for presentation". Thus, "any event that involves the transgression of an unwritten social rule (e.g. falling over in public, dressing inappropriately for social occasions, awkward interactions) result in the presentation of an undesired impression" (p. 124).

Implications for Health Education Practice

The findings of this study have direct application to several areas of health education practice. Particularly with regards to programme design and programme implementation in schools and with the emotional care of programme recipients. Most importantly perhaps, the findings have implications for the training of health education tutors.

Programme design and delivery

One of the important implications of the findings is that programmes ought to provide the means for dealing with embarrassment and strong emotional reactions. Boys' reactions
to the video suggests that such explicit information ought not to be given to children without due preparation and a facility for private access.

Such an individual approach to cancer prevention in this area might involve teaching resources such as CD ROM, literature, and a home video library. Despite the unacceptable nature of the video, a preference for video learning had been expressed in this study as elsewhere (e.g. Bendelow, 1996). Thus, a video designed more sensitively and accessed privately may well be successful. In this context it is perfectly feasible to install such facilities in schools. For example, by providing cubicles for "private study viewing" in libraries or home video facilities. Moreover, where tutors provide such private access to information, the familiarisation with the issue may help subsequent interactive sessions to be more effective. In addition health education material might be packaged with humour in mind. This might mean the inclusion into the programme of a face-saving device (e.g. the use of humour - a comic strip).

**Emotional care of programme recipients**

Furthermore, information ought to be presented in such a way that embarrassment and fear do not cause students to "switch off", particularly at an early stage, before there is sufficient awareness of an issue. An important consequence of such negative emotions is that they emanate stress which might in turn impair learning or lead to undesirable behaviour in class. Cancer in society is clouded in metaphor and associated with anxiety and fear. As Bendelow (1996) observed, where the disease remains undiscussed in society, children and adolescents may harbour unexpressed fears.

For most children health education at school will be the first ever opportunity to discuss the issues surrounding cancer and express their own feelings about it. This may be a decisive learning experience for the children's behaviour in later life. It is therefore of utmost importance that the health education tutor has the skills and self confidence needed to reassure, to put at ease and to persuade. This is particularly vital where the disease under consideration is sex-linked.
Skills of the health educator

This means that health education tutors need to be endowed with skills which enable pupils to be at ease with themselves in the face of a sensitive topic. Research into sex education suggests that teachers often feel out of their depth in the classroom when faced with sensitive issues. This may lead them to be perceived as unsympathetic. Such an impression would seriously impair pupil-teacher relations and may have detrimental effects on learning and behaviour.

As the health promotion needs of school children are of a psychological, cultural and educational nature, programme design for adolescents as we have seen, must incorporate the means for dealing with sensitive issues causing embarrassment. Considering the present findings, this means that health education in schools must promote the uptake of TSE must take account of all aspects of message delivery; in respect of the teacher, the pupil, the environment, and peers.

Implications for Research into TC Prevention

It is the presence of response bias in research which defines a sensitive research topic (Dalton et al, 1994). Likewise, the present study demonstrated response bias and thus confirmed TC prevention as a sensitive topic. Logically inconsistent and evasive answers were given concerning attitudes to self screening, intentions and behavioural practice. This represents a serious methodological issue for quantitative studies. As a result of such response bias, health education research in this area needs to adopt methodological safeguards to encourage truthful responses. Whilst there are many ways response bias can be reduced in research, to do so, in naturalistic settings such as a classroom, may be more difficult because of its public nature. This suggests that the classroom settings may be second best for some education and research purposes, where sensitivity is an issue. Indeed, present findings support this notion. The suggestion is that where embarrassment is eliminated, response bias will also be reduced. This puts the onus firmly on the researcher and his/her ability to reassure and motivate the subjects.

Findings suggest that the essentially more "private" questionnaire method may be more effective in obtaining valid data than naturalistic methods, such as observation, guided group discussion and head counts of intention. This may be because anonymity and
privacy can be assured using questionnaire methods. Findings further suggest that certain methods of direct questioning must be avoided, particularly direct head counts, which might put subjects on the spot and thus lead to untruthful answers.

It is clear from the above that good communication skills must not be underestimated here. This is because much will depend on the researcher's ability to reassure and motivate subjects to disclose private and potentially embarrassing information. The relative effectiveness of the open ended format used in this study, draws attention to a number of questionnaire facets which have been shown to be effective in reducing response bias, and might be useful for future research. In particular those relating to mode of administration (Makkai and MacAllister, 1992; Williams and Suen, 1994; Millstein, 1987) and questioning mode (Sudman and Bradburn, 1982; Bradburn et al, 1989; Lee, 1993).

A particularly important facet of the questionnaire might be an introductory section to the issue under investigation. It is here that subjects can be reassured of confidentiality and advised of the optional nature of the activity. In such a section the importance of the research in question can be stressed and embarrassment can be minimised by inclusion of reassuring remarks.

Another area shown to be effective in reducing response bias is the framing of questions (Sudman and Bradbury, 1982). For example, instead of a closed categorical question, one might create a longer embedded item to conceal its sensitive nature. Embedding a more sensitive item amidst more neutral ones may thus further reduce untruthful responding. Moreover, in order to avoid the potential threat that may result from directly addressing the respondents, it may be more effective to de-personalise items to encourage truthfulness. Likewise, the use of open-ended questions instead of closed ones, may limit under reporting because they allow elaboration and greater choice of response. Indeed, open ended questions have in practice been found superior to closed question (Sudman and Bradburn, 1982) and long questions have been found better than short questions. The use of familiar words (supplied by the respondent) rather than unfamiliar ones has also been shown as an effective way of increasing levels of reporting.
The discussion above suggests a number of safeguards which need to be implemented in future sensitive issues research, as well as in the area of TC prevention. This will ensure that findings accurately reflect reality and can be relied upon.

Limitations of the Study

The study was a preliminary investigation into health education practice, concerned with a sensitive issue. Data had a qualitative focus and only limited inferences can be drawn. However, as within-subject data, they provide a rich source of description which is hoped to stimulate further research. It might also be added that whilst head counts were useful in establishing the existence of response bias, they are clearly of questionable validity.

Conclusion

The present study suggests that cancer prevention programmes in schools provide a good opportunity for health educators to address sensitive issues of self care. This is because young people apparently want to know about cancer, they want to be informed and they appreciate having some control over their health. However, health educators must address the special needs of adolescents, and "package" sensitive information in a way acceptable to them. This means that health education promoting the practice of TSE needs to take account of all components of message delivery including the programme and its content, the teacher, the pupil and the learning environment.

Although the study is based on a small sample and needs replication, its findings act as a pointer to future research in this area of inquiry. The next chapter will report on the application of findings, from qualitative and evaluation studies to the development of a survey questionnaire for the investigation into testicular cancer prevention.
Overview of Chapter

The overall aim of this chapter is to report on the construction and administration of a measurement device for the assessment of antecedents of self screening practice. Components of three SCMs including HBM, TRA and PAT were operationalized to be compared and contrasted. The objective was to determine the best possible model to underpin the construction of a health promotion programme for men.

The first part of the chapter will discuss the concepts which were derived from previous qualitative and evaluation studies. These concepts, as well as the model components, namely social cognitions, knowledge, emotional cognitions and health behaviours are then operationalised to produce a measurement tool. The next part of this chapter will summarise the revision of the assessment devise which was administered to a number of pilot samples and amended according to preliminary analysis and feedback from subjects. Finally, the chapter will report on the administration of the newly revised questionnaire to a new sample and on the empirical evaluation of the measure. This is followed by the main study concerned with the cross-sectional prediction of intention and behaviour and a comparison of the models.

Incorporating Affect

Findings from qualitative studies suggest that "traditional" social cognitions are important in decision making concerning testicular cancer prevention. Beliefs regarding risk, cost and benefit analyses, attitudes to screening, importance of social norms and significant others, control and self efficacy, and optimistic bias, have all been reported as important facilitators or barriers to action.

However, the studies have also demonstrated a considerable presence of emotional factors in disease prevention. Although the relative under-representation of affective components
at the expense of cognitive/rational ones, has been generally recognised, such emotional components remain largely unreflected in formal explanations of preventive practice.

The evidence from present studies clearly suggests that these "emotional cognitions" require greater salience in current theories of prevention. These findings support the contention that health issues involving reproductive body parts may require special consideration in health promotion and research. Whilst cancer has been shown to be a sensitive issue generally, where the disease mode also involves the genitals, it may be rendered doubly sensitive. One of the important outcomes of the qualitative investigation therefore would seem to be the persistent operationalisation of affective components for subsequent quantification.

Social cognition theories view a person's preventive action in terms of a rational decision-making process, with relatively little explicit emotional involvement. For example, the TR/PB is based on the assumption that people make rational decisions based on the systematic use of information available to them (Ajzen and Fishbein, 1980). Evidence suggests (including evidence from the present qualitative inquiry) that this might apply more to some health behaviours than to others (e.g. condom use). Sensitive behaviours such as sexual practices and by association TSE, may be less directed by rationality and more by the need for short-term gains such as anxiety reduction. This would make social cognition models in this area of prevention less effective.

Affect on the other hand is conceptualised as part of cognitive expression and attitude. Affect is implicit in the conceptualisation of risk perception, a primary predictor. However, rational decision-making is the hallmark of SCMs with little explicit consideration of emotion. The question, therefore, was: can the embarrassment factor be accommodated by SCMs? As a cost to action, embarrassment clearly fits into the theoretical framework of the HBM. However, the HBM as a mere list of unrelated variables with its single, linear prediction rule will be unable to accommodate embarrassment in a meaningful way. Moreover, it has been shown that where the HBM has been applied to "sensitive" adolescent behaviours, including sexual practices related to HIV, threat denoting variables such as perceived severity and perceived susceptibility
of disease, have not been very successful in predicting preventive behaviours (Abraham et al, 1992, 1993).

In this respect, the TR/PB (Ajzen, 1985, 1991), with its more complex empirical and theoretical structure, might accommodate embarrassment. Indeed, it has certainly been more effective in explaining and describing adolescent sexual behaviour, using a self efficacy factor as a predicting variable. The TRA postulates that a person is motivated to perform a particular behaviour to the extent that he/she has a positive attitude toward the behaviour. In this regard, studies have shown that the TR/PB seems to be more predictive than the HBM of sensitive health behaviours such as adolescent (intended) condom use (Schaalma et al, 1993). However, TR/TB tends to predict intentions but the intention-behaviour relationship is inconsistent. It can not be assumed therefore, that behaviour necessarily follows from intention. Thus, to close the intention-behaviour gap, other mediating factors must be considered. This consideration makes the accommodation of embarrassment by TR/PB necessarily doubtful.

Embarrassment clearly intervenes between intention and behaviour in sensitive situations. For example, in the case of TSE, embarrassment may actually prevent boys from self screening, despite their best intentions. It may prevent them from seeking further information and may prevent the person from making an appointment for screening. It may indeed prevent the person from seeking medical advice and/or a check-up when an abnormality is detected. Moreover, embarrassment may impair information processing, that is, it may prevent a person from absorbing and understanding important information from a health education session. It may also prevent a person from seeking social support.

TR/PB postulates that behaviour needs to be volitional in order to be predictive. The video evaluation study suggests affect in the form of "disgust" to be an important factor in decision making concerning the uptake of TSE. It appears that such affective components cannot be accommodated by TR/PB as volition would seem to be compromised by strong adverse emotions.

It is the Stage Approach to decision making, proposed by Weinstein (1988) which appears to hold great promise in the accommodation of emotional factors. Weinstein postulates
different stages in the decision making process about precaution adaptation, with each stage being different from any other on a number of factors. People at different stages are thought to show different patterns of behaviour, e.g. they may differ in their interest in information, in their resistance to recommendations, in the way they feel about screening. The model suggests that variables important at any one point in time may not be important at another, i.e. factors that are important at one stage in determining intention, may not be the factors which lead to action. Clearly, a model which allows classification of people along a time scale, and does not apply single, but multiple prediction rules to behaviour, will have particular advantages. This must also be true where the targeting of particular subgroups is concerned, as in health education. Here, more tailor-made health promotion programmes may be designed to target special needs i.e. age, gender or cultural groups, to ensure that the embarrassment factor is effectively dealt with.

Moreover, expressions of anger (indicated by the declaration of disgust and also observed in class) are relevant here and should not be dismissed. A stage approach, it would seem, is able to accommodate both cognitive and emotional/non-volitional components of decision making. By allowing a more eclectic/hybrid approach to prevention, the problem of over-emphasising the cognitive over the affective would seem to be minimised. The introduction of "Emotional Cognitions", which tap very specific affect-laden, emotional expressive facets of the individual's construct system may be a valuable addition to traditional SC theorising. This new "cognition" would seem to fit into the cost-benefit framework of existing models.

It is one of the main objectives of this investigation to put greater emphasis on emotional facets of decision-making. For this reason the operationalisation of affect was of greatest importance in this research. The three models (HBM, TR/PB, PAT) were compared and contrasted to enable the selection of the most predictive model the explanation of self screening practice.

**Measurement of Constructs**

In order to measure the relevant SCM constructs a self report approach was adopted. The instrument reported here was developed through an iterative procedure. Moreover, construction of the instrument was carried out in accordance with the need for conceptual
clarity and differentiation. This means that multiple items were used wherever possible to differentiate between existing concepts to be measured and newly emerged ones. The objective was to apply the issues which emerged from qualitative studies to learn what questions should be asked in the final instrument. In developing the self-report questions of the instrument, great care was taken to stay as close as possible to the verbal expressions elicited in the qualitative studies reported earlier. Moreover, the principle of compatibility was applied wherever possible, to develop items as closely as possible to context, behaviour and time (Fishbein and Ajzen, 1975).

A variety of strategies for eliciting information were applied to the problem and the final result is a comprehensive and reliable measurement device. The bulk of the items in the instrument were in the form of statements to be evaluated on different 5-point rating scales of agreement, awareness, risk and likelihood. The 5-point format was adopted as it was felt important to include an option to allow expression of no strong opinion on the issues (Schumann and Presser, 1981). A 3-point categorical scale was used to measure certain behaviours such as exercise.

Open-ended questions were included where there was a possibility of idiosyncratic responses which would not be best expressed under the limitations of a-priori response categories. Thus, individual perception of risk and protection factors, as well as the existence of significant others were assessed in this way. In addition, a ranking format was used to assess the relative value placed upon health and other issues by individual respondents. This ipsative approach was necessary to avoid the inevitable bias that emerges when a collection of positive issues (e.g. wealth and health) are to be discriminated.

In addition to values, this procedure was also used to discriminate between 12 common worries about testicular cancer. A number of questions required a nominal Yes/No format, particularly to assess awareness and smoking and drinking behaviour. There were also exact numerical estimates of the number of cigarettes smoked and units of alcohol consumed. Finally, multiple choice tests were included for assessing knowledge.
Careful attention was paid to the wording in item construction, in order to make questions and statements clear and meaningful to the respondents. Vocabulary was kept simple and, wherever possible, jargon and loaded questions were avoided. Moreover, an effort was made to avoid phrasing questions in the negative. Attention has also been paid to the careful balance of the questions, to counteract the implicit influence of the questions themselves, e.g. positive and negative questions concerning TC; positive and negative attitudes to screening. There were approximately equal numbers of questions concerning TC and TSE. Moreover, questions were randomised as much as possible to avoid grouping of issues causing response set.

The following concepts were operationalised and included in the questionnaire. These concepts, which were derived from qualitative studies and also include the components of three SCMs, are discussed below. Moreover, the concepts are reported under four main headings as follows: Knowledge and Awareness, and Health Behaviours, Emotional Cognitions and Social Cognitions.

**Knowledge and Awareness**

Knowledge of reproductive biology and, more specifically, of testicular cancer and TSE, are issues which also arose from qualitative studies. Although knowledge is not explicitly considered in SCM theorising, it is assumed that all SCMs consider a minimum level of knowledge to be a pre-requisite to action.

However, although health beliefs, lay beliefs, and perceptions have their part to play in all these models factual knowledge has not been differentiated, despite the fact that most health promotion material pre-supposes a great deal of understanding of medical facts and factual knowledge of reproductive biology. In this respect, little is known about the relationship between (factual) knowledge of human reproductive biology and (TC) prevention. Knowledge of male reproductive biology was assessed by a diagrammatic test (Appendices 8.4, 8.5). Moreover, an approach to assessing knowledge which was tried in an early iteration of the instrument's development was to simply elicit self-reports concerning awareness (Appendix 8.1). Unfortunately this item set proved to be psychometrically problematic and was dropped in favour of a multiple choice test at an early stage in the development process (Appendix 8.6).
Risk and protection factors and lay beliefs

In all, 18 different types of risk factors and lay beliefs associated with TC were assessed in terms of strength of conviction (Appendix 8.10). Degree of protectiveness and/or riskiness were indicated on a midpoint scale from 1 to 5. They included factors such as smoking, alcohol intake, age, sexual abstinence and wearing of tight underpants. In addition an open-ended format was included to ensure the item was optimally addressed (Appendix 8.2). Irrational and lay beliefs about TC and TSE were also derived from qualitative studies. Lay beliefs about health and illness are seen as powerful factors of decision making in health (Leventhal, 1980).

Health Behaviours

Qualitative investigations, particularly focus group discussions, revealed much concern with routine health practices such as exercise for the benefit of better health. Health detrimental habits such as smoking and drinking alcohol were also addressed repeatedly. These components were thus included into the assessment device to determine their relative importance in relation to self screening practice. The health habits were assessed by measuring levels of self reported regular exercise, numbers of cigarettes smoked per day and number of units of alcohol consumed per week respectively (Appendices 8.12, 8.13).

Demographics

A relatively neglected issue concerns the ability of HBM components to mediate the effect of social structure positions upon performance of health behaviours. There have been contradictory findings. On the one hand no relationship was found between SES and health behaviour (Cummings et al, 1979), whilst on the other, Orbell et al (1995) found perceived susceptibility and barriers entirely mediated by the effects of social class in relation to cervical screening. Direct effects have also been found for marital status (Sollaway, 1978), occupational status, sex, income and educational status (Cheng and Land, 1990). Further research is needed to discriminate between the effects of cognitions and "real" physical barriers (of culture, poverty, network, health system factors) on health action (Rundall and Wheeler, 1979).
Socio-economic status was determined by assessing subjects' occupational status and/or the occupational status of their parent(s) Appendix 8.12). The OPCS classification system was used to classify the responses (HMSO, 1986).

**Emotional Cognitions**

Emotional cognitions include anticipated coping, anxiety, embarrassment and fear of cancer. Anticipated coping in the form of cognitive elaboration was derived from qualitative investigations. Items were designed to tap the imagination of subjects in the form of anticipation about future coping with a series of hypothetical scenarios. A multiple item format of 13 items was adopted. A 5-point Likert scale required people to respond to a statement depicting scenarios concerning cancer and testicular cancer (Appendix 8.8). Twelve common worries people have when they think about testicular cancer (derived from qualitative studies) were rated according to order of salience, from the most worrying to the least worrying (Appendix 8.9). Worries to be assessed include worries about pain, surgery, embarrassment and loneliness. Embarrassment concerning other people (having a social focus) as well as embarrassment concerning TSE (having a private focus) were measured each by a single item. Fear of cancer as well as fear of TSE as important affective components have been directly and explicitly measured.

**Social Cognitions**

**Risk perception**

The perception of risk was operationalised as a multiple item construct including measures of susceptibility and seriousness. As a major predictor of SCMs, special attention was paid to its conceptual differentiation and for this reason, 16-items were included to cover the concept domain. Items are measuring the concept more or less directly. Moreover, all SCMs assume that the expected benefits in risk reduction must be weighted against the expected cost of action to predict behaviour. These costs represent real physical barriers to screening and/or psychological ones. In the present study, costs and barriers were represented by a single variable, measured by multiple items. In line with the TRA, this study also considered a wide range of costs to action, not just the behaviour in question (TSE). The range of costs has been determined by qualitative research and includes other non-health outcomes such as worries about an illness.
Optimistic and lifestyle bias
The bias construct was tapped by a single item, measuring people's tendency to underestimate their susceptibility to disease in relation to others. The concept first described by Weinstein (1988) has been used to define a definite stage in the decision making process. Lifestyle bias, on the other hand, was concerned with the belief that personal lifestyle is protective of cancer.

Benefits and barriers
The benefit and barrier components were composed of a mixture of pros and cons to self screening. Both concepts are multi-dimensional and were thus assessed by multiple items. Benefits include social-psychological as well as medical benefits of screening. Likewise, barriers comprised both emotional as well as situational components of TSE practice.

Normative beliefs and significant others
Perception of normative behaviour was assessed by reference to peer group and more generally by reference to the wider population. In line with the TRA this study also considered social influences in the form of significant others' wishes. It took account of significant others' wishes as well as the person's motivation to comply with such wishes. Motivation to comply was assessed by single item constructs (5-point Likert scale). An open ended format was used to determine the most important significant other.

Behavioural control and self efficacy
Behavioural control or self efficacy factors were operationalised as multiple item constructs. There is much overlap between the constructs postulated by Ajzen (1983) and Bandura (1986). According to Ajzen, self-efficacy is compatible with, and must be used synonymously with, the construct of behavioural control. Moreover, self-efficacy has been differentiated from action-efficacy, as has been suggested by Schwarzer (1993a), who has developed a collection of psychometric scales to measure the concept. In this study, the concept was assessed by single item constructs (e.g. self efficacy) as well as by multiple items (e.g. behavioural control).
Intention, likelihood and planning to pursue action

In line with TRA, intention was used as an outcome measure. It was also conceptualised as a mediator to action to test a stage approach. Likelihood of action was measured on a 5-point Likert scale. The self-assessment of a general tendency to plan TSE was measured by multiple items. Planning was seen as an important part of closing the intention-behaviour gap and was also included as an open-ended response. The assumption was that where people have thought about how to carry out a given action, they are more likely to actually carry out the behaviour.

Cues to action

Both cues to action and health motivation have been relatively neglected by empirical investigation. For example, they have not been included in either of the reviews of the HBM. The reason for this might well be the problem of defining concepts. Researchers have thus failed to operationalise the concept in most studies which has left the HBM being only partially used. Often, the concept has been interchangeably used with other concepts, e.g. family experience with cancer (Grady, et al, 1983). Internal cues, e.g. symptoms have been generally predictive of behaviour (King, 1984). Thus the present study has operationalised the concept as multiple items because of its special relevance to health promotion programme design. Awareness of health promotion media and discussions with friends and parents were conceptualised as external cues to action.

Health motivation

Despite the fact that psychometric scales exist (Champion, 1984), health motivation (concerns about health) tend to be measured as single item measures. Results have been mixed, with bi-variate and multivariate findings showing both positive and negative associations with behaviour (Champion, 1984; Harris and Guten, 1979; King, 1982 and others). Very few studies have attempted to look at direct versus indirect effects of health motivation, with the exception of Cheng and Land (1986), who found that health motivation was negatively related to perceived susceptibility and positively related to severity. However, their measures of health motivation included items relating to control over health. There is a problem with discriminant validity here and research needs to clarify the relationship between health motivation and related constructs such as health locus of control (Wallston and Wallston, 1982) and health value (Kristianson, 1985). The
The present study used a one item measure to assess health motivation. Moreover, separate measures of control have also been included.

**Values**

The present study measured health value and motivation indirectly to obtain a measure of relative importance of health. The assumption was that when measured directly, as a closed question, variability of response might be compromised because of a response set or a social desirability bias.

**Beliefs specific to testicular cancer and TSE**

In addition to the generalised constructs relating to SCMs, it was considered important to include a number of item statements concerned with TC related beliefs. These do not fall easily under the heading of the SCM categories but reflect important issues that were raised in the qualitative studies.

**The Development of the Surrey Testicular Health Survey Questionnaire**

The overall aim of the pilot investigation was to carry out a thorough appraisal of all measurement scales and items with special emphasis on the measurement of knowledge. The objective here was to test a variety of diagrams and scales on different populations to decide upon optimal measures for the final survey questionnaire. By a process of appraisal and preliminary analysis of data from the various subject samples, response scales, diagrams and items were appropriately revised. A description of the process of revision is summarised below.

The first step in the procedure was to distribute a small number of pilot questionnaires for pre-testing to establish face validity. In addition, a health promotion (AIDS) worker from Surrey Health Education Service was invited to comment on the questionnaire. Helpful feedback on ethical considerations, language and the avoidance of jargon as well as size and format of the questionnaire was obtained. The questionnaire was appropriately altered as a result.
The next step in the pilot investigation was to distribute a larger number of questionnaires to a general population sample of male subjects and to sixth formers at a local comprehensive school. One hundred and fifty questionnaires were distributed and 94 were completed and submitted to descriptive analysis. On the basis of this analysis and of pupil appraisal, two measurement scales were revised, namely awareness and knowledge. A 16-item multiple choice test (MCT) was constructed instead and included in the questionnaire.

The next step of the evaluation was to re-distribute the revised version of the questionnaire, including 7 awareness items, the new MCT and a new male anatomy recognition test (RT), to samples of school boys aged 16 to 17 years. Sixty completed questionnaires were then appraised and data from both samples (population and school boys) were suitably aggregated and subjected to statistical analysis and item appraisal.

As a result of these analyses and appraisals the final version of the questionnaire was constructed. This process involved descriptive analyses (mean, sd, variance) and computation of inter-correlation and pattern matrices to detect possible measurement error and gain knowledge about which variables "go together" for scale development and to determine which variables can be excluded because of duplication. Moreover, it involved scrutinising responses on ranking scales and knowledge diagrams for irregularities and signs of measurement error. Additionally, it involved consultation of independent judges and relevant subjects for the provision of independent judgement and feedback.

As a result, alterations were made to the questionnaire. This meant that items were dropped from the measure or replaced, others were re-worded. Ranking and rating scales were altered and measures were abandoned and replaced. A series of open-ended items were included. The format of the questionnaire was revised with a view to providing optimal clarity. Finally, introductory statements for each scale and section were amended in accordance with feedback obtained. The questionnaire was titled "The Surrey Testicular Health Survey". An example of the final measurement instrument can be found in appendix 9.0.
Description of the Surrey Testicular Health Survey

Questionnaire

The pilot assessment device consisted of four major parts including assessments of knowledge, of health behaviours, assessments of emotional response and of beliefs/cognitions. The process of revision of these measurement devices is described below.

The Assessment of Awareness and Knowledge

Awareness

Revision of the awareness scale lead to its replacement by a shorter 7-item version (Appendix 8.2). A 5-point Likert scale where 1 = completely unaware and 7 = very much aware was used to assess awareness. The scale included a general awareness item and one item for each of the major issues including awareness about cause, importance of early detection, symptoms, incidence and TSE.

Cancer knowledge

Moreover, it was thought that more exact information about what people know or don't know would be more useful for predicting TSE and also for programme development. Thus, a 16-item multiple choice cancer knowledge test (MCT) was constructed. Each question contained 3 options, using a 3-point categorical scale (right, wrong, don't know) (Appendices 9.0, 9.1).

Knowledge of male anatomy

The measurement of anatomy knowledge consisted of a recognition test (RT) which required the correct naming of 16 reproductive body parts depicted on a diagram (Appendix 8.4). The test was scored on a nominal scale (correctly/incorrectly named body part). The original anatomy diagram of the test was replaced by a clearer version depicting the same body parts (Mason and De Haan, 1973) (refer to appendix 9.2).

The Assessment of Health Behaviour

The measurement of health behaviour including exercise, alcohol consumption and smoking had remained the same throughout pilot work and was incorporated unamended into the final measure. Behaviour was measured both on a nominal yes/no scale and on
a 3-point categorical scale (exercise). Smoking and alcohol consumption were measured numerically (Appendix 9.7).

**The Assessment of Emotional Response**
The measurement of anticipated coping with cancer, which comprised an 18-item scale, was abandoned in favour of a two item open-ended format (Appendix 9.9). Poor variability of responses suggested that such anticipatory beliefs may be better assessed in an open-ended way to avoid response set.

**Worries**
Likewise, the common worries ranking scale including 12 items was also abandoned because of incorrect usage of the ranking scale by respondents.

**Risk factors**
The multiple item risk factor scale (18 items) was also omitted from the final questionnaire and replaced by two open-ended questions (Appendix 8.3). The idea was to tap the saliency of these perceptions without the limitations of a-priori response categories.

**The Assessment of Beliefs**
Sixty beliefs (later reduced to 57) were measured on a 5-point Likert scale. Belief strength was scored as 1 (not at all) to 5 (very much). Several other scales measuring beliefs were piloted and included in the final measure. These included significant others' wishes, motivation to comply and likelihood of obtaining advice, all measured on a 5-point Likert scale (1 = very unlikely to 5 = very likely). Relative health value was measured on an 8-item ranking scale.

A number of new measures were added to the questionnaire. These included an 8-item scale to measure the relative importance of body parts in which participants were asked to rank the items according to importance (Appendix 9.3). Six nominal scale questions (yes/no) were also added to measure planning, information seeking, past action and awareness of TSE to accommodate the prescriptions of the stage approach. Three open-ended questions measuring future planning and habit formation were added to allow free expression. A further two open-ended items were devised to provide information about
the factors which might prevent or facilitate TSE. Moreover, two questions were added to comply with the requirement of TRA to measure the likelihood of negative outcomes conditional upon carrying out and not carrying out TSE.

Reliability Analyses on the Attitude and Belief Scales
The Surrey Testicular Health Survey was then distributed to a new sample of 181 subjects including firemen, university students and the general population and subjected to reliability analyses.

Sample
The mean age of the sample was 31.36 years with a standard deviation of 11.12. The youngest respondent was 17 and the oldest was 62 years old. A majority of the sample were drawn from university students and the fire service (43% and 42% respectively). The remaining 15% of the sample were fairly evenly distributed among professional, skilled, unskilled and unemployed men.

The country of origin of the respondents was predominantly Britain (86%) with 8% from other European countries. The remaining 6% cited Africa and Asia as their country of origin.

The religious background was predominantly Western Christian (55% protestant and 15% catholic). Other religions amounted to 19% with the remainder claiming to be atheist.

Procedure
Five hundred survey questionnaires were distributed to the Surrey Fire Service, University Students, and by snowball sampling. A completion rate of 42% was obtained. One hundred and eighty-eight completed questionnaires were submitted for reliability analyses. Results of the analyses are reported below.
Results

Item analysis

The first step was to examine the descriptive results. Means and standard deviations for all items were examined to ensure that the assumptions for the analysis were met.

Table 8.5 below gives the means and standard deviations for all the SC and belief variables. The items are ordered according to the item mean.

The important point to be drawn from this table is that there is a clear variation in effectiveness of the items as the item means vary between 1.06 and 4.40. Clearly, this analysis raises some questions on some of the items. At the extremes there is likely to be little discrimination between respondents and this is particularly true of item 5 with a mean of 1.06 and a standard deviation of 0.46.

Table 8.1: Item Analysis Beliefs/Cognitions

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Teacher encourage</td>
<td>1.06</td>
<td>.46</td>
</tr>
<tr>
<td>1</td>
<td>Parents encourage</td>
<td>1.27</td>
<td>.84</td>
</tr>
<tr>
<td>50</td>
<td>Negative attitude</td>
<td>1.37</td>
<td>.88</td>
</tr>
<tr>
<td>45</td>
<td>Communicate friends</td>
<td>1.39</td>
<td>.89</td>
</tr>
<tr>
<td>30</td>
<td>Embarrassment</td>
<td>1.46</td>
<td>.98</td>
</tr>
<tr>
<td>44</td>
<td>Experience</td>
<td>1.47</td>
<td>1.04</td>
</tr>
<tr>
<td>42</td>
<td>Elaboration</td>
<td>1.59</td>
<td>1.04</td>
</tr>
<tr>
<td>15</td>
<td>Time cost</td>
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<td>.98</td>
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<td>28</td>
<td>Norm beliefs</td>
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<td>.98</td>
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<tr>
<td>46</td>
<td>Awareness TSE</td>
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<td>1.44</td>
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<tr>
<td>9</td>
<td>Experience TSE</td>
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<tr>
<td>41</td>
<td>Fear</td>
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<td>S1</td>
<td>Significant other</td>
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<td>4</td>
<td>Planning</td>
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<td>1.29</td>
</tr>
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<td>3</td>
<td>Self efficacy</td>
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<td>1.16</td>
</tr>
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<td>27</td>
<td>Fatalism</td>
<td>2.25</td>
<td>1.09</td>
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<tr>
<td>Li</td>
<td>Likelihood</td>
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<td>43</td>
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Table 8.1 (contd)

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<td>Self efficacy</td>
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<td>Susceptibility</td>
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<td>La</td>
<td>Advice</td>
<td>3.24</td>
<td>2.28</td>
</tr>
<tr>
<td>47</td>
<td>Positive attitude</td>
<td>3.25</td>
<td>1.39</td>
</tr>
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<td>19</td>
<td>Anticipated coping</td>
<td>3.26</td>
<td>1.41</td>
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<td>38</td>
<td>Control</td>
<td>3.39</td>
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<td>Self efficacy</td>
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<td>Positive attitude</td>
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<td>35</td>
<td>Intention</td>
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<td>Lifestyle</td>
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<td>Bias</td>
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<td>Positive attitude</td>
<td>4.26</td>
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<tr>
<td>12</td>
<td>Positive attitude</td>
<td>4.27</td>
<td>1.01</td>
</tr>
<tr>
<td>37</td>
<td>Bias</td>
<td>4.32</td>
<td>1.12</td>
</tr>
<tr>
<td>26</td>
<td>Regret</td>
<td>4.34</td>
<td>.96</td>
</tr>
<tr>
<td>16</td>
<td>Lifestyle bias</td>
<td>4.40</td>
<td>1.27</td>
</tr>
</tbody>
</table>

Reliability checks were then carried out on measurement scales of the final survey instrument. These include scales representing susceptibility, severity, benefits, barriers, control beliefs, fright, anticipated coping, cognitive elaboration and knowledge components.

Tables 8.1 to 8.9 below depict the scales and relevant Alpha coefficients. The reliability test revealed 7 scales deemed reliable at a level equal to or larger than 0.60 according to Guildfort's criterion. The tables show that three variables, susceptibility, cues and barriers, have not reached the level of internal consistency expected. One reason for this might be that there were too few items available for scale construction. Another possibility is that constructs such as cues are non-homogenous concepts by nature. Despite the obvious
weak psychometric properties of these scales, it was decided to include the scales to measure men's cognitions wherever possible. Caution was exercised in interpreting the findings. Where it was deemed more appropriate to use single items in the analyses, they were included in accordance with the hypotheses tested.

Table 8.2: Susceptibility

| 1.  | the probability of me getting cancer is very small |
| 2.  | people like me do not get TC                      |
| 3.  | people of my age are not likely to get TC         |
| 4.  | I can not imagine me getting TC                   |

Cronbach's Alpha = 0.44

Table 8.3: Severity

| 1.  | *TC makes a person impotent                        |
| 2.  | *TC is usually fatal                                |
| 3.  | TC is a very serious disease                        |
| 4.  | *TC leads to the loss of one's testicles            |
| 5.  | *TC would destroy my sex life                       |
| 6.  | *TC will make a person unable to have children     |

Cronbach's Alpha = 0.71

Table 8.4: Benefits/attitudes (positive)

| 1.  | TSE is the only way to protect myself from developing TC |
| 2.  | practising TSE will give me peace of mind             |
| 3.  | regular TSE would be a rewarding practice             |
| 4.  | TSE may help identify other non cancerous abnormalities |
| 5.  | TSE ensures that TC is detected early enough for successful treatment |
| 6.  | I believe that TSE is one of the few things I can do to protect myself from developing cancer |
| 7.  | TSE is an effective procedure to prevent TC           |

Cronbach's Alpha = 0.67
### Table 8.5: Barriers/attitudes (negative)

1. TSE can be a painful procedure
2. TSE is not a good idea because one should not go looking for trouble
3. TSE would be embarrassing to do
4. I would not know how to carry out TSE
5. I would not like to do TSE because the thought of finding something wrong is frightening
6. I would prefer to leave any kind of examination of my body to my GP
7. It would be difficult to find the time to do regular TSE

Cronbach's Alpha = 0.56

### Table 8.6: Cognitive elaboration/screening

1. I can see how I can deal with any obstacles that might stop me from performing regular TSE
2. I can easily imagine the time and the place to carry out TSE
3. I imagine that I would regret not having self screened if ever I was affected by TC

Cronbach's Alpha = 0.63

### Table 8.7: Behavioural control

1. I am good at doing necessary things like TSE even though I do not like it
2. I expect to cope with the inconvenience of TSE as self screening could save my life
3. I like the idea of taking control of my health and examining my own testicles
4. TSE can be easily incorporated into my life style
5. I am quite capable of carrying out TSE effectively

Cronbach's Alpha = 0.57

### Table 8.8: Cues

1. I sometimes talk about TSE with my friends
2. I am aware of health promotion leaflets to teach TSE
3. My parents encourage me to self examine regularly
4. My teacher encourages me to self examine regularly
5. I have watched TV programmes about TC prevention

Cronbach's Alpha = 0.44
Table 8.9: Fright/worst scenarios

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>*TC leads to the loss of one's testicles</td>
</tr>
<tr>
<td>2.</td>
<td>*TC makes a person impotent</td>
</tr>
<tr>
<td>3.</td>
<td>*TC is usually fatal</td>
</tr>
<tr>
<td>4.</td>
<td>*TC would destroy my sex life</td>
</tr>
<tr>
<td>5.</td>
<td>*TC will make a person unable to have children</td>
</tr>
</tbody>
</table>

Cronbach's Alpha = 0.73

The reliability of single item measures cannot be established, however, several concepts were measured with single items, see Tables 8.10 and 8.11 below.

Table 8.10: Anticipated coping, subjective norm, normative beliefs and lifestyle bias

<table>
<thead>
<tr>
<th>Anticipated coping:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have often wondered how I would cope with a serious disease such as cancer</td>
</tr>
<tr>
<td>2. I have in the past thought about how I would cope with a serious disease such as cancer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subjective norms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. how likely do you think they (significant others) are to advise you to carry out regular TSE?</td>
</tr>
<tr>
<td>2. how likely is it that you will comply with their wishes?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normative beliefs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I believe that most people of my age screen regularly</td>
</tr>
<tr>
<td>2. I believe that most men carry out regular TSE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lifestyle bias:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am less susceptible to TC than others of my age</td>
</tr>
<tr>
<td>2. I feel that I am protected from TC because of my lifestyle</td>
</tr>
</tbody>
</table>
Table 8.11: Single item concepts

<table>
<thead>
<tr>
<th>Fear of TC: The thought of developing TC at my age is very frightening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embarrassment: The thought of asking my GP for advice about TSE is embarrassing</td>
</tr>
<tr>
<td>Behaviour/likelihood: It is very likely that I will carry out TSE in the near future</td>
</tr>
<tr>
<td>Pre-occupation with cancer: I have in the past been pre-occupied with the prospect of developing TC</td>
</tr>
<tr>
<td>Fatalism: There is really nothing I can do to prevent TC</td>
</tr>
<tr>
<td>Self concept: I know I will be conscientious about TSE if I decide to do it</td>
</tr>
<tr>
<td>Intention: I intend to carry out regular self screening</td>
</tr>
<tr>
<td>Information seeking: I intend to find out more about TSE</td>
</tr>
<tr>
<td>Knowledge (TC): TC can be cured if detected at an early Age</td>
</tr>
<tr>
<td>Probability: The likelihood that I will develop TC if I carry out regular TSE is very small</td>
</tr>
<tr>
<td>Planning: I can see many ways in which to remind myself to self examine</td>
</tr>
<tr>
<td>Perception of norms (preventive behaviour): I believe that most people carry out some form of health behaviour</td>
</tr>
<tr>
<td>Experience with TC: I know someone who has TC</td>
</tr>
<tr>
<td>Seriousness: TC is a very serious disease</td>
</tr>
</tbody>
</table>

Table 8.12 below summarises the results of the reliability analyses of belief scales used in the "Surrey Testicular Health Survey" measure.

Table 8.12: Reliability, means and standard deviations of scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>scale mean</th>
<th>SD</th>
<th>Alpha</th>
<th>n variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>25.13</td>
<td>4.58</td>
<td>0.67</td>
<td>7</td>
</tr>
<tr>
<td>Fright</td>
<td>13.74</td>
<td>4.23</td>
<td>0.73</td>
<td>5</td>
</tr>
<tr>
<td>Elaboration</td>
<td>18.26</td>
<td>4.01</td>
<td>0.63</td>
<td>5</td>
</tr>
<tr>
<td>Control</td>
<td>17.60</td>
<td>3.64</td>
<td>0.57</td>
<td>5</td>
</tr>
<tr>
<td>Cancer know</td>
<td>6.11</td>
<td>3.04</td>
<td>0.82</td>
<td>14</td>
</tr>
<tr>
<td>Anatomy know</td>
<td>9.94</td>
<td>2.64</td>
<td>0.99</td>
<td>16</td>
</tr>
<tr>
<td>Suscept.</td>
<td>14.05</td>
<td>2.77</td>
<td>0.44</td>
<td>4</td>
</tr>
<tr>
<td>Severity</td>
<td>18.09</td>
<td>4.50</td>
<td>0.71</td>
<td>6</td>
</tr>
<tr>
<td>Barrier</td>
<td>12.88</td>
<td>3.85</td>
<td>0.56</td>
<td>7</td>
</tr>
<tr>
<td>Cues</td>
<td>7.04</td>
<td>2.65</td>
<td>0.044</td>
<td>5</td>
</tr>
</tbody>
</table>

We will now turn to the main study of this investigation and report on the application of the survey questionnaire to the prediction and explanation of testicular self screening practice in men.
CHAPTER 9
CROSS-SECTIONAL PREDICTION OF TESTICULAR SELF SCREENING INTENTION AND BEHAVIOUR

Overview of Chapter
This chapter will present the main survey study of beliefs, attitudes and behaviour concerning the prevention of TC. The primary aim of this survey is to apply the findings to the development of a health promotion programme for men. To this end, the objective is to compare and contrast three SCMs and a proposed hybrid model. The aim is to determine the best possible predictors of decision making in cancer prevention. The chapter presents the cross-sectional analyses of the survey data obtained from 188 men. The sample characteristics have been described in the previous chapter.

The Hybrid Model (HSCM): Rationale for Inclusion
The proposed hybrid model is based on the assumption that social cognitions, whilst important in the decision making process, do not tell the "whole story" about illness prevention, particularly where sensitive health behaviours are concerned. It has been hypothesised that variables other than social cognitions play an important role in decision making. Moreover, the hybrid model differentiates between emotional cognitions, those cognitions which are emotionally expressive, and others which are not. Such emotional cognitions have been included in the survey in the form of anticipated coping with TC, and fear of TC and self screening amongst others. The aim was to shed light on affective facets of decision making by tapping the affective concerns people may have by explicit, rather than implicit means.

In addition, the hybrid model incorporates behavioural components (smoking, drinking and exercising) as measures of self reported routines (habits) and planning. The assumption here is that health motivation may be expressed in a variety of ways, including in exercise. Such health related practice may be a manifestation of health concern or may be conducted for non-health reasons. Whatever the underlying motive, such practices may actually facilitate other preventive types of action or provide the pre-condition for novel health behaviours such as TSE. Where people have experienced a health routine, have
managed the skills involved in its practice (e.g. regularity), they may be more willing or better able to comply with other health recommendations.

As for health educators, such previous experience may be a good starting point when introducing a new protective behaviour. Health promotion may want to build on such experiences (previous or current) when introducing new methods of prevention such as TSE. For this reason it is paramount to learn about components other than cognitions so as to inform programme development and allow proper emphasis to be placed on the most important facets of men's health promotion.

It is clearly important to provide recipients of health promotion programmes with as many "opportunities" as possible to induce behaviour change. A more holistic view of TC prevention, therefore, will allow us to draw on behavioural facets of the person, not just on their social cognitions.

The first part of this chapter will discuss and present the main results of descriptive and uni-variate analyses of cross-sectional data. The second part of this chapter will concern itself with comparing and contrasting the four SC models under investigation.

**Results : Descriptive Analyses**

**Health behaviour**

Frequency analyses revealed that the majority of the sample (56%) reported undertaking average amounts of exercise. However, 30% perceived themselves to be exercising more than average. As for smoking, the vast majority of men (69%) did not smoke at all. However, of those who did smoke, 48% smoked more than 12 cigarettes per day. A considerable amount (31%) smoked more than 20 cigarettes per day.

As regards to drinking alcohol, it was interesting to note that a vast majority (91%) of the sample drank regularly. A considerable number, more than a quarter of those who drank, consumed more than 20 units per week.

The present sample's health behaviours, particularly smoking, are comparable to findings from other recent studies (Marmot et al, 1991). The suggestion is that men have reduced
their smoking habit in favour of a healthier lifestyle. On the other hand, there is much alcohol consumption with a large number of men drinking more than 20 units per week.¹

**Testicular self examination**

An expected finding was that the vast majority of subjects (83%) had not heard of TC before completing the questionnaire. Therefore, it is important to note that the questionnaire itself could be seen as a form of information intervention and that the questionnaire may even act as a catalyst for further information seeking. This issue will be discussed later on in this thesis.

As for the practice of TSE, only 34% of the sample carried out regular TSE. This degree of practice is comparable to findings from other studies (e.g. Neef et al, 1991). It is not surprising, given the low awareness of TC, that only 30% of the sample had in the past thought about TSE. It also follows that from a position of relative unawareness of TC, a majority (61%) of the sample reported planning to obtain more information about TSE. Likewise, 58% of the sample intended to get more information about TC. Most interesting is the fact that a large proportion of the sample (42%) did not intend to obtain further information. It was also found that a majority (65%) of the sample reported planning to carry out TSE in the near future.

---

¹ Socio Economic Status

It is important at this point to note, that preliminary analyses of SES, as defined by occupation of participants, have shown no meaningful associations with health behaviours (smoking, drinking, TSE) and health beliefs (e.g. information seeking, fatalism) There was one important exception, however, "planning to practice TSE as soon as possible ", was found to be positively associated with SES (chi square = 24.98 p = 0.04). This finding suggests that participants of higher social status (students, professionals) are more inclined to carry out TSE than their counterparts (firefighters).

A detailed analysis of SES in relation to social cognition has not been attempted, as the focus of this investigation is to determine the significance (and the use) of social cognition components to underpin programme design, and not to investigate external or mediating factors of disease prevention.

However, the preliminary findings draw attention to the possibility that SES may have a role to play, not so much in mediating self screening practice through health beliefs, but in providing explanations in cancer prevention, which go beyond the individual. However, such analyses would go beyond the scope of this thesis.
Summary
Results appear to indicate a great need for health promotion to inform men and to promote the practice of testicular self screening. It is apparent that awareness of TC and self screening practice are low and that men seek further information about the issues.

Open-ended questions
There were open-ended questions on: habit formation, planning reminders, risk factors/protection factors, and anticipated coping. Responses were coded according to obvious emerging themes. No reliability checks were carried out.

A large proportion of males (63%) gave an example of how they would get into the habit of self screening. These examples included the following responses: habit forming, instinctual, shower, bath, toilet, girlfriend, and masturbation. Likewise, a considerable proportion of men (55%) gave an example of a reminder for self screening practice. Men reported that they might use, as a cue to action, the following reminders: calender, secret diary, note paper, weekly reminder, girlfriend/partner. In addition, 58% of men were able to give an example of the time and place they would carry out TSE. These included the following examples: in bed, privacy of own room, bathroom, shower. As regards to risk factor awareness, only 21% of men were able to state a known risk factor for TC. These risk factor responses included: tight underpants, unhealthy lifestyle. Slightly more men (36%), were able to respond to protection factors they knew of. They reported a healthy lifestyle, loose underpants, prayer, diet and exercise as protection factors.

Summary
The open-ended questions have shown that many men, when asked directly, were able to report some ways of planning for TSE. As might be expected, given the low rates of knowledge of TC and of TSE, there is little awareness of risk factors associated with the disease and misinformation does exist. Findings suggest clearly a need for health education in this area.

The measurement of relative values
Two tasks in the instrument required that the respondents rank, first 8 general aspects of life and, second, 8 body parts, in order of importance. The aggregated ranks over the
sample are presented in Table 9.1 and Table 9.2 respectively. A low mean represents a greater value being placed upon the item. It is clear that the men of this sample place a higher value upon their health than any other aspect of their lives with, for example, wealth appearing quite low down on the priorities of life.

In Table 9.1 it can be seen that the body parts with the greatest value are the eyes. It is very interesting to note that the testicles show a relatively low value.

**Table 9.1: Mean ranks of general aspects of life**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2.08</td>
<td>1.76</td>
</tr>
<tr>
<td>Friends</td>
<td>3.03</td>
<td>1.69</td>
</tr>
<tr>
<td>Body</td>
<td>3.60</td>
<td>1.92</td>
</tr>
<tr>
<td>Fun</td>
<td>3.81</td>
<td>1.87</td>
</tr>
<tr>
<td>Success</td>
<td>4.69</td>
<td>1.86</td>
</tr>
<tr>
<td>Image</td>
<td>5.65</td>
<td>1.84</td>
</tr>
<tr>
<td>Wealth</td>
<td>6.05</td>
<td>1.83</td>
</tr>
<tr>
<td>Looks</td>
<td>6.21</td>
<td>1.79</td>
</tr>
</tbody>
</table>

It is important to remember that these results are derived from an ipsative procedure. This does not mean to say that testicles are held in low esteem or that men do not value these organs. Rather, it shows the relative value of the body parts.

**Table 9.2: Mean ranks of body parts**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>1.80</td>
<td>1.67</td>
</tr>
<tr>
<td>Ears</td>
<td>3.89</td>
<td>2.05</td>
</tr>
<tr>
<td>Hands</td>
<td>3.97</td>
<td>1.97</td>
</tr>
<tr>
<td>Legs</td>
<td>4.36</td>
<td>1.97</td>
</tr>
<tr>
<td>Penis</td>
<td>4.67</td>
<td>2.11</td>
</tr>
<tr>
<td>Mouth</td>
<td>4.97</td>
<td>2.08</td>
</tr>
<tr>
<td>Teeth</td>
<td>5.69</td>
<td>2.31</td>
</tr>
<tr>
<td>Testicles</td>
<td>5.87</td>
<td>2.08</td>
</tr>
</tbody>
</table>
Preliminary Correlational Analysis

The outcome variables of TSE intention, likelihood and practice were correlated with a number of specific single item variables. Tables 9.3, 9.4 and 9.5 present these correlations.

It is perhaps not surprising that a strong positive relationship exists between intention to self screen and likelihood of action. The correlations show that men are positively inclined toward action where they believe that significant others (peer groups/social referents) carry out self-screening, where they would anticipate regret if they did not self-screen, and where they have a positive self concept, that is, where they perceive themselves as conscientious about necessary action. Moreover, self screening is more likely where men are embarrassed to see their GP, where they feel they are in control of health action and where they have previously thought about screening. They are also more likely to screen where they anticipate having to cope with cancer in the future and where they encounter cues and reminders to action.

On the other hand, positive decision making is less likely where there are barriers to screening, where men feel susceptible to developing TC and where men express unrealistic optimism. Similarly decision making is negative where there is embarrassment about TSE. An interesting finding is that fear of cancer is also negatively related to intention and likelihood of self screening. It appears that negative emotions are associated with non-action regarding self screening practice. Where men already carry out TSE, they tend to have experience with cancer, through knowing someone who has TC.
### Table 9.3: Correlations between TSE outcome variables and specific single item variables

<table>
<thead>
<tr>
<th></th>
<th>Intention</th>
<th>Likelihood</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention</td>
<td>1.00</td>
<td><strong>0.65</strong></td>
<td><strong>0.27</strong></td>
</tr>
<tr>
<td>Likelihood</td>
<td><strong>0.65</strong></td>
<td><strong>1.00</strong></td>
<td><strong>-0.19</strong></td>
</tr>
<tr>
<td>Practice</td>
<td><strong>-0.27</strong></td>
<td><strong>-0.19</strong></td>
<td>1.00</td>
</tr>
<tr>
<td>Antic.Regret</td>
<td><strong>0.36</strong></td>
<td><strong>0.39</strong></td>
<td>0.02</td>
</tr>
<tr>
<td>Self concept</td>
<td>0.22</td>
<td>0.21</td>
<td>0.09</td>
</tr>
<tr>
<td>Looking trouble</td>
<td>-0.24</td>
<td>-0.22</td>
<td>0.08</td>
</tr>
<tr>
<td>Serious TC</td>
<td>0.09</td>
<td>-0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>*-0.17</td>
<td>*-0.17</td>
<td>0.06</td>
</tr>
<tr>
<td>Fright thought</td>
<td>-0.09</td>
<td>-0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Painful TSE</td>
<td>-0.01</td>
<td>-0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Embarrass GP</td>
<td>0.03</td>
<td>0.20</td>
<td>0.02</td>
</tr>
<tr>
<td>Info seeking</td>
<td>*<strong>0.65</strong></td>
<td>*<strong>0.25</strong></td>
<td><strong>-0.19</strong></td>
</tr>
<tr>
<td>Self concept</td>
<td>*<strong>0.22</strong></td>
<td>*<strong>0.21</strong></td>
<td>0.08</td>
</tr>
<tr>
<td>Remind self</td>
<td>*<strong>0.29</strong></td>
<td>*<strong>0.29</strong></td>
<td>*<strong>0.25</strong></td>
</tr>
<tr>
<td>Norm belief</td>
<td>*0.15</td>
<td>0.06</td>
<td>-0.05</td>
</tr>
<tr>
<td>Experience</td>
<td>0.12</td>
<td>*0.17</td>
<td>*<strong>0.19</strong></td>
</tr>
<tr>
<td>Bias</td>
<td><strong>-0.16</strong></td>
<td>-0.17</td>
<td>0.02</td>
</tr>
</tbody>
</table>

* p < 0.05  
** p < 0.01  

### Table 9.4: Correlations between TSE outcome variables and belief scales

<table>
<thead>
<tr>
<th>Scales</th>
<th>Intention</th>
<th>Likelihood</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>susceptibility</td>
<td><strong>-0.19</strong></td>
<td>-0.12</td>
<td>0.03</td>
</tr>
<tr>
<td>severity</td>
<td>-0.08</td>
<td>0.02</td>
<td>0.09</td>
</tr>
<tr>
<td>barriers</td>
<td><strong>-0.30</strong></td>
<td><strong>-0.19</strong></td>
<td><strong>-0.16</strong></td>
</tr>
<tr>
<td>benefits</td>
<td>*<strong>0.48</strong></td>
<td>*<strong>0.48</strong></td>
<td><strong>-0.11</strong></td>
</tr>
<tr>
<td>bias</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.04</td>
</tr>
<tr>
<td>elaboration</td>
<td>*<strong>0.48</strong></td>
<td>*<strong>-0.48</strong></td>
<td>-0.06</td>
</tr>
<tr>
<td>control</td>
<td>*<strong>0.56</strong></td>
<td>*<strong>0.48</strong></td>
<td>*<strong>-0.37</strong></td>
</tr>
<tr>
<td>cues</td>
<td>*0.16</td>
<td>0.06</td>
<td>*<strong>-0.23</strong></td>
</tr>
<tr>
<td>norms</td>
<td>*<strong>0.20</strong></td>
<td>0.10</td>
<td>*<strong>-0.31</strong></td>
</tr>
<tr>
<td>cope</td>
<td>*0.20</td>
<td>*0.22</td>
<td>*-0.17</td>
</tr>
</tbody>
</table>

* p < 0.05  
** p < 0.01  
*** p < 0.001
Health behaviour (Habits/Routines)

Health habits and routines are predicted to be important pre-cursors to self screening action. In the present sample men who smoke more also drink alcohol more. This appears to be a common finding. Whereas smoking and drinking are significantly related, no significant relationship exists between exercise and smoking and drinking, although there is a trend to show that men who exercise are less likely to smoke or drink alcohol.

Table 9.5: Correlation between health behaviours

<table>
<thead>
<tr>
<th>Variables</th>
<th>exercise</th>
<th>smoking</th>
<th>drinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td>-0.13</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Drinking</td>
<td>-0.03</td>
<td><strong>0.34</strong></td>
<td>1.00</td>
</tr>
</tbody>
</table>

** p < 0.01

Analysis of knowledge

Two tests of knowledge were applied, a multiple choice test of testicular cancer and TSE (MCT) as well as a recognition test of reproductive biology (RT). The properties of these tests are presented in Table 9.6 below.

Table 9.6: Mean scores and internal consistencies of the two knowledge tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Choice Test</td>
<td>6.11</td>
<td>3.04</td>
<td>0.75</td>
</tr>
<tr>
<td>Recognition Test (RT)</td>
<td>9.95</td>
<td>2.64</td>
<td>0.74</td>
</tr>
</tbody>
</table>

It is clear that both tests present good internal reliability. They correlate moderately with each other (r = .22) indicating that the two tests measure qualitatively different types of knowledge. When these scales are correlated with the outcome variables it is evident that they do not predict behaviour very well. These correlations are reported in Table 9.7. The table also shows that the MCT test of knowledge correlates negatively with intention to carry out TSE in future at 0.001 level of significance. Moreover, the RT measuring knowledge of anatomy does not relate significantly to outcomes. No other correlations of any significance exist. This raises doubts about the value of knowledge as a predictor
of behaviour. It is interesting that the only significant correlation implies that, if anything, greater knowledge makes action less likely.

Table 9.7: Correlation between cancer/anatomy knowledge and intention

<table>
<thead>
<tr>
<th>Variable</th>
<th>practice</th>
<th>planning</th>
<th>intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCT</td>
<td>-.1091</td>
<td>-.0519</td>
<td><strong>-.2462</strong></td>
</tr>
<tr>
<td>RT</td>
<td>-.0520</td>
<td>.0421</td>
<td>.0308</td>
</tr>
</tbody>
</table>

Further correlation analyses showed no significant relationships between knowledge and health behaviours such as drinking alcohol and smoking. However, there was a significant positive relationship between cancer knowledge and the importance of body parts such as testicles ($r = 0.18$, $p = 0.01$). There were no other body parts which significantly correlate with knowledge. There was a significant positive relationship between knowledge and value of body parts (fit body) ($r = 0.17$, $p = 0.05$) and drinking of alcohol ($r = 0.24$, $p = 0.01$). Moreover, the correlations between health behaviours and demographic variables has revealed a positive relationship between age and smoking ($r = 0.30$, $p = 0.05$) and between smoking and drinking ($r = -0.34$, $p = 0.01$). Older people were more likely to be smokers and less likely to be drinkers.

From Table 9.8 below it is clear that some negative relationships exist between factual knowledge and worst scenario beliefs about cancer screening. For example, the greater the knowledge of TSE, the less likely is the belief that TC will prevent having children. Conversely, one positive relationship concerns cancer knowledge and fatalism showing that the greater the knowledge of cancer the greater the belief that nothing can be done to prevent its development. Furthermore, it is not surprising to see that the use of information media such as TV and leaflets is positively related to cancer knowledge. Moreover, an interesting finding is that the greater the knowledge of cancer, the greater is embarrassment about TSE and the greater is the belief that TSE brings peace of mind. These correlations suggest that there is an important role for health promotion to convey information and raise the level of factual knowledge and to dispel mis-information.
Table 9.8: Correlation between cancer knowledge (MCT) and beliefs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embarrassment</td>
<td>**0.19</td>
</tr>
<tr>
<td>TC causes infertility</td>
<td>**-0.18</td>
</tr>
<tr>
<td>Peace of mind</td>
<td>***0.24</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>***0.22</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>***0.21</td>
</tr>
<tr>
<td>Communicate friends</td>
<td>0.15</td>
</tr>
<tr>
<td>Health promotion</td>
<td>0.14</td>
</tr>
<tr>
<td>Norm belief</td>
<td>***0.28</td>
</tr>
<tr>
<td>TC is usually fatal</td>
<td>0.15</td>
</tr>
<tr>
<td>TSE painful</td>
<td>-0.18</td>
</tr>
<tr>
<td>Anticip coping</td>
<td>**0.14</td>
</tr>
<tr>
<td>Remind self</td>
<td>***0.22</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>***0.33</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>***0.23</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>***0.25</td>
</tr>
<tr>
<td>Likelihood TC</td>
<td>0.16</td>
</tr>
</tbody>
</table>

* p < 0.05  
** p < 0.01  
*** p < 0.001

In line with other knowledge findings, it is noteworthy that knowledge of reproductive anatomy also correlates negatively with many of the variables shown in the table above including self efficacy and positive self concept about the ability to carry out TSE, and anticipated regret. In the light of relatively low awareness of cancer generally this would seem to suggest a need for health promotion. Moreover, the positive correlation between lack of procedural knowledge and anatomy knowledge indicates that only very fragmented knowledge exists.
Table 9.9: Correlation between knowledge of reproductive anatomy (RT) and beliefs

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embarrassment</td>
<td>*-0.15</td>
</tr>
<tr>
<td>Self concept</td>
<td>*-0.14</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>*-0.16</td>
</tr>
<tr>
<td>Positive attitude</td>
<td>***-0.20</td>
</tr>
<tr>
<td>Imagine TSE</td>
<td>**-0.19</td>
</tr>
<tr>
<td>Anticipated regret</td>
<td>***-0.30</td>
</tr>
<tr>
<td>Peace of mind</td>
<td>**-0.19</td>
</tr>
<tr>
<td>Looking for trouble</td>
<td>*0.14</td>
</tr>
<tr>
<td>Unaware of procedure</td>
<td>*0.16</td>
</tr>
</tbody>
</table>

* p < 0.05  
** p < 0.01  
*** p < 0.001

Summary
Results of the present study show that men's knowledge and awareness of TSE and TC is low. Findings therefore suggest a need for health promotion in this area of prevention. Furthermore, it appears that knowledge of cancer and reproductive biology has little association with decision-making concerning the practice of self screening. These results would seem to support those who view the importance of factors other than knowledge in decision making as paramount.

Results of Descriptive Analyses of Emotional Cognitions
Many of the emotional cognitions included in the study have been subsumed by scales including barriers to screening, benefits, fright (worst scenario beliefs), susceptibility, seriousness of cancer. Although some single items have also been included. For example, it has been shown that a relationship exists between fear (the thought of developing TC cancer is frightening) and outcomes such as TSE intention and likelihood. More specifically, fear of TC is positively related to intention to screen and likelihood of action ($r = 0.14$, $p = 0.05$; $r = 0.27$, $p = 0.000$). Here the frightening thought of developing TC is associated with positive decision making about TSE. However, a number of emotional cognitions did not contribute to other scales, and are discussed below.
Anticipated coping

Anticipated coping was measured in an open-ended way in order to tap men's responses to a hypothetical situation about coping with cancer. These items were based on findings from qualitative studies and were designed to evoke men's emotions and feelings by considering an imaginary event. Although subjects were able to make any number of responses, the vast majority (92%), made one response only. It is also noteworthy, that there was a considerable amount of missing data suggesting that subjects found it difficult to respond to these questions.

Table 9.10 below depicts the response frequencies to the following question: "Imagine that you may have TC. How do you imagine that you would cope? Which factors would be the most difficult to cope with?".

Men's responses about anticipatory coping were concerned with fear of death, surgery, treatment, telling family, impotence, sterility, psychological problems, metastasis, embarrassment, uncertainty, loss of sex life, bad jokes of friends, effect on family. Obvious categories of responses emerged from the data. Thus, no reliability tests were carried out. Of these, four were most prevalent, including treatment concerns, fear of death, resignation and uncertainty. As might be expected, many of these concerns about future coping have clear emotional connotations.

Table 9.10: Rank order of most difficult anticipated coping, based on frequency

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatments</td>
<td>37</td>
<td>26.4</td>
</tr>
<tr>
<td>Fear of death</td>
<td>29</td>
<td>20.7</td>
</tr>
<tr>
<td>Resignation</td>
<td>18</td>
<td>12.9</td>
</tr>
<tr>
<td>No response</td>
<td>17</td>
<td>12.1</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>14</td>
<td>10.0</td>
</tr>
<tr>
<td>Concern about sig</td>
<td>9</td>
<td>6.4</td>
</tr>
<tr>
<td>Deprivation</td>
<td>9</td>
<td>6.4</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>5</td>
<td>3.6</td>
</tr>
<tr>
<td>Stigma</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Missing data</td>
<td>48</td>
<td>26.0</td>
</tr>
</tbody>
</table>
Table 9.11 below shows the frequencies to a similar question namely: "Imagine the same scenario, which factors related to TC do you imagine to be the least difficult to cope with?". Men responded as follows with: stigma, loss of fertility, loss of sex drive, loss of testes, treatment, uncertainty, embarrassment, deprivation. It is interesting to note that both most and least difficult factors to cope with have similarly high frequencies as regards to fear of death and fear of treatment.

Table 9.11: Rank order of least difficult anticipated coping based on frequency

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>44</td>
</tr>
<tr>
<td>Treatment</td>
<td>18</td>
</tr>
<tr>
<td>Fear of death</td>
<td>9</td>
</tr>
<tr>
<td>Concern for others</td>
<td>9</td>
</tr>
<tr>
<td>Deprivation</td>
<td>9</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>3</td>
</tr>
<tr>
<td>Stigma</td>
<td>2</td>
</tr>
<tr>
<td>Loss</td>
<td>2</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>1</td>
</tr>
<tr>
<td>Missing data</td>
<td>72</td>
</tr>
</tbody>
</table>

Table 9.12 below depicts the frequencies of responses to the following question: "Imagine you are in the process of carrying out TSE at home, what thoughts and feelings do you imagine will go through your mind in this situation?". Responses included the following examples: do I self screen correctly; is what I feel normal; I hope all is ok; it's just a health check; will I really be able to spot an abnormality; keep an open mind; scared-nervous-relief-peace of mind. It is interesting to note that anxious hoping, anxious wondering, anxious anticipation made up 34% of all responses.
Table 9.12: Rank order of anticipated coping with TSE based on frequency

<table>
<thead>
<tr>
<th>Value label</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious hoping</td>
<td>30</td>
<td>22.1</td>
</tr>
<tr>
<td>No response</td>
<td>29</td>
<td>21.3</td>
</tr>
<tr>
<td>Low self efficacy</td>
<td>24</td>
<td>17.6</td>
</tr>
<tr>
<td>TSE task analytical</td>
<td>18</td>
<td>13.2</td>
</tr>
<tr>
<td>Anxious anticipate</td>
<td>10</td>
<td>7.4</td>
</tr>
<tr>
<td>Scared</td>
<td>8</td>
<td>5.9</td>
</tr>
<tr>
<td>Anxious wondering</td>
<td>7</td>
<td>5.1</td>
</tr>
<tr>
<td>It's just a health check</td>
<td>7</td>
<td>5.1</td>
</tr>
<tr>
<td>Keep an open mind</td>
<td>3</td>
<td>2.2</td>
</tr>
<tr>
<td>Missing data</td>
<td>52</td>
<td>28.0</td>
</tr>
</tbody>
</table>

Table 9.13 below shows the frequencies of responses to the following question: "What factors might prevent you from examining your testicles regularly?". Examples of responses include: shift work; cold hands; not being alone; forgetting; fear; stress; none; no privacy. It is interesting to see that "No Privacy" and "Forgetting" make up the largest category. This is followed by "Fear".

Table 9.13: Rank order of barriers to screening based on frequency

<table>
<thead>
<tr>
<th>Value Label</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No privacy</td>
<td>34</td>
<td>24.5</td>
</tr>
<tr>
<td>Forgetting</td>
<td>30</td>
<td>21.6</td>
</tr>
<tr>
<td>No response</td>
<td>29</td>
<td>20.9</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>10.8</td>
</tr>
<tr>
<td>Fear</td>
<td>13</td>
<td>9.4</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>10</td>
<td>7.2</td>
</tr>
<tr>
<td>Work and opportunity</td>
<td>4</td>
<td>2.9</td>
</tr>
<tr>
<td>Stress</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Missing data</td>
<td>49</td>
<td>26.0</td>
</tr>
</tbody>
</table>

Summary

These self reports indicate clearly the presence of anxiety and worry about issues of coping with TC and TSE. To the extent that men are able and willing (given the coping scenario) to make explicit their feeling about such hypothetical events, it may be assumed
that decision making concerning TSE will also evoke such negative feelings. This is because the exposure to a potentially threatening message, in this way, forces the individual to elaborate the issue, and to contemplate (ruminate) and thus connect with emotions which would otherwise remain "untouched".

The next part of this chapter will report on the cross-sectional analysis of three of the most frequently used SCMs. The aim is to compare and contrast these models to choose the one which best explains and predicts self-screening practice.

A CROSS-SECTIONAL ANALYSIS TO COMPARE AND CONTRAST FOUR SOCIAL COGNITION MODELS

The aim of this section is to compare and contrast four SCMs to determine the best predictors from the models. The purpose was to establish which variables are the strongest predictors and how variables combine to bring about decision-making about TSE including intention, likelihood and self-screening practice.

The assumption of the present analysis is that the SC models under investigation have both shared and model-specific components. The shared components are risk perception and expectancy value components. The first step in the analysis, therefore, was to combine, for each theoretical model, common and model-specific facets and submit them to multiple regression analyses. All regression models were then tested in relation to outcome measures including intention to self-screen, likelihood of screening and current TSE practice. Table 9.14 below depicts the components of the four SCMs under investigation.
Table 9.14: Components of four Social Cognition Models

<table>
<thead>
<tr>
<th>Component</th>
<th>HBM</th>
<th>TRA</th>
<th>TR/PB</th>
<th>PAT</th>
<th>HSCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susceptibility</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Severity</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Benefits</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Barriers</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Cues</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Subjective norms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Social norms</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>PBC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Control/self-eff</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Optimistic bias</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Awareness/knowl</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Info seek (21)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Elaboration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Reprod knowl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Perceiv norm (36)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Antic coping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Contin. Plan (39)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Personal exp (9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Self concept (57)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Fatalism (52)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Pre-occup (42)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Drinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Fright (severe)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Seriousness (32)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Embarrass (24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Fear (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Reminder (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

Single item numbers in brackets

HBM  = The Health Belief Model
TRA  = Theory of Reasoned Action
TR/PB = Theory of Reasoned/Planned Behaviour
PAT  = Precaution Adoption Theory
HSCM = Hybrid Social Cognition Model

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Outcome measures
The following outcome measures were used:
1. current self screening action (yes-no)
2. intention to screen in the future (1-5 rating)
3. likelihood of action (1-5 rating)

The analyses
A series of multiple regression analyses were carried out to establish the relative importance of model components and the effect sizes of the models. Five regression models were built to analyse five theoretical models. Model components were regressed on both intention to screen, likelihood of action and current TSE practice.

Standard linear regressions were carried out on all three outcomes including intention, likelihood and current TSE practice. Whilst strictly speaking a logistic regression would be more appropriate for current TSE practice (a dichotomous outcome measure), a standard regression was carried out to facilitate direct comparison with the other models.

One of the limitations with dichotomous outcomes is, of course, that the regression for the predicted outcome variable is not constrained to be between 0 and 1. However, in this particular case the concern was not with the accuracy of classifying individuals but with the general pattern - to establish the predictive value of a fitted model.

Regression Model 1: Health Belief Model
A 5 component regression model was built to analyse the HBM. The components include susceptibility, severity, barriers, benefits and cues to action. The two risk perception variables (susceptibility, severity) and the two expectancy value components (benefits and barriers) were also included in the analyses of the other SCMs to facilitate comparisons to be made between them. The assumption was that these components are common to all expectancy value theories of prevention. The purpose therefore was to keep these common factors constant across models and then contrast the models in terms of their specific components.

The HBM was analysed by multiple regression (on likelihood and intention and on TSE practice). The extra modular multiple regression analysis carried out on intention (as
opposed to likelihood) aimed to determine whether intention as an outcome measure for HBM components would increase the predictability of the model.

**Regression Model 2: Theory of Reasoned Action**
The TR/PB was analysed first as basic TRA model including 5 components and second as an extended model including 7/8 components adding control/planning and self efficacy components to the equation. The components of the models were analysed both multiplicatively as prescribed by the theory, as well as additively (including the common components) to facilitate comparison with other SCMs.

**Regression Model 3: Precaution Adoption Theory**
The PAT was analysed additively, including 13 common and specific components, to facilitate comparison with other models. In addition Logistic Regression Analysis was carried out to determine whether stages exist in the decision making process.

**Regression Model 4: Hybrid Social Cognition Model**
The HSCM was analysed additively. All 25 components were included in the analyses including health behaviour components, personal experience, self perception/prediction components and affective components.

Results of all the models analysed were then compared and contrasted to determine the best predicting components as well as the best predicting model of decision making.

**Results**
Tables 9.15 to 9.17 below depict Beta coefficients of components of additively (a) and multiplicatively (m) analysed SCMs, for intention to screen and likelihood of TSE. The tables depict components in accordance with the "high risk hypothesis", i.e. high susceptibility leads to positive decision making (susceptibility and seriousness items are re-coded accordingly).
Table 9.15: Beta coefficients of components of SCMs (high risk hypothesis) on intention to self screen

<table>
<thead>
<tr>
<th>Components</th>
<th>HBM</th>
<th>TRA/m</th>
<th>TR/PBm</th>
<th>PAT</th>
<th>HSCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susceptible</td>
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<td>**-.14</td>
<td>**-.21</td>
<td>*.14</td>
<td>.42</td>
</tr>
<tr>
<td>Severity</td>
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<td></td>
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</tr>
<tr>
<td>Benefits/Att</td>
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<td>***.49</td>
<td>**.22</td>
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<td>.27</td>
</tr>
<tr>
<td>Barriers</td>
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<td></td>
<td>-.05</td>
<td>-.11</td>
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<tr>
<td>Cues</td>
<td>.06</td>
<td></td>
<td></td>
<td>-.03</td>
<td>.08</td>
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<tr>
<td>Sign. others</td>
<td>.16</td>
<td>.11</td>
<td></td>
<td>.12</td>
<td>.26</td>
</tr>
<tr>
<td>Norms</td>
<td>*.13</td>
<td>.03</td>
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<td>.07</td>
<td>.33</td>
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<tr>
<td>PBC</td>
<td>-.12</td>
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<td>-.07</td>
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<tr>
<td>Control/SE</td>
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<td>**.33</td>
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<td>.09</td>
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<td>Elabo</td>
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<td>Reprod knowl</td>
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<td>Bias</td>
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<td>Info seek(21)</td>
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<td>Anticip cope</td>
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<td>Self conc(57)</td>
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<td>Pre-occup(42)</td>
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<td>Fear of TC</td>
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<td>Reminder</td>
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<tr>
<td>R-square</td>
<td>30%</td>
<td>30%</td>
<td>45%</td>
<td>49%</td>
<td>84%</td>
</tr>
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Table 9.16: Beta values of components of SCMs on likelihood of action (high risk hypothesis)

<table>
<thead>
<tr>
<th>Components</th>
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<th>TRA/PBA</th>
<th>PAT</th>
<th>HSCM</th>
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<td>Susceptib</td>
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<td>**.21</td>
<td>.24</td>
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<tr>
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<td>*.22</td>
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<td>Barriers</td>
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<td>Cues</td>
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<td>-.00</td>
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<tr>
<td>Sign. others</td>
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<td>Conting Plan(39)</td>
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<td>Embarrass(24)</td>
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<td>Fear of TC (2)</td>
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<td>Reminder (4)</td>
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<td>-.07</td>
<td></td>
</tr>
<tr>
<td>R-square</td>
<td>27 %</td>
<td>36 %</td>
<td>38 %</td>
<td>76 %</td>
</tr>
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</table>

Table 9.17 below depicts the results of multiple regression analysis carried out on current TSE practice.
Table 9.17: Multiple Regression of SCMs on current TSE practice

<table>
<thead>
<tr>
<th>Components</th>
<th>HBM</th>
<th>TR/PB a</th>
<th>PAT</th>
<th>HSCM</th>
</tr>
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<td>-.15</td>
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<td>-.02</td>
<td>.52</td>
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<td>Norms</td>
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<td>.32</td>
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<td>Elaboration</td>
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</tr>
<tr>
<td>Knowledge</td>
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<td>Reprod knowl</td>
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<tr>
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<td>Pre-occup (42)</td>
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<tr>
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<td>Exercise</td>
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<td></td>
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<tr>
<td>Fright (sev)</td>
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<td>Serious TC (32)</td>
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<tr>
<td>Reminder (4)</td>
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</tr>
<tr>
<td>R-square</td>
<td>.08</td>
<td>.20</td>
<td>.31</td>
<td>.84</td>
</tr>
</tbody>
</table>

P-values of model components:
*  < 0.05
** < 0.01
*** < 0.001
The primary purpose of this part of the analysis was to determine the most important predictors of self screening practice. The ultimate aim being the inclusion of these predictors into health promotion material for men. Components of four SCMs and a proposed hybrid model were included in the analyses to compare and contrast the models in terms of their effectiveness as predictors of decision making regarding TSE. Overall, it has been shown that components of the four SCMs and the proposed hybrid model (HSCM) are able to predict a considerable proportion of total variance of intention and likelihood of TSE. The most significant factors of decision making across models being benefits of screening, personal control, self efficacy factors, planning, information seeking and perceptions of risk. Over and above these "traditional" SC predictors, many of those proposed by the hybrid model are also important. The most significant predictors are single items including a lack of trust in one's ability to find effective reminders. This is followed by pre-occupation with cancer. A positive self concept is also important, as is a behavioural routine factor (self reported above average amounts of exercise).

**Effect size of models**

From the tables above it can be seen that the HBM incorporates five components explaining 30% of intention and 27% of likelihood of action. The TR/PB incorporating eight components explaining 44% of intention and 36% of likelihood. The PAT incorporating 14 components explaining 49% of intention and 38% of likelihood. The HSCM incorporating 25 components explaining 87% of intention and 78% of likelihood.

**Outcome measures**

Model components have been regressed on 3 outcome measures namely intention, likelihood of action and current practice of TSE. Intention is the mediator of action proposed by the TRA. Likelihood of action is the HBM outcome measure, taken as a by proxy measure of behaviour. Such behavioural self prediction is considered a better predictor of behaviour than intention (Warshaw and Davis, 1988). In the present study a significant relationship between intention and likelihood was determined ($r = 0.65, p = 0.000$). Moreover, it is interesting to note that all models are more significantly predictive of intention than they are of likelihood. To the extent that likelihood represents
behaviour, these findings would appear to mirror the uneasy relationship often observed between intention and behaviour. For example, the HSCM differs considerably in variance explained of intention from the PAT (84% versus 49%). Adding specific components of the HSCM such as self concept, pre-occupation, fear of TC, and exercise raises the total variance explained of intention to 84% leaving 16% unexplained. Findings appear to provide good reasons for the inclusion of components other than "traditional" SC. However, it has to be acknowledged that the reliability of the many single item components remains necessarily undetermined.

Current practice
From Table 9.17 it can be seen that the HSCM is able to explain the largest amount of variance of current TSE practice. As might be expected, the largest predictors are a lack of information seeking and a positive self concept. This is followed by exercise, a lack of past pre-occupation with cancer and a lack of fear of cancer. The most significant predictors of current TSE practice across models are cues to action, social norms, behavioural control factors and a lack of bias and information seeking and a lack of concern for whether others conduct health behaviours.

High risk hypothesis
In accordance with the high risk hypothesis, perception of risk (high threat) relates positively to likelihood of action. In contrast, high risk perception relates negatively to intention (when weighted by severity). The suggestion is that the analysis of risk needs to include both factors in order to allow causal inferences to be made about the influence of threat on decision making in TC prevention.

Discussion
The Health Belief Model (HBM)
In accordance with the HBM people are more likely to take up self screening if they believe that they are susceptible to developing TC, that TC is a serious disease and that TSE is beneficial in that the benefits of carrying out TSE outweigh the costs of the behaviour. In addition, cues to action are seen as important triggers to self screening action.
Findings of this study have shown that although all HBM components play an important role across the three outcomes measured, the model specific outcome of likelihood of TSE is not predicted by all HBM components. Only benefits of TSE and beliefs about susceptibility of developing TC were predictive of likelihood to self screen (refer to Table 9.16).

Where intention was used as an outcome measure, perceived severity and perceived barriers to screening are important predictors (refer to Table 9.15). Severity, also conceptualised as "worst scenario" beliefs, significantly but negatively relates to intention to self screen. That is to say, where people believe in the detrimental effects of TC such as loss of a testicle, infertility or loss of sexual enjoyment, intention to self screen is less likely. The threat hypothesis of the HBM therefore, is only supported by susceptibility, not by severity. Perceived barriers, as might be expected, including people's beliefs regarding TSE as a painful procedure, or their belief that finding an abnormality will be frightening, or their perception of TSE as a means of looking for "trouble" were significantly but negatively related to intention. Cues to action on the other hand, were unrelated to decision making but were found to be a significant predictor of current self screening practice.

The Theory of Reasoned and Planned Action (TR/PB)
In accordance with the postulate of reasoned action theory, TSE is a result of a person's intention to self screen. Intention to screen, in turn, depends on a positive attitude or positive evaluation of TSE. This positive attitude, in turn, is a result of certain beliefs about TSE, including beliefs concerning susceptibility to TC.

Overall, the evaluation of the TR/PB in terms of its specific components (planned behaviour, behavioural control and self efficacy) as predictors of intention to screen is necessarily more positive in terms of predictive power. Compared with the HBM which is able to explain 30% of the total variance of likelihood, reasoned action components raise the variance explained to 45%. From Table 9.1 it can be seen that the components of TRA and the extended version, the TR/PB, are able to predict intention to self screen very well (30%, 45%). The added factors of TR/PB, including planned behaviour and self efficacy, contribute considerably to the overall effect size of the model. In addition, the
weighting of the risk factor component (susceptibility) by severity components appears to have altered the relationship with intention to screen. As can be seen from Tables 8.15 to 8.17, whilst both HBM and TRA when additively analysed show positive or non significant relationships between susceptibility and intention and likelihood, the weighting of severity changes this relationship to a negative one. The threat hypothesis has thus not been supported by the TR/PB, as Risk Perception (susceptibility weighted by severity) relates negatively to intention to self screen.

Findings of the present study show that perceptions of susceptibility to developing TC (susceptibility weighted by severity of the disease) as well as perceived barriers to screening along with positive attitudes to screening (weighted by probability) and perceived social norms are important predictors of intention. Positive attitudes to screening being the most powerful predictor by far (beta = .49, p = 0.000).

Where control and self efficacy factors are added to the equation, despite their importance in predicting intention to screen, attitudes and perceived susceptibility remain strong predictors (beta = .22, p = 0.000; beta = -.21 p = 0.002).

It is interesting to note that significant others' wishes have not been shown significant in decision making. Instead, perceived social norms in the form of perceptions of what others do, significantly predict intention (beta = .13, p = 0.01). This is only true for the basic model. Where self efficacy has been added to the equation, the influence of perceived norms vanishes.

**Precaution Adoption Theory (PAT)**

In accordance with PAT, stages of decision making exist concerning awareness, risk perception, intention, planning and action. This has not been determined empirically. However, PAT appears to be the best predicting model of the three in terms of overall effect size (R square = .49). The model is particularly interesting because of its information seeking component as a significant predictor, suggesting the existence of stages of decision making (beta = .15, p = 0.01) (refer to Table 9.15). However, it is interesting to note that lifestyle bias, one of the principal components of the model, has failed to reach significance. The importance of unrealistic optimism is, nevertheless,
suggested by high risk perceptions (severity) as a predictor of negative decision making. This suggests that action is less likely where threat is implied. Findings concerning PAT, therefore, support the threat hypothesis to the extent that susceptibility, not severity, denotes threat. However, longitudinal analysis of stages is still forthcoming and will be reported in chapter 10.

**The Hybrid Social Cognition Model (HSCM)**

In accordance with the newly proposed HSCM, variables other than "traditional" social cognitions ought to be included. The Hybrid Model incorporates health behaviours (routines and habits), emotional cognitions, self perceptions, past experience over and above "traditional" social cognitions. As might be expected, this now extended model has obtained the largest amount of total variance explained (refer to Table 9.15 and 9.16). The most significant predictors are as follows: a past pre-occupation with cancer (beta = .45, p = 0.01), a positive self concept (beta = .44, p = 0.04) and a behavioural habit component (more than average amount of exercise, beta = .39, p = 0.07). These predictors are single item components and their reliability is difficult to establish. For practical reasons (limiting questionnaire size) multiple item reliability testing was not an option. Moreover, other predictors, whilst not reaching set significance levels have nevertheless achieved large beta values which suggests their relative importance. These factors include susceptibility and seriousness, benefits, fear of TC, knowledge, perceived norms and significant others beliefs (refer to Table 9.15).

**Limitations**

In this regard, it is important to acknowledge that the lack of a truly random sample limits the generalisations to be made from this study. Moreover, the cross-sectional nature of the study also limits the conclusions to be drawn. Such a method disallows inferences to be made regarding the causal effects of social cognition components. This has implications for health promotion and the practice of health education and draws attention to the fact that programme evaluation ought to be a significant part of routine health education practice to monitor the accuracy of theoretical underpinnings.

Another important limitation of the study is that some variables included may not be measured adequately by questionnaire self report. This may be particularly relevant as
regards to the assessment of affective components. Such items may not be adequately assessed because subjects are unable to respond appropriately and/or honestly because information is not available to them or this information may be subject to response bias. Furthermore, the many single item measures included in the study are of questionable reliability. This means that conclusions about their predictive power must necessarily be cautious.

Finally, it is necessary to make reference to the limitations imposed by the need to develop a simple, linear model to be used in health promotion practice. The pursuit of simplicity may have limited the possible insights gained into mediating factors of decision making (e.g. SES). Whilst the need to include such socio-economic factors into explanations of prevention has previously been argued (e.g. Marks, 1996) such analyses lie outside the scope of this investigation. In this regard, the parameters set for this investigation limit the investigation of socio-demographic factors to univariate analyses. These findings suggest at least one interesting association to warrant a more in-depth consideration. As reported earlier, the association between SES and action-planning suggests, that higher social status individuals might be more inclined to plan TSE, than their counterparts. Whilst such univariate findings do not allow us to draw firm conclusions about behaviour or tell us how SES might influence decision making, this finding will serve as a basis for discussing the theoretical issues surrounding health promotion and cancer prevention.

Components of the Hybrid Social Cognition Model
Findings of this investigation confirm the value-expectancy perspective of decision making. This is because benefits to TSE practice have been shown to be the most important predictors of positive decision making along with other traditional social cognitions. The perception of risk (threat hypothesis), on the other hand, has been less straightforward. The two factors involved (susceptibility, severity) showed contradictory results in relation to decision making. The issue concerning emotional components of decision making is further complicated by the importance of a fear component suggesting negative decision making.
Preoccupation
As for pre-occupation with TC, an important predictor of intention to screen but not of likelihood, the importance of this component remains necessarily uncertain. However, individual's pre-occupation with the prospect of developing TC and its associated lack of positive decision making, may be explained in terms of a fear barrier.

Moreover, findings suggest that where people are embarrassed about seeing their GP about TSE, they are not likely to self screen. Previous studies have shown, however, that men will report self screening practice despite embarrassment (Neef, 1991). The suggestion is that people who perceive "social" embarrassment may be less likely to self screen, whereas those who perceive "personal" or private embarrassment may, nevertheless, carry out TSE. These diverse findings concerning emotional cognitions suggest that the boundaries between affect and (rational) cognitions remain uncertain and little conceptual clarification has been achieved. However, results cautiously suggest that emotions do matter in decision-making concerning TSE.

Self identity
Interestingly, a self concept component suggests that idiosyncratic self perceptions may play a more important role in decision-making than previously thought. The degree to which self predictions and self perceptions have entered social cognitive theorising, in one form or another, may arguably be of questionable appropriateness. In fact, many of the variables included in SCMs have a distinct idiosyncratic "flavour". Self perceptions are, of course, being drawn on when measuring model components such as self efficacy, planning, probability, anticipatory coping, anticipatory regret and behavioural control factors.

However, although present findings suggest that self identity is predictive of men's self screening practice, it is worth remembering that, in this study, the component is measured as a single item predictor (has uncertain reliability) and thus conclusions can only be tentative. In this context it is noteworthy that self identity has also been researched in relation to healthy eating (Sparks and Shepherd, 1992). Clearly, more research is needed to investigate the influence of self identity on a greater range of health behaviours. This is because the concept may not be an independent component in terms of its influence on
intention/behaviour, but may act as a proxy measure for past behaviour (Sparks, 1994). It is possible that this conceptual overlap may also include behavioural control factors/self efficacy factors. However, present findings have highlighted the need for such self predictions to be submitted to conceptual disentanglement.

**Behavioural routine/habit**
As hypothesised by the hybrid model, a behavioural routine factor (i.e. exercise) has emerged as a significant predictor of decision making. This might be because high level exercise is an expression of health motivation or health concern. Support for this notion is suggested by the fact that exercise correlates negatively with smoking and drinking (although not significantly). A previous study into TSE has confirmed this and showed that men who self screen were also more likely to use seat-belts and do regular aerobic exercises (Neef et al, 1991). This would seem to contradict earlier findings suggesting no relationship between types of health behaviours.

**Knowledge/awareness**
Similarly, knowledge about disease has in the past been found as one of the important six factors related to the performance of health behaviours. This finding was derived from a non-metric multi dimensional scaling carried out on 109 variables and 14 different models of health behaviour (Cummings et al, 1980). More recently, however, it has become apparent that knowledge is not the significant predictor of health behaviours it was previously thought to be. This has been confirmed by this study and supports the notion that knowledge is necessary but not sufficient for behaviour change to occur. In this regard, it is not surprising to learn that the relative lack of knowledge of TSE has lead to an information seeking component to take on significance.

It is clear that the findings of this study highlight the need for effective health promotion. Positive relationships between cancer knowledge and lay beliefs point to the need to increase awareness and correct factually inaccurate beliefs concerning TC prevention. Where knowledge is relatively low, and where mis-information exists, increased information dissemination would seem to be the logical consequence.
In summary, the findings of this investigation suggest that the extension of traditional SCMs is justified. Although it might be argued that too many non-social, non-cognitive facets are subsumed under its umbrella, and that this is, at best, suggestive of a misnomer. In this regard, whilst the advantages of a social cognitive approach to behaviour change are welcomed by health psychologists, the indiscriminate inclusion of components which are highly predictive, but neither markedly social or cognitive, may be counter-productive. Firstly, it may detract from the development of improved alternative models, and secondly, it may detract from paying attention to more effective methods of investigation. Furthermore, it is clear that traditional SCMs are unlikely to achieve the necessary predictive power in situations which are, by their very nature, "private" rather than social. It is thus reasonable to assume, that such behaviours are more likely to be associated with factors such as emotions, self concept and routines, all of which are amenable to intervention. It is suggested that these considerations might be taken into account in future research in this area of prevention.
CHAPTER 10
TESTING A STAGE APPROACH TO DECISION MAKING

Introduction
This section of the thesis has a dual purpose. Firstly, it aims to test a prediction model. More specifically, it seeks to determine empirically, whether stages of decision making exist in testicular cancer prevention, as postulated by Weinstein's PAT. The second purpose is to present the appraisal of two health education programmes, an information booklet and a seminar. The appraisal has a qualitative focus. The seminar is closely based on the booklet, in terms of content and stage-wise presentation of information. The two forms of the programme are each appraised by a different group: the booklet by adult males and the seminar by adolescent boys. The chapter will begin by reporting on a longitudinal study to test whether empirically justifiable stages exist in decision making concerning TSE.

The Precaution Adoption Process
According to Weinstein (1988), a stage approach has at least two important differences from a theory based on a single prediction equation. Namely, 1) that people at different points in the precaution adoption process behave in qualitatively different ways, and 2) that the kind of interventions and information needed to move people closer to action will vary from stage to stage. Weinstein views transitions between stages as barriers that must be overcome before action is taken. The assumption is that where such stages are determined empirically, knowledge about associated characteristics could then inform health promotion and thus lead to more precise and effective programme design and delivery. Where behaviour change is the objective, a stage explanation allows individuals to be placed along a time dimension of decision making which might incorporate maintenance behaviour and possibly relapse. This would seem to be useful for health education in schools where a "captive audience" can be exposed to appropriate health messages. Moreover, as pupils mature, their health promotion habits could be established. In this way, stages of decision making could be mapped against stages of development, within the educational system.
Method

Subjects
Of the original 188 subjects, 60 (32%) agreed to be followed up after six weeks and 34 of these (57%) actually completed the follow up measures. The age and social class distribution of the 34 subjects followed up, was similar to that of the original sample (refer to chapter 8). The mean age was 33 years with a standard deviation of 10.24.

Procedure
The survey questionnaire was distributed by snowball sampling, handed to students at university and left with fire station managers to be distributed to firemen. Completed questionnaires were returned by post, or collected by the researcher. Subjects were sent a health promotion booklet one week following the completion of the survey questionnaire. One week later, a booklet evaluation and follow up measure were sent to them for completion. In all, 34 subjects responded within 8 weeks of the initial completion of the survey measure. This is a disappointingly small sample but it does represent a response rate of 57%.

Measures
Measures were taken at 3 time periods.
Time 1: The TSE Survey Questionnaire (appendix 9.0)
Time 2: The Intervention Booklet (appendix 13.0)
This is an information booklet to promote TSE and was developed by the author (based on findings from the qualitative studies) and used here as a minimal intervention. The booklet contained basic information about testicular cancer (TC) and the practice of testicular self examination (TSE). An 8-item booklet evaluation measure was also taken at this time.
Time 3: A follow-up questionnaire (appendix 11.2) which, with the exception of two questions, followed an open-ended format. Two questions measuring self reported TSE practice used a 5-point ordinal response scale from "not at all" to "more than 3 times". A 15-item booklet evaluation measure appraising acceptability was also included (Appendix 11.1).
Analysis of data
The first step in this analysis was to determine criteria for stages of decision making, in accordance with Weinstein's PAT (1988). This model postulates 5 stages of decision making:

A number of single-item responses were identified which correspond to the kinds of thinking and behaviour prevalent at each stage. Preliminary correlational analyses were conducted to determine the relationships between these items and TSE activity in order to see whether a cumulative stage structure is identifiable. This was then informed by a multidimensional scaling analysis of the items.

Composite measures based upon the selected items were then generated for each of the first 4 stages. The final stage, action, was measured by self-reported performance of TSE. A logistic regression analysis was then carried out to examine the predictive power of Weinstein's model as well as to further determine the structure of the stage process.

Results
The results are presented in 4 sections. Following a brief item analysis to see how the individual survey items changed, we turn to the analysis of those items specific to the Weinstein model. This is then followed by the logistic regression analysis.

Initial item analysis
Table 10.1 depicts a descriptive item analysis of the self-report items of time 1 data (pre and post intervention sample of n = 188, n = 34). The items are ordered according to the absolute deviation between the item means before and after. It is not the concern here to do a statistical item level comparison but, rather, to obtain a general view of the item distributions and discrimination before proceeding further with multivariate analyses. The most important point to be drawn from this table is that there is a considerable difference between the items in their degree of variability. For example, the item concerning teacher encouragement of TSE shows a standard deviation of zero on the smaller post
administration sample. This reveals a total lack of discriminating power for this item and marks it as problematic.

From Table 10.1 below it is clear that there are considerable deviations in item mean between the two samples (pre-intervention n = 188 and the smaller follow-up sample n = 34). Particularly with regard to measures of personal susceptibility (2.75, 2.49, 2.37). Here, perceptions of susceptibility to TC are considerably lower indicating that this group of men consider themselves as less susceptible compared with the total sample. The largest deviation in mean however occurred in regard to communication concerning friends and encouragement from parents. Here the smaller follow-up sample showed markedly higher mean values indicating greater levels of communication. As can be seen, ratings of fear of cancer are smaller on average in the follow-up sample whilst fear-related motivation is greater. Planning to screen too was rated much higher on average in the follow-up sample as was the perception of threat. In contrast, self efficacy had a smaller mean in the post-intervention group. However, larger means have been observed in this group concerning the belief that TSE will bring peace of mind, that it will fit into present lifestyles and that it will be conscientiously carried out. As can be seen, further deviations in mean scores between the two samples are present but are much smaller in magnitude. With regards to these variables at least the smaller follow-up sample appears to differ in mean response to the survey from the overall sample. This will be taken into account when interpreting the findings.

Table 10.1: Item analysis at pre and post intervention

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<th>Deviation</th>
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Table 10.1 (contd)

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</table>

One item for which a pre and post comparison is of central interest is the degree to which respondents are practising TSE. In order to make this comparison a Wilcoxon rank order test was carried out on the 34 respondents who participated in the follow-up study. A non-parametric test was used because of the small sample and the fact that a normal distribution of population response to the question could not be assumed. The result showed a highly significant increase in the practice of TSE following the minimal intervention of the booklet (z = 4.48, p < 0.001).

**Correlational analysis of stages**

The items specific to Weinstein's stages were identified and correlations between them and the outcome (or action) variables were calculated. Table 10.2 depicts the resulting Kendall's tau coefficients. Again the non-parametric coefficient was judged to be the most robust given the sample size and a reluctance to make parametric assumptions at this stage.

The variables included in the analysis include two from stage 1 (Awareness). These are, (Aware1) measured by the question "I have watched television programmes about TC prevention", and (Aware2) measured by the question "I am aware of health promotion leaflets to teach TSE". Stage 2 (Optimism), is derived from the question "People of my age are not likely to get TC". Stage 3 (Personal Susceptibility) consists of 3 questions of reversed coding (13, 37 and 31) respectively: "the probability of me getting TC is small", "People like me do not get TC", "I am less susceptible to TC then others of my age". Stage 4 (Planning) consists of three questions: "do you now plan to..."
carry out self screening as soon as possible", "do you intend to find out more about TC", "do you plan to find out more about TSE". Stage 5 (Acting) was measured by a question pertaining to the respondent's performance of TSE measured on a 5-point scale (not at all; once; twice; three times; more often).

The table shows that planning to self screen in future is strongly related to the practice of TSE. The strongest relationship, as might be expected, is the one between the two types of information seeking (to seek more information about cancer and about TSE).

Table 10.2: Correlation between stage components and self screening outcome

<table>
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<tr>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
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<tbody>
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<td></td>
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<td></td>
<td></td>
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<td></td>
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<td>D</td>
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<td>0.05</td>
<td>0.08</td>
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</tr>
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</table>

A = TSE practice (stage 5)
B = Planning to self screen (stage 4)
C = Information Seeking1 (TSE) (stage 4)
D = Information Seeking2 (Gen) (stage 4)
E = Susceptibility1 (stage 3)
F = Susceptibility2 (stage 3)
G = Susceptibility3 (stage 3)
H = Optimistic Bias (stage 2)
I = Awareness1 (stage 1)
J = Awareness2 (stage 1)
It is interesting to note that the relationships revealed here are suggestive of a simplex (albeit an imperfect one). The variables representing the stages are ordered according to their contiguity with the practice of TSE with Awareness (stage 1) at the bottom of the matrix and Planning (stage 4) at the top. It is notable that as we move down the column representing the correlations of the stage measures with TSE practice (Action) the coefficients decrease. A simplex, or one-dimensional underlying structure, is indicated if this trend follows for all the columns in the matrix. If it was a perfect simplex it would be a simple matter to demonstrate the stage model as it would imply the existence of a cumulative continuum from stage one through to stage five as demonstrated in Figure 1.

However, the pattern of correlations in Table 3 only suggests a simplex but it cannot be said to be perfect. A multidimensional scaling analysis (MDS) was carried out on the correlation matrix to explore the underlying structure. A smallest space algorithm was used (Guttman, 1981) which resulted in a stress index of 0.143 for a 2-dimensional solution. This solution is presented in Figure 2.
Figure 1: A Hypothetical Simplex for Weinstein’s Model

A The correlation between two adjacent stages – High
B The correlation between two stages separated by one – Moderate
C The correlation between two stages separated by two – Weak
D The correlation between the two extreme stages – close to zero.

Figure 2: Two-Dimensional MDS Solution of the Stage Items
If a simplex or cumulative unidimensional structure is indicated by the correlation matrix a 2-dimensional MDS solution should emerge in which the items are arrayed in a U-shape. This is known as the "Horseshoe" effect in the MDS literature. The solution here demonstrates the horseshoe quite well moving down the stages from stage 4 (planning) (A, B, C and D) through to stage 3 (Susceptibility) (E, F and G). However, Stages 2 and 1 are mixed up here with stage 1 (awareness) being juxtaposed between Susceptibility and Optimism. This suggests that the Optimism item may be somewhat questionable. There is also a clear case to split stage 4 into two components Planning (A and B) and Information Seeking (C and D). This analysis has provided qualified support for the stage model given the measures applied here and it also suggests an elaboration to Stage 4 may be appropriate. However, a major finding is that the items are regionally compatible with other items of the same stage. This provides confidence for the next stage of the analysis where four stage measures are created by generating composites of the relevant items.

**Logistic regression analysis**

In order to examine the prediction potential of Weinstein's model as it is measured here, the items making up the first four stages were aggregated to make four variables. In this way it was hoped that the specific variance of each unique item would be utilised in a composite form with others measuring the same stage. The final stage, Action, was taken to be an outcome measure and was dichotomised such that any practice of TSE following the intervention, whether it was once or more than three times, was classed as the behaviour in question being present. This allowed a logistic regression analysis to be performed in which the stage measures were the predictors and Action was the criterion to be predicted. It must be remembered that this analysis is based upon a small sample so that the inferential statistics possible from the regression are of very limited value. The concern here rests essentially with the pattern of the results.

That said, the index of fit (Chi-Squared) for the model when the 4 stages were used to predict action was 8.47 with 4 degrees of freedom. This is non-significant indicating that the model fits the data pretty well. Notably, a larger sample size may have produced a rather less unambiguous result but these analyses provide a certain degree
of confidence. The more interesting result, however, is the weights generated by the logistic regression for each of the stages in predicting action.

Table 10.3 shows that stage 4 is the only statistically significant predictor. Again, a larger sample would have been likely to increase the significances so these may be rather conservative estimates. Nevertheless, the most interesting finding is qualitative rather than purely statistical since it may be seen that the stages all weight the prediction in order of their hypothesised distance from the final action. Thus Awareness has the smallest weight while Planning has the largest. Indeed, the composite created by the logistic regression to maximally predict outcome, has succeeded in replicating the order entirely as the model would suggest. This is in keeping with the notion of a simplex discussed earlier.

Table 10.3: Beta weights generated by the logistic regression of 4 stages predicting action

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>S.E.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1: Awareness</td>
<td>.1210</td>
<td>.4496</td>
<td>ns</td>
</tr>
<tr>
<td>Stage 2: Involvement</td>
<td>.4043</td>
<td>.7964</td>
<td>ns</td>
</tr>
<tr>
<td>Stage 3: Susceptibility</td>
<td>.4922</td>
<td>.3950</td>
<td>ns</td>
</tr>
<tr>
<td>Stage 4: Planning</td>
<td>2.9222</td>
<td>1.3381</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

However, these analyses can in no way be considered confirmatory but are rather supportive of Weinstein's model. It is also possible to use these analyses to support a 2-stage approach to decision making. Such a model has previously been described by Gollwitzer and Heckhausen (1987). The notion of planning and information seeking inherent in stage 4 is most highly associated with action and is suggestive of an action-planning model. Such an approach has been described in terms of a motivation and volition phase of decision making by (Bagozzi, 1993). The present findings may support a move away from concentration on the motivational processes of decision making towards a more action-related planning process such as volitional information seeking. This puts the focus on variables important in the successful implementation of intention (Kuhl et al, 1985). At this point the focus shifts slightly to concentrate upon the planning for action stage.
The critical stage of planning for health action is explicitly considered as part of the volitional process and is labelled "action plans" by Schwarzer. This involves imagining scenarios of how and under which circumstances specific acts could be performed such as seeking further information.

Discussion

The analyses of stages has suggested that the structure posited by Weinstein has some empirical credibility. However, these analyses raise some questions about the distinction between the Awareness stage and the Optimism stage. Certainly, the analysis of the correlations suggest that Optimism is likely to occur prior to or concurrently with Awareness. It should be borne in mind that these analyses are only as good as their measurements and it is certainly possible that the obscurity of distinction between the two stages may be due to the use of a single indicator for the optimism stage, or the fact that the questionnaire itself may have prompted swift action at first exposure to the issues.

A further finding of these analyses is that the Planning stage may be viewed as an aggregation of two distinct stages. Thus information seeking appears to be discrete from planning. This leads to a tentative suggestion of a 6 stage model in which Information Seeking is interposed between Susceptibility and Planning. The suggestion is tentative because the sample size is too small here to make strong claims, nevertheless, this is a focus for further study.

The logistic regression analysis shows that the model has reasonable predictive properties as it manifests a good index of fit. The regression weights for each stage conform very nicely to the pattern expected when a stage model is proposed. That is the later the stage the greater the predictive weight. This is because the variance generated by the earlier stages feeds into the later stages leaving little unique predictive power. The order of the regression weights therefore is entirely consistent with a stage model and furthermore corresponds precisely with Weinstein's order.

However, given the fragile status of the 5-stage approach to decision making, an alternative conceptualisation has been sought. A 2-phase approach, more broadly
differentiating a motivation and volition/action phase, may be more appropriate in
describing decision-making concerning TSE. Such a model may then be usefully
applied to programme design. The application of such an approach will be discussed in
chapter 13.

Limitations of the study of stages
Overall, results have shown that individuals' self screening behaviour could be
predicted by knowing their planning stage. Other stages of decision making, as
postulated by Weinstein, have been suggestive rather than definitive. Although a stage
approach to decision making has been argued, there is a clear need to replicate the
study, involving larger samples at follow up, so as to obtain the true importance of
stages and test their associated characteristics.

Moreover, on the bases of the present findings, we cannot discount the possibility that
TSE practice may have been induced spontaneously - by the questionnaire itself.
Findings from the booklet appraisal in chapter 11 will support this notion. This study
shows that 85% of responders to the follow-up questionnaire reported being prompted
to self screen by the questionnaire itself. Such prompting may also help to explain the
relative importance of action over motivation found in this study, and particularly the
lack of a more clearly defined risk perception stage postulated by PAT. Most
importantly, perhaps, this finding reflects the difficulty involved in measuring a
process. However, such a scenario, involving a spontaneous reaction to the measure
and thus over-riding any stages that might exist in other types of health decision
making, would seem to be supported by Fazio's Spontaneous Processing Model and
remains a testable hypothesis.

Despite the shortcomings of this study, the fact that a stage approach holds to the
extent that it does, provides a valuable indicator that such a decision making process
might operate in TC prevention. This in turn will provide useful guidance for health
promotion practice in this area. However, as regards to this data at least, conclusions
have to be cautious and Weinstein's Stage Model (PAT) as tested here cannot be
confirmed. Despite the shortcomings of this study, it is possible to assume that
Weinstein's stage approach may find confirmation, given an adequate sample size.
Instead, a two-stage model, including a motivation and volition/planning phase appears to better explain the data. The next part of this thesis will report on the concurrent appraisal of the draft information booklet used in the intervention. The booklet was appraised, by adult men, in terms of its acceptability and appropriateness. The initial development of the intervention booklet was guided by findings from qualitative studies.
CHAPTER 11
THE APPRAISAL OF A HEALTH PROMOTION BOOKLET

The aim of the booklet appraisal was to determine, from men who had previously completed the TSE survey questionnaire, the acceptability of a draft booklet containing minimal information about TC prevention. Such process evaluation fulfils the need for information on programme implementation, which is important in determining outcomes in health promotion practice as well as informing future efforts for the purpose of promoting testicular health. Such formative evaluation aims to help develop and improve programmes from an early stage when opportunities for influence are likely to be greatest (Dehar et al, 1993).

Procedure
Subjects who agreed to be followed up were sent the draft booklet approximately 4 weeks after completion of the survey measure. One week later, the booklet evaluation questionnaire and follow-up measures were sent to them for completion. All 34 subjects responded within approximately 8 weeks following the initial completion of the main survey measure.

Measures
Time 3: The Booklet Evaluation measure
The booklet evaluation measure consists of 15 items measured on a 5-point Likert scale. Items were designed to measure perception of impact of the booklet on decision making, intention to screen, further information seeking, information dissemination through parents and friends, social support seeking, perceived emotional impact (anxiety and embarrassment), personal preference concerning type of programme and delivery and perceived self efficacy.

The follow-up measure consists of 7 items. An open ended format was assumed except for measures of TSE practice. The aim of the open-ended booklet appraisal was to tap people's opinion in their own words, their feelings and preferences and how effective they felt the booklet had been in persuading them to look after their testicular health. These include items appraising facets of the booklet in terms of the perceived impact on learning.
and on emotions, alternative media preferences, perceived impact on TSE practice and impact of the survey questionnaire on subsequent TSE practice.

For copies of the questionnaires and draft booklet, refer to Appendices 11.1, 11.2 and 13.0.

Analysis of booklet appraisal
The aim of the analysis was simply to determine men's responses to the booklet in terms of how acceptable they thought the booklet was for giving information. In addition, TSE practice was assessed at 6 weeks following the intervention. Frequency percentages as well as means and standard deviations were determined on responses to the booklet evaluation questionnaire. Pre and follow-up comparison of means were computed on measures such as embarrassment, worry, intention and communication with parents and friends (T-test). Measures were not identical in wording but conceptually linked. Follow-up comparisons of TSE practice were carried out. Simple content analysis of five open-ended questions to determine men's view of the acceptability of the programme was conducted.

Results

Booklet appraisal
Frequency percentages and means and standard deviations of men's responses to the 15-item post intervention questionnaire were computed. Measures were aggregated and presented as categorical data for the benefit of clarity in Table 11.1 below. Means and standard deviations of post booklet items are presented in Table 11.2.
Table 11.1: Percentages for agree/unsure/disagree for post booklet evaluation

<table>
<thead>
<tr>
<th>Variables</th>
<th>agree</th>
<th>unsure</th>
<th>disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is information sufficient</td>
<td>70</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Intent to carry out TSE</td>
<td>78</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Confident to TSE</td>
<td>67</td>
<td>26</td>
<td>07</td>
</tr>
<tr>
<td>Discuss TSE with HCPs</td>
<td>44</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Content embarrassing</td>
<td>26</td>
<td>26</td>
<td>48</td>
</tr>
<tr>
<td>Content worrying</td>
<td>14</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Content sufficient</td>
<td>73</td>
<td>08</td>
<td>19</td>
</tr>
<tr>
<td>Discuss with parents</td>
<td>08</td>
<td>13</td>
<td>79</td>
</tr>
<tr>
<td>Discuss with friends</td>
<td>15</td>
<td>44</td>
<td>41</td>
</tr>
<tr>
<td>Video preferred</td>
<td>52</td>
<td>33</td>
<td>15</td>
</tr>
<tr>
<td>Instructor preferred</td>
<td>34</td>
<td>26</td>
<td>41</td>
</tr>
<tr>
<td>Home video preferred</td>
<td>52</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>Booklet preferred</td>
<td>63</td>
<td>26</td>
<td>11</td>
</tr>
<tr>
<td>Dummy demo. preferred</td>
<td>30</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>Private access preferred</td>
<td>18</td>
<td>52</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 11.2 below shows that a vast majority (70%) of men deemed the information provided by the booklet as sufficient in persuading them to self screen. Only 15% reported to need further information. Most men expressed intention to screen after the booklet intervention and had great confidence in their efficacy to carry out TSE.

It was interesting to note that most men were undecided or did not intend to discuss the booklet with a friend. Moreover, a majority would not consider discussing the booklet with parents. In contrast, many men were favourably inclined toward discussion of the booklet with a health care professional. An interesting finding was that the majority of men were unsure or disagreed with the suggestion that the booklet caused anxiety. The majority disagreed with the booklet content being a source of embarrassment in discussion. Men's preferences as regards to information media revealed that most men were not sure about private access to information, with approximately equal numbers.
agreeing and disagreeing. On the other hand, a video appeared to be the preferred medium for most subjects in the adult group. In contrast, a majority of subjects appeared undecided or negatively inclined toward seminar teaching or the use of a dummy. Although the vast majority preferred written information in the form of a booklet, many subjects preferred a home video for gaining information. An important finding was that a majority of subjects (85%) reported being prompted by the questionnaire itself to practice TSE at least once with only 15% reporting not to have carried out TSE at follow-up. Whilst 49% of men reported examining their testicles once, 36% reported examining their testicles between two and four times.

Analysis of Change
Paired t-tests were carried out on five measures including information seeking, embarrassment, self-efficacy, communication with friends, intention and worry. The items are not identically worded across pre and post questionnaire but are conceptually linked. Table 11.3 shows means, standard deviations and significance levels concerning the difference in mean response between pre and post evaluation. The table shows that all but two variables show significant differences in mean agreement (1 = agree, 3 = unsure, 5 = disagree) between pre and follow-up intervention. Men no longer seek further information and are less embarrassed after the booklet intervention. Self-efficacy has remained largely unchanged. Significant differences exist between pre and post evaluation communication between friends. Whilst men are still not motivated to communicate, this negative reaction has decreased. There is no significant difference in parental communication which remains negative. But intention to screen has significantly increased. Anxiety and worry has decreased after the intervention.
Table 11.2: Means and standard deviations for post booklet evaluation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to screen</td>
<td>1.96</td>
<td>1.53</td>
</tr>
<tr>
<td>Is information sufficient</td>
<td>2.11</td>
<td>1.05</td>
</tr>
<tr>
<td>Confident to TSE</td>
<td>2.19</td>
<td>1.11</td>
</tr>
<tr>
<td>Booklet preferred</td>
<td>2.26</td>
<td>1.06</td>
</tr>
<tr>
<td>Home video preferred</td>
<td>2.56</td>
<td>1.19</td>
</tr>
<tr>
<td>Discuss TSE with HCPs</td>
<td>2.70</td>
<td>1.27</td>
</tr>
<tr>
<td>Video preferred</td>
<td>2.78</td>
<td>1.25</td>
</tr>
<tr>
<td>Instructor preferred</td>
<td>3.04</td>
<td>1.34</td>
</tr>
<tr>
<td>Private access preferred</td>
<td>3.22</td>
<td>1.12</td>
</tr>
<tr>
<td>Dummy demo. preferred</td>
<td>3.26</td>
<td>1.48</td>
</tr>
<tr>
<td>Discuss with friends</td>
<td>3.48</td>
<td>1.12</td>
</tr>
<tr>
<td>Content worrying</td>
<td>3.48</td>
<td>1.16</td>
</tr>
<tr>
<td>Content sufficient</td>
<td>3.96</td>
<td>1.43</td>
</tr>
<tr>
<td>Content embarrassing</td>
<td>4.11</td>
<td>1.05</td>
</tr>
<tr>
<td>Discuss with parents</td>
<td>4.33</td>
<td>1.01</td>
</tr>
</tbody>
</table>

Table 11.3: Means, standard deviations and significance of pre and follow-up beliefs

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-evaluation</th>
<th>Follow-up evaluation</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 34</td>
<td>N = 34</td>
<td></td>
</tr>
<tr>
<td>Info seeking</td>
<td>mean</td>
<td>sd</td>
<td>mean</td>
</tr>
<tr>
<td></td>
<td>2.8</td>
<td>1.2</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>3.0</td>
<td>1.6</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>2.6</td>
<td>1.4</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>4.6</td>
<td>1.1</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>4.7</td>
<td>0.7</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>1.7</td>
<td>1.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>**</td>
<td>**</td>
<td>ns</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>***</td>
<td>***</td>
<td>ns</td>
</tr>
<tr>
<td>Comm. friends</td>
<td>***</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Comm. parents</td>
<td>***</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td>***</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Worry</td>
<td>***</td>
<td>***</td>
<td></td>
</tr>
</tbody>
</table>

** p < 0.01
*** p < 0.001
Content analysis
A simple content analysis was carried out to discern the major themes from responses to five questions using obvious scoring categories. An interesting finding was that whilst all three parts of the booklet (information, procedure, emotion focus) were named as outstanding in the minds of subjects, the most prominent part appears to have been the procedural message concerning self screening practice. This part was also found to be the most informative.

On the whole, the booklet content was deemed to be convincing in terms of encouraging positive decision making. However, critical comments were also made, particularly about the brevity of information contained within and suggestions were put forward as to how this could be improved. It appears that some men felt that the message ought to have been more "strongly" put to combat apathy whilst others felt the message to be intimidating.

A great array of feelings were reported as a response to the booklet. Many comments included worry as well as reassurance. Some were negative reactions such as cynicism, apathy and the feeling of being patronised.

As alternatives to the booklet, other media were suggested as better ways of learning about TSE. These included the electronic media, the use of interactive computer packages and TV advertising. Generally, however, written (booklet) information was reported to be the preferred medium of men for learning about TC prevention.

Discussion
Although this appraisal study does not allow firm conclusions to be drawn regarding the actual effect of the booklet on TSE practice, a significant increase in practice has been reported at 6 weeks following the intervention. In addition men were less inclined to seek further information having received the intervention and they remained sure that they would be able to carry out TSE effectively.

An important finding has been that intention to communicate with friends and family has significantly increased although it remained negative. This might be explained in terms of
an embarrassment factor, or because men are disinclined to discuss TSE (a very "private" behaviour) with others. It is interesting to note, however, that men were generally inclined to talk to health care professionals about the practice of TSE.

Both open and closed questions revealed that the booklet was the preferred medium. This was closely followed in preference by the video. In contrast, other media including seminars and dummy presentations were not wanted. From this data generalisations about media preference are not possible. However, to date few controlled comparative studies exist in this area to evaluate the virtues of the various health education interventions in terms of process and outcome effectiveness in health education practice. Although more recently, some controlled evaluations have been carried out to test the effectiveness of certain theories (Bruebaker et al, 1995). In addition, it has been shown that for many health topics, women prefer print to video (Wright et al, 1996).

As for the content of the booklet, the most important part was reported to be the information concerning the procedure and practice of TSE. In addition, factual information concerning reproductive body parts and information concerning testicular cancer has also been reported as important. Data generally suggests that minimal information literature such as leaflets commonly provided by the Health Education Counsel (HEC) may not always be appropriate.

Implications for health promotion

It is clear that conclusions on the basis of the data must necessarily be cautious. This is because firstly, only a small sample was followed up, and secondly, no control group was used to ensure effects on practice can be attributed to the booklet intervention. Although all 188 subjects were asked to participate in the follow-up investigation, only 32 % of those who completed the survey questionnaire agreed to do so and fewer still, 18 % of the initial sample, actually completed the evaluation and follow-up measures. This high attrition rate seriously impairs the conclusions drawn from this study. The implication for health promotion in this area is that programme effectiveness is difficult to establish.

However, findings are nevertheless suggestive. To the extent that the booklet, as a private access medium, was rated as the preferred medium, findings support the video evaluation
which also suggest a preference for "private access" to information. In this context it is interesting to note that self reported embarrassment decreased significantly after the intervention suggesting a positive effect of written (if not private access) information. One might speculate that the decrease of embarrassment reported is a reflection of the fact that further information nor communication with significant others is no longer required. This may be a case of "private access" preference in disguise or perhaps more to the point, of social desirability reporting bias.

It is clear from these findings that the issue of private access needs further investigation. This study has merely highlighted the need for research in this area.
CHAPTER 12
THE APPRAISAL OF A HEALTH PROMOTION SEMINAR: PROMOTING TESTICULAR HEALTH IN SCHOOL BOYS

The overall purpose of this study was to assess adolescents' acceptance of a health promotion seminar concerning the promotion of TSE. The health promotion programme was initially developed as an information booklet, to be used as a minimum information intervention. In the present study, the seminar intervention was closely based on the booklet to allow for a qualitative comparison to be made between the two programme presentations. Information was presented in a stage wise manner. A further aim was to carry out a field trial of the intervention booklet to see how the programme might be improved. In addition, the study aimed to evaluate boys' preventative practice at six weeks following the seminar.

Method

Subjects
In all, 56 school boys participated in the study. Subjects were aged 14 - 15 years, mainly English of traditional Christian background and drawn from the 4th and 5th form of a comprehensive school in Surrey. There were 4 groups of school boys, streamed according to ability. Group size ranged from 9 to 18 pupils. Subjects were assessed at three points in time, before the seminar (Time 1. n = 56), immediately after (Time 2. n = 56) and at six weeks following the seminar, by the class teacher (Time 3. n = 33). In all, 33 subjects (a 59 % response rate) completed all three assessments (in part or completely).

Procedure
Appraisal was carried out in the context of a routine 55 minute health education session. The classroom seating was formal but arranged in such a way as to encourage pupil participation. The sessions began with the introduction of the researchers by the health education tutor. The purpose of the session was explained to pupils and they were then given a multiple choice knowledge test and a health belief questionnaire to complete. This was followed by a health education session plus information booklet.
The health education session began by introducing the main message of TC prevention (as depicted on the front page of the booklet). This was followed by an interactive question and answer session, to establish knowledge and personal experience with cancer and fill in gaps of knowledge. This section was supported by a handout (multiple choice test) to be completed privately by each pupil. This part of the seminar also aimed to act as an "ice breaker", demonstrating to each person, privately, his/her (lack of) knowledge of the issue. The procedural part (teaching TSE practice) then followed more formally. The last part of the session involved an informal but guided discussion of the emotional aspects of testicular cancer prevention. Great care was taken to cover all aspects of the booklet. A great effort was made throughout to convey information about TSE in a stage wise manner (as depicted in the booklet), and at the same time keeping the session relatively informal and interactive.

Teaching aids employed included OHP, blackboard, handout in the form of a multiple choice diagram of reproductive body parts.

**Measures**

**Time 1: Pre-seminar measures (Appendix 12.1)**
A 21-item questionnaire depicting belief statements was used. Items were rated on a 5-point Likert scale (agree to disagree) except for one item which used a probability ranking scale. In addition, a 14-item multiple choice format was used to measure knowledge.

**Time 2: Post-seminar measures (Appendix 12.2)**
A 15-item measure was completed immediately after the session, containing statements to evaluate the session in terms of further information seeking, intention to self screen, information dissemination, affective response, self efficacy, and learning preference. A 5-point Likert scale was used from agree (1) to disagree (5) with the statements.

**Time 3: Follow-up measure (Appendix 12.3)**
A 15-item follow-up questionnaire was used 6 weeks after the session, including categorical (yes/no) measures of TSE practice and communication with friends and parents. In addition, open-ended items measuring knowledge, acceptability of the seminar and affective response were included.
Analysis of data

The analysis aimed to appraise pupils' responses to the seminar in terms of its appropriateness and acceptability. For this purpose, inter-relationships between variables were computed to gain further knowledge about sample characteristics. Pre - post comparisons of mean values (t-tests) were carried out, to evaluate pupils' change of responses over time. A simple content analysis was also conducted on open-ended questions to determine issues. No firm conclusions, as to the effectiveness of the intervention itself on TSE practice, were sought.

Results

Characteristics of sample

Pupils were between 14 and 15 years old. The majority (68%) of boys were aged 15 years. The vast majority of the sample described themselves as English (45%) or European (43%), with the majority being of Christian background. Parents' occupations were mainly in the skilled and unskilled group. Only 6% were professionals and 10% were in the intermediate professional group. In all, 33 subjects completed all 3 assessments.

Pre-seminar analysis of belief (Time 1)

Table 12.1 below depicts the pre-evaluation responses to 21 belief statements. These were measured on a 5-point Likert scale. Responses were dichotomised for the purpose of clarity. From the table it can be seen that an unexpectedly large number of boys examine their testicles (54%), are aware of the practice of TSE (64%) and have heard of TC (58%).

Pre-seminar evaluation (Time 1)

Table 12.2 shows the list-wise means and standard deviations of pre-seminar beliefs. A 5-point Likert scale was used to measure the agreement with the statements (1 = agree; 5 = disagree). The cut-off point for positive and negative responses is 3 (3 = unsure).

Mean ratings cluster around the midpoint and range from 2.24 to 3.59. There appears to be a great deal of uncertainty overall. The lowest mean rating concerns awareness of TSE, that is, boys have not thought of self screening before (2.2). The highest rating is
that boys have heard of TC before (3.6). It is important to note the high attrition rate on some variables, e.g. seriousness of TC with only 27 of the 56 subjects assessed having completed the item.

A relatively large proportion of boys reported TSE practice and agreed that TC is a serious disease. However, an apparently contradictory finding is that boys reported not ever having thought about practising TSE and not being aware of TC. Most were unsure of the practice of TSE and agreed that it would be embarrassing to do. However, they intended to practice TSE and were inclined to follow their parents' advice in health matters. However, they were not sure whether their family would approve of TSE. They were aware of their friends' practice of TSE but were unsure as to whether they themselves would be able to practice effectively. They also doubted the effectiveness of TSE in detecting disease. It was interesting to find that a negative attitude prevailed. Boys believed that nothing can be done to prevent TC from developing. However, they did not feel susceptible themselves (at their age). Nevertheless, they thought it likely that they might develop TC and many rated the personal chance of developing TC as 1 in 1,000,000 with a mean rating of 1 in 761,951. Surprisingly, they did not think of the development or consequences of TC as frightening. They also disagreed that TSE will bring peace of mind.

Inter-correlational analyses of beliefs (Time 1)

Pearson's correlations were calculated to determine the relationship between pre-evaluation variables (fear of cancer, unrealistic bias, awareness, planning) and decision making components (likelihood, intention, current practice of TSE).

Table 12.3 shows that a considerable anxiety factor appears to be associated with decision making and practice of TSE. These correlations suggest that the more boys fear TC, the more likely they are to perceive personal risk. It is also notable that where boys practice TSE they tend to be more afraid of TC. Furthermore, the more boys practice TSE, the more they tend to be unrealistically biased about their own personal risk. Finally, the more boys are aware of TC, the more they intend to practice TSE.
Table 12.1: Percentages agree/unsure/disagree of pre-evaluation beliefs

<table>
<thead>
<tr>
<th>Variables</th>
<th>agree</th>
<th>unsure</th>
<th>disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not heard of TC *</td>
<td>29</td>
<td>13</td>
<td>58</td>
</tr>
<tr>
<td>Frightened by thought</td>
<td>25</td>
<td>33</td>
<td>41</td>
</tr>
<tr>
<td>TSE is effective</td>
<td>28</td>
<td>21</td>
<td>50</td>
</tr>
<tr>
<td>Family approves</td>
<td>25</td>
<td>36</td>
<td>39</td>
</tr>
<tr>
<td>Won't happen to me *</td>
<td>41</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Gives piece of mind</td>
<td>34</td>
<td>21</td>
<td>45</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>39</td>
<td>23</td>
<td>38</td>
</tr>
<tr>
<td>Follow parents' advice</td>
<td>40</td>
<td>34</td>
<td>27</td>
</tr>
<tr>
<td>Fear of TC consequences</td>
<td>34</td>
<td>29</td>
<td>38</td>
</tr>
<tr>
<td>Embarrassment anticipated</td>
<td>41</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>Fatalistic attitude *</td>
<td>40</td>
<td>42</td>
<td>18</td>
</tr>
<tr>
<td>Planning TSE</td>
<td>43</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Aware of peer practice</td>
<td>48</td>
<td>20</td>
<td>33</td>
</tr>
<tr>
<td>Not aware of TSE *</td>
<td>18</td>
<td>18</td>
<td>64</td>
</tr>
<tr>
<td>Not sure about TSE</td>
<td>43</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Post practice</td>
<td>54</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Intention to screen</td>
<td>35</td>
<td>36</td>
<td>29</td>
</tr>
<tr>
<td>Seriousness of TC</td>
<td>52</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>Probability of TC</td>
<td>35</td>
<td>38</td>
<td>25</td>
</tr>
<tr>
<td>Probability of TSE</td>
<td>40</td>
<td>25</td>
<td>35</td>
</tr>
</tbody>
</table>

* negative frame
Table 12.2: Means and standard deviations of beliefs about TSE

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not thought of TSE *</td>
<td>2.24</td>
<td>1.36</td>
<td>55</td>
</tr>
<tr>
<td>No practice *</td>
<td>2.55</td>
<td>1.68</td>
<td>55</td>
</tr>
<tr>
<td>Seriousness of TC</td>
<td>2.56</td>
<td>1.76</td>
<td>27</td>
</tr>
<tr>
<td>Fatalism *</td>
<td>2.64</td>
<td>1.29</td>
<td>56</td>
</tr>
<tr>
<td>Aware of peer practice</td>
<td>2.71</td>
<td>1.69</td>
<td>55</td>
</tr>
<tr>
<td>Won't happen to me</td>
<td>2.78</td>
<td>1.56</td>
<td>55</td>
</tr>
<tr>
<td>TSE is effective</td>
<td>2.79</td>
<td>1.53</td>
<td>56</td>
</tr>
<tr>
<td>Embarrassment anticipated</td>
<td>2.84</td>
<td>1.35</td>
<td>56</td>
</tr>
<tr>
<td>Planning TSE</td>
<td>2.84</td>
<td>1.41</td>
<td>56</td>
</tr>
<tr>
<td>Follow parents' advice</td>
<td>2.88</td>
<td>1.51</td>
<td>56</td>
</tr>
<tr>
<td>Intention to screen</td>
<td>2.93</td>
<td>1.39</td>
<td>55</td>
</tr>
<tr>
<td>Probability TC</td>
<td>2.96</td>
<td>1.34</td>
<td>48</td>
</tr>
<tr>
<td>Probability TSE</td>
<td>2.98</td>
<td>1.26</td>
<td>48</td>
</tr>
<tr>
<td>No fear of consequences *</td>
<td>3.02</td>
<td>1.41</td>
<td>56</td>
</tr>
<tr>
<td>Peace of mind</td>
<td>3.07</td>
<td>1.41</td>
<td>56</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>3.07</td>
<td>1.43</td>
<td>56</td>
</tr>
<tr>
<td>Frightened by thought</td>
<td>3.33</td>
<td>1.48</td>
<td>55</td>
</tr>
<tr>
<td>Family approves</td>
<td>3.34</td>
<td>1.38</td>
<td>56</td>
</tr>
<tr>
<td>Not sure about TSE *</td>
<td>3.45</td>
<td>1.48</td>
<td>56</td>
</tr>
<tr>
<td>Not heard of TC *</td>
<td>3.59</td>
<td>1.62</td>
<td>56</td>
</tr>
</tbody>
</table>

* negative frame
Table 12.3: Correlation coefficients and significance between pre-evaluation beliefs and TSE decision making components

<table>
<thead>
<tr>
<th>Variables</th>
<th>r</th>
<th>p</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness TC</td>
<td>0.31</td>
<td>0.02</td>
<td>55</td>
</tr>
<tr>
<td>Planning TSE</td>
<td>0.54</td>
<td>0.000</td>
<td>55</td>
</tr>
<tr>
<td>Fear of TC</td>
<td>0.36</td>
<td>0.01</td>
<td>47</td>
</tr>
<tr>
<td>Unreal. Bias Current TSE</td>
<td>0.47</td>
<td>0.00</td>
<td>54</td>
</tr>
<tr>
<td>Fear of TC</td>
<td>0.47</td>
<td>0.000</td>
<td>55</td>
</tr>
</tbody>
</table>

Post-seminar evaluation (Time 2)

The evaluation was to determine boys' appraisal of the seminar. More specifically, it aimed to establish how appropriate and acceptable they found the seminar to be. Moreover, it aimed to determine boys' media preference for gaining information about testicular self screening.

Table 12.4 below shows the post evaluation percentages for variables including media preference, information seeking, information dissemination, intention and self efficacy.

From Table 12.4 it appears that the video is the most preferred medium, closely followed by the booklet. It can be seen that boys reported having sufficient information to make up their minds about screening. It is also apparent that boys are not inclined to communicate with their parents or friends. However, they are not disinclined to talk to a health care professional about TSE. The table also shows that boys are generally confident about TSE practice and intend to self screen in future. Whilst the majority of boys were clearly undecided about their feelings during the seminar, most denied having been embarrassed or worried.
Table 12.4: Percentage of agree/unsure/disagree of post seminar evaluation

<table>
<thead>
<tr>
<th>Variables</th>
<th>agree</th>
<th>unsure</th>
<th>disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video preferred</td>
<td>49</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Instructor preferred</td>
<td>19</td>
<td>39</td>
<td>42</td>
</tr>
<tr>
<td>Home video preferred</td>
<td>48</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>Booklet preferred</td>
<td>42</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>Dummy demo preferred</td>
<td>23</td>
<td>30</td>
<td>37</td>
</tr>
<tr>
<td>Privacy preferred</td>
<td>43</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Information sufficient</td>
<td>66</td>
<td>20</td>
<td>14</td>
</tr>
<tr>
<td>Information needed</td>
<td>24</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Discuss with parents</td>
<td>16</td>
<td>25</td>
<td>59</td>
</tr>
<tr>
<td>Discuss with friend</td>
<td>16</td>
<td>18</td>
<td>65</td>
</tr>
<tr>
<td>Discuss with HCPs</td>
<td>42</td>
<td>37</td>
<td>20</td>
</tr>
<tr>
<td>Content embarrassing</td>
<td>32</td>
<td>41</td>
<td>26</td>
</tr>
<tr>
<td>Seminar content worrying</td>
<td>30</td>
<td>45</td>
<td>24</td>
</tr>
<tr>
<td>Intention to screen</td>
<td>60</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Confident about TSE</td>
<td>53</td>
<td>20</td>
<td>26</td>
</tr>
</tbody>
</table>

Analysis of change

Table 12.5 shows frequency responses over time of communication with friends and parents. Continuous responses have been converted into binary responses and are reported as percentages below. The table shows that the inclination to communicate with friends has considerably declined after the intervention, with more people responding negatively at Time 3.
Table 12.5: Percentage of sample inclined to communicate with friends and parents at time 1, time 2, and time 3.

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>?</td>
<td>No</td>
<td>Yes</td>
<td>?</td>
</tr>
<tr>
<td>Friends</td>
<td>15</td>
<td>44</td>
<td>40</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Parents</td>
<td>8</td>
<td>13</td>
<td>63</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 12.6 below shows the means and standard deviations of the post evaluation questionnaire. Six of these measures are repeated measures including intention, fear, self efficacy, embarrassment, and communication with parents and friends.

The mean values indicate that boys were marginally more inclined toward watching a video or listening to an instructor than learning about TSE from a booklet. However they clearly did not like the idea of a dummy demonstration. It is interesting to note that where the privacy of a booklet is stressed in the item, ratings are more favourable.

As regards to the information content of the seminar, it appears that the seminar provided sufficient information to enable decision making about TSE. The boys now intended to carry out regular self screening. Moreover, boys were now confident that they could carry out TSE effectively. They agreed that the content of the session had made them anxious about TSE and that any discussion about it would be embarrassing. They also agreed that it might be helpful to discuss TSE with a health care professional. However, they had no intention of discussing the seminar with either friends or parents.
Table 12.6: Means and standard deviations of post seminar evaluation

<table>
<thead>
<tr>
<th>Variable</th>
<th>mean</th>
<th>sd</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Info sufficient</td>
<td>2.18</td>
<td>1.34</td>
<td>50</td>
</tr>
<tr>
<td>Intention TSE</td>
<td>2.38</td>
<td>1.09</td>
<td>50</td>
</tr>
<tr>
<td>Video preferred</td>
<td>2.62</td>
<td>1.45</td>
<td>47</td>
</tr>
<tr>
<td>Self efficacy</td>
<td>2.63</td>
<td>1.32</td>
<td>49</td>
</tr>
<tr>
<td>Communicated HCPs</td>
<td>2.71</td>
<td>1.32</td>
<td>49</td>
</tr>
<tr>
<td>Instructor preferred</td>
<td>2.74</td>
<td>1.27</td>
<td>46</td>
</tr>
<tr>
<td>Home video preferred</td>
<td>2.74</td>
<td>1.57</td>
<td>46</td>
</tr>
<tr>
<td>Privacy preferred</td>
<td>2.80</td>
<td>1.43</td>
<td>49</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>2.88</td>
<td>1.24</td>
<td>49</td>
</tr>
<tr>
<td>Literature</td>
<td>2.89</td>
<td>1.43</td>
<td>47</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.96</td>
<td>1.17</td>
<td>49</td>
</tr>
<tr>
<td>Dummy demo preferred</td>
<td>3.13</td>
<td>1.28</td>
<td>46</td>
</tr>
<tr>
<td>Info needed</td>
<td>3.28</td>
<td>1.31</td>
<td>50</td>
</tr>
<tr>
<td>Communicate parents</td>
<td>3.69</td>
<td>1.36</td>
<td>49</td>
</tr>
<tr>
<td>Communicate friends</td>
<td>3.88</td>
<td>1.41</td>
<td>49</td>
</tr>
</tbody>
</table>

A t-test comparison of means was carried out on six conceptually related repeated measures. Table 12.7 shows means, standard deviations and significance levels of pre and post seminar beliefs including intention, fear, self efficacy, embarrassment, and communication with friends and parents.

It can be seen that intention to screen has significantly increased after the seminar. In contrast communication with friends and parents has significantly decreased after the intervention.
Table 12.7: Comparison of means, standard deviations and significance of pre and post-evaluation components

<table>
<thead>
<tr>
<th>Variable</th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 33</td>
<td></td>
<td>n = 33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td>mean</td>
<td>sd</td>
<td>mean</td>
<td>sd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.9</td>
<td>1.4</td>
<td>2.4</td>
<td>1.0</td>
<td>*</td>
</tr>
<tr>
<td>Fear</td>
<td>3.0</td>
<td>1.4</td>
<td>3.0</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Self efficacy</td>
<td>3.1</td>
<td>1.4</td>
<td>2.6</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Embarrassment</td>
<td>2.8</td>
<td>1.4</td>
<td>2.9</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Comm friends</td>
<td>3.2</td>
<td>1.7</td>
<td>3.9</td>
<td>1.4</td>
<td>*</td>
</tr>
<tr>
<td>Comm parents</td>
<td>3.2</td>
<td>1.5</td>
<td>3.7</td>
<td>1.4</td>
<td>*</td>
</tr>
</tbody>
</table>

p < .05

Summary

Post seminar self report responses suggest that the seminar was perceived as successful in providing adequate information to enable decision making about TSE. This is also evidenced by a significant increase of intention to self screen. Communication with friends and parents appears to have significantly decreased after the intervention which suggests that boys are not inclined to talk to parents and friends about TSE.

It is interesting to note that the seminar was not the boys' preferred medium and it is surprising to find that TSE practice at six weeks following the intervention decreased. It was also very unexpected to find the relatively high rate (46%) of practice reported at Time 1. This might at first sight appear contradictory but for the fact that TSE may have been carried out for the purpose other than detection of disease. Notably, response bias cannot be ruled out altogether in this area of research.

Time 3

Comparisons were conducted using t-tests on the following repeated measures from 33 subjects. The aim was to determine the significance of differences between mean
responses before and six weeks after the seminar. Measures included intention to screen, self efficacy, communication with friends and parents, embarrassment and worry.

Presented below are percentages for pre and follow-up TSE practice and communication with friends and parents to depict the change over time at follow-up. Tabled response frequencies are based on binary (Y/N) responses. From the table it can be seen that the practice of TSE decreased at follow-up.

**Table 12.8: Percentages of TSE practice before and six weeks after the seminar**

<table>
<thead>
<tr>
<th>Practice TSE</th>
<th>Time 1 Pre evaluation %</th>
<th>Time 3 follow up %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 56</td>
<td>N = 33</td>
</tr>
<tr>
<td>Yes</td>
<td>46</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>Don't know</td>
<td>33</td>
<td>37</td>
</tr>
</tbody>
</table>

**The Analysis of Knowledge**

Knowledge measures of 15 subjects only were available for analysis at follow-up. The follow-up knowledge measure comprised of 8 binary questions. The questions were based on the information content of the seminar. Questions related to topics such as frequency of practice, risk factors, symptoms and coping strategies.

Table 12.9 shows the percentage for total knowledge scores for a given item at six weeks follow-up. From the table it appears that uncertainty remains, particularly with regard to when to carry out TSE and what coping strategies to resort to in case of worry.
Table 12.9: Percentage of total knowledge scores of 15 boys answering each knowledge question correctly

<table>
<thead>
<tr>
<th>Variable</th>
<th>Right</th>
<th>Don't Know</th>
<th>Wrong</th>
</tr>
</thead>
<tbody>
<tr>
<td>When to TSE</td>
<td>84</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>How often</td>
<td>88</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Age risk factor</td>
<td>90</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Why TSE</td>
<td>92</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>What symptoms</td>
<td>96</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Risk factor</td>
<td>96</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Symptoms</td>
<td>89</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Coping strategies</td>
<td>80</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 12.10 shows that only an average of 5.1 questions were correctly answered before the seminar, compared with 8.2 six weeks after the seminar. Although the questions asked were not identical, it appears that knowledge is considerably higher at follow-up. However, caution must be exercised when interpreting the findings as only 28% of subjects completed the knowledge measure.

Table 12.10: Means, standard deviations and maximum scores on knowledge at Time 1 and Time 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>mean</th>
<th>sd</th>
<th>min</th>
<th>max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>5.1</td>
<td>2.6</td>
<td>0</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Time 3</td>
<td>8.2</td>
<td>3.1</td>
<td>0</td>
<td>12</td>
<td>15</td>
</tr>
</tbody>
</table>

**Analysis of open-ended questions at Time 3**

Boys were asked a number of open ended questions about the seminar. The most important information received by boys, was undoubtedly the information about self screening practice itself, particularly issues of procedure. Other information deemed to be of great interest was the age of onset of TC and the possible consequences of TC, such as death. However, most notable was their interest in embarrassment and fear responses
(e.g. not to be embarrassed to contact a GP, not to be afraid of TC). Responses demonstrated awareness that such emotional barriers might hinder protective action to be taken. The most prominent thoughts reported by boys were considerations of personal risk ("could it happen to me") and associated worry and anxiety about death and dying. As for reports on better ways of learning about TSE, most pupils appear to have been satisfied with the seminar session, rather than preferring other media, such as videos or leaflets.

**Summary of findings**

Findings tentatively suggest that the seminar has had some success in providing effective information and raising awareness and knowledge of TC. However, the practice of TSE has decreased as have communication efforts with parents and friends. Responses to open ended questions revealed that pupils preferred the seminar on the whole and thought that it had provided them with all the information needed for decision making. However, when asked whether they would prefer to listen to an instructor, they responded negatively. An interesting contradiction has also emerged when asking pupils directly as to their media preference. Here most pupils (46%) preferred the video to the seminar. Importantly, all findings must be interpreted in view of the high attrition rates encountered in this study. For this reason, any conclusions drawn from the findings can only be tentative.

**Researcher's subjective report**

Level of interest and ability to focus on the subject of TSE appeared to be directly related to ability group. The lower streams appeared to be less interested and had difficulties in concentrating on the issue under consideration. They were boisterous at times and difficult to control. For this reason, sessions may have to be modified in future. Where attention span and interest are limited, sessions may have to focus on delivery of the main message rather than attempting to reinforce the message by raising knowledge and discussing issues. In the case of low ability, it may be more beneficial to pupils if sessions were split into a "private access" booklet intervention (the homework type, involving multiple choice questionnaire to be completed at home) and for this to be followed by an interactive classroom session. The idea here being that the initial "private access" facility would "prepare" these groups by giving pupils time to reflect and habituate to a sensitive issue such as TSE. This may reduce boisterous behaviour and inattention, possibly caused by embarrassment. There is a need for in depth investigation of the issue.
Discussion

The most prominent and unexpected finding has been a decrease in TSE practice at 6 weeks following the seminar intervention, with a high proportion of boys reporting non-practice. This is despite the fact that, as a method for gaining information and raising awareness, the seminar has been rated favourably by them. In fact, a large majority (73%) could not think of better ways of learning about TSE.

Media preference

It is surprising therefore to find that in direct comparison to other media, such as booklets or dummy demonstrations, a seminar presentation was rated less preferable than a video presentation (also home video). Survey studies have shown a preference by adolescents for gaining information via media, rather than health education at school (Bendelow et al, 1996). The study has shown that young adolescents find television and the media to be the most important sources of information (47%), followed by teachers (17%), mothers (12%) and others (22%). It is television documentaries that are seen as the most informative source for information. This is followed by schools, magazines, television, soaps and newspapers.

However, there appears to be a great deal of uncertainty and confusion about the gender issue with regard to preference, acceptability and need in health education. It is clear that future studies ought to determine what adolescent boys' and girls' needs are and what they really find acceptable. This is because assumptions are often made by health educators who tend not to distinguish between male and female needs in health education. There is evidence to suggest that boys have special needs which are not met by traditional health education (Dines et al, 1996). In a qualitative study, the authors have explored boys' perceptions of their health education needs. They found that young men are not always sure as to what their needs are. Moreover, they conclude that because health education is often designed and delivered by women, it may not take into account those issues that young men deem to be important.

A major research project, founded by the HEC and the MRC at Glasgow University, is currently under way to elucidate such issues in sex education (Health Education Board Scotland). This project aims to evaluate the potential of teacher-delivered sex education
to reduce sexual risk taking. However, with regards to sexual health interventions, Ann Oakley (1995) states "In reality, however, most sexual health interventions with young people are not evaluated. Of those that are, fewer than one in five meet the minimum criteria for methodologically sound evaluation". Thus, the need for good evaluative research in health education concerning sensitive health issues such as TSE is evident.

**Communication with significant others**

An interesting finding has been that communication with friends and parents deteriorated after the seminar and at follow-up. It indicates that, at least for sensitive health information, such knowledge is not disseminated beyond the school walls. Moreover, it also suggests that social support may not be available to those who are left worrying. The lack of wishing to communicate might be explained in terms of an embarrassment factor. Support for this notion comes from boys' own reports.

It is very likely that emotional factors prevent boys and men from communicating potentially embarrassing information or discussing their worries concerning these sensitive issues. The implications for health education are evident in that the onus is on health education tutors to provide emotional support if required.

A recent survey shows that teachers are about as likely as parents and friends to be viewed as sources of communication and information about health (Bendelow et al, 1996). It may be that boys receive very little social support as regards to matters of sensitive health education.

**Gender differences**

Bendelow et al (1996) also found a considerable gender difference with regard to communication, with 25% of males reporting that they talked to their teachers, compared to only 9% of females. In contrast, however, girls tend to talk more with their mothers. Moreover, a study conducted by the West Sussex Health Authority, has shown that gender differences do appear to exist in the way boys and girls share health related problems with others. The report found that boys are more likely than girls not to share problems with anyone. This seems to suggest that the health education needs of boys differ, and this must be taken account of in programme design.
Knowledge
The study has confirmed the general finding of a lack of knowledge and awareness of TC and TSE. Whilst knowledge of cancers such as lung cancer (and its relationship with smoking) is high amongst adolescents, this is not the case for TC (Bendelow, 1996). Knowledge of TC and TSE, may have improved at follow-up, but it cannot be said with confidence that the information conveyed in the booklet/seminar has been retained.

Non-practice of TSE
However, the most alarming finding remains to be the large proportion of boys reporting non-practice of TSE (65%) at follow-up. How can this high rate of non-practice be explained? Particularly in relation to the fact that the same programme in booklet format is associated with increased practice in men.

One explanation for the former has been provided by corresponding findings of high rates of anxiety and fear. The analysis of beliefs has shown a negative relationship between fear of cancer and the practice of TSE, suggesting that the greater the fear of the disease the less likely is TSE practice. Another explanation for high rates of non-practice is suggested by the negative correlation between fear of TC and the perception of personal risk. It appears that the greater the fear of developing TC the lower the perception of personal risk. This is also supported by the finding that where people already practice TSE they are less likely to be unrealistically optimistic about their personal risk of developing the disease. Findings thus suggest that fear and worry are involved in decision making and action concerning the practice of self screening. As has been pointed out by Bendelow (1996), where there is no open discussion of cancer in society at large, children are likely to suffer from unarticulated anxieties surrounding the disease.

Impression management
Moreover, an explanation for the high attrition rates may lie in the research situation itself. Only 59% of the boys returned a completed questionnaire. Of those, many response categories were left incomplete. These high attrition rates may be due to a response bias factor. In fact, social desirability bias (impression management) is a well known phenomenon in research situations using self report measures, where people monitor and control their responses (in Abraham and Hampson, 1996).
It could be argued that impression management is necessarily most acute in adolescence, where boys struggle with the development of a new adult self concept. It is perhaps not surprising therefore to suspect response bias in self report studies involving adolescents. Researchers must be alert to this problem because an adolescent school boy who is searching for autonomy, is poised to be defiant and possibly "untruthful". In addition, there is evidence to suggest that adolescents do not want to be told what to do by health education (Dines et al, 1996). Furthermore, a London survey of teenagers has shown that adolescents do not attach the same importance to their health as adults do. Thus health is not the most important goal in their lives (Bendelow, 1996).

The extent to which such adolescent responses might be linked to impression management and self concept matters to show an independence from adult concerns is arguable and is a testable hypothesis. Where broad single item questions are asked, requiring answers to relatively novel, "delicate" and complex issues, such as TSE, responses may be superficial, unreflective and ultimately untrue. Researchers using self report measures in health education have a dilemma here, as retrospective surveys appear to be the only way to shed light on such adolescent responding.

From another perspective, a more obvious practical explanation for the high attrition rates may include perceived lack of confidentiality at school, as well as associated embarrassment factors. In the case of this study, it was requested by the school that the collection of the follow-up questionnaire be carried out by the class teacher. However, self presentational issues such as a biasing factor should not be dismissed and might provide a plausible explanation for the findings.

Finally, the uncharacteristically high levels of TSE practice reported before the intervention (46%) may not represent true cancer self screening rates. This notion is supported to some extent by reports in this study of low levels of awareness and knowledge of TC. Boys reporting of self screening before the seminar may be confounded by practices other than those carried out for the purpose of cancer detection. This would seem to be supported by earlier qualitative findings, reported in Chapter 7, showing adolescent responses to a video demonstration of TSE as having clear
masturbatory connotations. However, response bias in the form of social desirability cannot be ruled out.

It is clear that this type of programme appraisal has grave limitations and that firm conclusions about the effect of the programme are not possible from this data. However, the study has highlighted a need for controlled evaluation in this area of health promotion, using comparison and control group designs and possibly utilising measures other than self reports. Moreover, the difficulty of carrying out such controlled evaluations in the field needs to be appreciated.

**General Discussion**

The overall aim of the two appraisal studies reported here was to determine the acceptability of two forms of a health promotion programme. The appraisal involved two different groups of subjects at two points in time. The information booklet was appraised by adults whereas the health education seminar was appraised by 14/15 year old adolescents. Although firm conclusions about the effectiveness of the two interventions on subsequent TSE practice are not possible, findings suggest that both health promotion ventures were deemed successful in raising awareness.

Summing up the findings of the two appraisals, it may be valuable to highlight the differences observed between adults and adolescents and consider how they might be explained in the light of previous findings.

**Media Preference**

For the adult groups, written information in the form of the information booklet was the preferred medium for receiving health protective information concerning TSE. As for the adolescent group, the booklet was reported to be one of the least preferred form of media. In this context, it is interesting to note that where the "privacy" aspect of the booklet was stressed, preference ratings concerning the booklet increased. This finding appears to illustrate the complexity surrounding the issue of preference and privacy in this particular research context.
School boys clearly acknowledge the importance to them of "private access" and the avoidance of embarrassment, despite the otherwise satisfactory seminar context. Yet the video (also offering private access to information) is the preferred medium. This is perhaps not surprising as this form of information dissemination is widely adopted by a generation of pupils fed on a "television diet". In contrast, adults, although expressing a definite preference for written information, de-emphasise the need for privacy (also embarrassment) as a decisive factor in their choice. An influencing factor might have been that responses were primed, in that adults made their choice in the context of a booklet evaluation, and adolescents through the intervention of a seminar. Moreover, through the seminar, boys have had experience with a socially embarrassing situation, whereas men have not. It is conceivable that adolescents reacted by being defiant to both, being told what to do (as is implicit in the health education context) and to a learning context which largely ignored their needs for privacy and private access. Classroom observations would support that notion. There are a number of additional factors which might have influenced the media preference of the two groups. These include personal characteristics of the health promotion tutor (e.g. gender, experience), the teaching environment, and the particular health education context (booklet or seminar). It is difficult to disentangle such factors from the possible effects of the medium itself, particularly as both groups were asked to determine media preference in different health promotion contexts.

**Embarrassment**

It is perhaps not surprising to find embarrassment to be a factor more associated with adolescence than with adulthood. This alerts to the possibility that particular age and cultural groups in society (e.g. adolescents) may require special attention in health education programme design and delivery. It cannot be emphasised enough that where embarrassment is a prominent feature of sensitive health promotion involving adolescent school children, programme designers ought to consider appropriate means for dealing with these negative emotions. However, on the basis of the present findings, the embarrassment factor as an influencing agent in adult health promotion can not be ruled out altogether. Evidence from other studies suggest embarrassment to be a feature in TC prevention (Neef et al, 1991). Elsewhere in this investigation (refer to Chapter 7) it has been suggested that, at least for adolescents, such affective factors as embarrassment (also fear) may be the cause of response bias and denial. Impression management is clearly an
issue, particularly where programme delivery is more public, as in a seminar. For this reason, reporting bias cannot be ruled out.

**Communication with parents and friends**

Communications about TSE with friends has significantly decreased after the intervention, whilst it has remained largely unchanged and negative with parents. As communicating with others is an important way of getting valuable support in stressful situations, health education practitioners may want to teach skills to increase such interactions. Improved communication not only provides social support, but also disseminates valuable health information. People tend to select peers (social references) and identify with them, an interpersonal influence and social power that can be made use of in health promotion (Ravens et al, 1993).

In the interest of elucidation in this area properly controlled evaluation studies should ideally be carried out, to determine the influence of such health promotion programmes on self screening practice. Most importantly perhaps, is the need to investigate the "adolescent subculture" more systematically, in relation to health education and cancer. It cannot be assumed that researchers and health educators understand motivating factors that may be specific to adolescents in this area. Clearly, there is a need for basic research to elucidate such issues before attempting to quantify and seek prediction of behaviour. This appraisal has highlighted the necessity for such investigations.

A most interesting finding was that the pre-intervention questionnaire itself has induced TSE behaviour. This has highlighted the limitations of such a research methodology particularly in relation to self report bias. The findings of this investigation suggest numerous indications of such bias (e.g. head counts of intention). The findings support the notion that self report measurements have grave limitations because such methods invite untruthful responding.

Moreover, a response to a questionnaire may be the end result of making sense of a (research) situation which precludes reflection, assimilation of new information, and responding based on true insights. This may be especially true where subjects are unaware of the issue. On the other hand a topic may be threatening and that threat may be context
dependent. In such a situation the individual is unlikely to respond truthfully. As Abraham and Hampson (1996) have pointed out, in a research situation (as in others) it is clear that subjects want to create certain impressions of themselves, make a particular impact, create particular images of themselves. This self-presentational aspect of the data collection context ought to be taken into account in research design.

**Conclusion**

In the course of this investigation, three programme appraisals concerning three types of programmes were carried out, including a video, a booklet and a seminar. As we have seen, these studies have revealed that embarrassment and private access to information have been of great concern to adolescent school boys and a great deal of anxiety has also been revealed. In contrast, adult males have de-emphasised the importance of embarrassment and worry, as well as the need for private access.

Before and after the intervention, communication with significant others was poor in both groups. This suggests that both adults and adolescents are reluctant to share personal, intimate information with others. Ways must be found in health education to encourage such communication in young people. Adolescents may have to be taught the skills needed to enlist the necessary social and professional support to enable them to make health enhancing decisions in sensitive areas of health promotion.

In addition, boys demonstrated a media preference for the video, whereas men preferred written information. The findings lead to the conclusion that programme design ought to incorporate strategies and facilities to alleviate embarrassment for adolescent school children. The logical conclusion seems to be to introduce "sensitive" health promotion videos with private access facilities or computer packages to impart information about TSE. This might then be followed up by more interactive seminar-type sessions providing follow-up and emotional care if necessary. As for adults, more detailed written information in the form of an information booklet may be the optimal way of disseminating information about self-screening practice.

We will now turn to the next section of this thesis. The following chapter will report on the application of findings to programme development. In line with the major aim of this
thesis, findings will serve the development, in future, of an integrated health promotion programme (an information booklet and teachers resource book) for the promotion of TSE in adolescent school children.
CHAPTER 13
PROGRAMME DEVELOPMENT:
PROMOTING TESTICULAR SELF EXAMINATION

Overview of Chapter
The overall purpose of this chapter is to report on the systematic application of the present findings to health promotion practice. A two-stage approach to decision-making will be applied and important components of preventive practice including social and emotional cognitions as well as habit and planning facets will be used to underpin the future development of a health promotion programme for adolescents.

In this connection, the development of the initial draft booklet (based on qualitative findings) will be described and discussed in the light of empirically derived cognitions and findings from two appraisal studies. The subsequent conceptualisation of a revised, two stage health promotion programme (to be developed in future) will be discussed in terms of a minimum intervention booklet and a teacher's resource book.

Before describing the application of model components to the programme, a stage approach for programme design will be discussed.

Stages in Programme Development
It is apparent from this investigation that several stages of decision-making regarding TSE, as conceptualised by Weinstein, have not been empirically determined. Instead, a two-stage approach has emerged and will be adopted to guide programme development. In addition programmed design will also be guided by educational/learning principles.

Firstly, according to educational principles, learning occurs in stages and knowledge is accumulated in a step by step (or stage wise) manner. Health relevant information, as is other educational material, is best provided in stages for new knowledge and experience to be assimilated. In this way, a body of knowledge and understanding of a health issue builds up over time and can be acted upon.
Secondly, the development of a two part programme will ensure, amongst other things, that school boys' preference for privacy of access to sensitive health information is accommodated, as well as providing opportunity for elaboration, planning and emotional support. Thus, Part One and Part Two of the programme will each represent a stage in the decision making process.

The intervention booklet can be seen as a first stage in this process, namely the awareness raising/motivation stage. At this stage boys learn about TSE (possibly in private) and are given some time (possibly on their own) to assimilate the information and "fuel" their motivation, before they are exposed to Part Two of the programme. This part of the programme, presented as an interactional session (supported by a teacher's resource booklet), aims to complement, elaborate and consolidate the information provided in the booklet. A primary feature of Part Two of the programme is the provision of emotional support to ensure the continuance of self screening practice.

Finally, stages can be super-imposed on health education material to organise the content of a programme, so as to ensure that information is presented optimally to facilitate learning.

**The Draft Booklet**

Similarly, the development of the original intervention draft booklet (appendix 13.0) was based on the assumption that information and knowledge about disease prevention are assimilated in a stage-wise manner. On this basis, it was therefore assumed that emotional and action responses to this information would develop in line with the information assimilated. Thus the draft booklet, was organised in such a way as to present extensive cancer related information first in order to raise awareness. This was then followed by procedural instruction and lastly by emotional coping advice. In this way, the content of the booklet was designed to accommodate boys' information needs, including the need for knowledge about risk and how to reduce it, the need for understanding negative emotional reactions and also the need for information about coping with such emotions.

However, the subsequent empirical findings, reported in chapter 9, have lead to the understanding that cancer knowledge is not as important for positive action as previously
thought. Therefore, information concerning health related issues, such as reproductive anatomy, may be kept to a minimum. The assumption that detailed knowledge including knowledge of anatomy, is necessary for understanding health messages in this area of health promotion may thus be unfounded. Whilst this notion is open to empirical testing, it would appear that such knowledge is not necessary for action. For this reason cancer related information depicted on page one of the draft booklet may be removed and instead incorporated into the teacher resource booklet to be made available at follow-up sessions.

Stage Two of the draft booklet features the provision of procedural knowledge in the form of self screening skills. This part also includes a procedural check-list. Appraisal of the booklet has shown such information about the practice of TSE to be of utmost importance (Chapter 11). For this reason, procedural information may be given greater focus and be presented more prominently in the booklet.

Stage Three of the draft booklet concerns itself with the emotions involved in testicular cancer prevention and attempts to pre-empt negative feelings such as fear and embarrassment. This stage is also designed to raise self awareness and self esteem and ultimately self efficacy in relation to TSE practice. As this part is primarily aimed at counteracting negative emotions, it is by introducing reassuring messages that negative emotions might be minimized. Such messages may be incorporated at every stage, along with the information given. This is because even a minimal amount of health relevant information in TC prevention might evoke an undesirable fear response. In fact, findings from the intervention study (chapter 11) suggest that people do respond to a "by message" from the research context. Moreover, it has been shown that positive action was evoked by the survey questionnaire itself. This draws attention to the fact that a fear message, inherent in even the most basic information concerning cancer prevention, might also evoke negative emotions and negative decision making.

In the draft booklet, reassurance is given throughout the programme, whilst the main message is being reiterated. In addition, positive outcomes of TSE are being emphasised frequently, as the programme aims to appeal to boys' sense of control and autonomy as well as their "natural" curiosity and knowledge seeking.
Format of the Information Booklet
Throughout the proposed minimum intervention booklet, an attempt has been made to keep information basic and "simple" so as to avoid "diluting" of the health message. As opportunities for elaboration are provided in the Stage Two interactional session, the function of the booklet should be confined to conveying a clear and concise health message. The assumption here is that adolescents may not be motivated, at this early stage, to read more detailed health information. Moreover, as further information seeking is likely to depend upon levels of ability and interest of the group, it is the tutor who may wish to tailor the health education session to the particular needs of the group. The aim at this stage, therefore, is merely to introduce the main message as minimum intervention. That is, to first present the main issues of TC prevention, then to focus on procedural instructions and finally, to deal with possible negative emotions created by the issue at hand.

Stage Two, being the interactional part of the programme (supported by the teacher's resource booklet) on the other hand, aims to further elaborate on issues addressed in the booklet, increasing understanding and possibly knowledge (including the planning of regular action) and the responding to negative emotions. Thus, Part Two of the programme aims to follow-up on issues, elaborate and reinforce, as well as deal with the emotive components of cancer prevention. Most important, however, at this stage is the discussion of planning and procedures to ensure continuity of action as it is likely that TSE has been carried out by most boys at least once.

A Teacher's Resource Book
The proposed Resource Book would aim to support teachers in their task of conveying a sensitive and potentially embarrassing health message to adolescent school boys. Firstly, the health education tutor is likely to have little knowledge of, or training in, psychological theory. She/he may be unaware of the needs of adolescents in a situation of first time exposure to a potentially traumatic health message. Thus, the handbook might provide not only information of psychological theory, concerning health promotion in this area (as is applied to the booklet) but also background information relevant to TSE.
Secondly, the resource book might also give information regarding some of the psychological techniques available to assist in conveying sensitive information to adolescents. It might, more specifically, advise teachers on how to deal with negative emotions and support those who react negatively to such sensitive information.

The resource book may also raise the awareness of health education tutors of the importance of providing opportunities and facilities for private access to information, as well as optimal teaching environments and teaching aids (e.g. videos, self report questionnaires, interactive computing).

Furthermore, the resource book could additionally stress the importance of personal and professional qualities that are required of the tutor in order to optimise success in message delivery. For instance, the tutor, above all must demonstrate good communication skills and the ability to tune in with an adolescent culture. Moreover, the capacity to resort to humour is vital in making people feel at ease and alleviating embarrassment in this area of health education. Amongst other aptitudes, furthermore, the tutor will be expected to show unconditional, positive regard, to provide reassurance and to instill confidence. Additionally, it is also important to be able to elicit information from individuals, to bolster self esteem, to encourage self autonomy and to instill self efficacy.

In this way, such a resource might aim to alert health educators to the fact that successful teaching of sensitive health care requires insight into the importance of having worked through the issues themselves and that this might require special training.

The following section concerns the application of components to the programme. These facets should ideally be incorporated into the new health education programme for adolescent school children. They include social and emotional cognitions (as have been utilised in the draft booklet - refer to appendix), as well as empirically derived components such as routine and planning factors, and self concept considerations. These facets will now be detailed and examples will be given to illustrate how they might be applied to programme design.
Application of Social Cognitions to Programme Development

Although the application of some components to the programme design is based on assumptions rather than empirical fact, findings from qualitative studies justify their inclusion.

Risk perception
The perception of risk, seen as a primary predictor of preventive behaviour, has thus been included as an important component in programme development. This is based on the assumption that individuals who believe themselves to be at risk of TC and perceive the disease as serious and the consequences severe, are more likely to take the necessary steps toward positive preventive action, that is, given that their perception of threat is moderate, rather than severe.

Thus, the aim of Stage One of the programme is as follows:

1) to raise awareness of boys' risk of developing TC by giving factual information ("What do you know about TC?")
2) to increase knowledge ("did you know that cancer can develop in the testes and spread to other parts of the body; although any man can develop TC, some men are more at risk than others; that people as young as 15 can be affected?")
3) to provide re-assuring messages ("The most important thing about TSE is that it can be treated successfully if detected early").

Outcome expectancies
It has been shown that people with positive outcome expectancies (attitude to self screening) will be more likely to take up preventive action. The aim of the programme therefore is:

1) to present a persuasive message by stressing the benefits of self screening ("benefits outweigh cost by far; take advantage, be in control, be in charge of your health, it makes sense; protect your health, your looks, your fitness, be body aware!; examine yourself, once every month, for peace of mind!; don't let embarrassment keep you ignorant; don't be ruled by your emotions, be body aware!") Further aims are:
2) to create a positive attitude to screening ("you might examine your testicles once a month after a warm bath; it can be carried out by you in the privacy of your home")

3) to change negative attitude to screening ("TSE is not painful")

4) to persuade people to take up screening ("checking for changes makes sense because it lowers the risk of developing cancer").

Immediate benefits
The finding is that where people perceive the benefits of an action to outweigh the costs, preventive action is more likely. Thus, a further aim of the programme is:

1) to stress the benefits of TSE in terms of outcome expectancies ("TSE could save your life")

2) to emphasise immediate benefits ("TSE protects!; you will gain peace of mind; gain control; gain control over health; so much is gained by doing so little"). In addition the re-assuring messages to be included are ("If detected early, TC can be cured; If detected early, TC can be treated with a good chance of recovery").

Knowledge of reproductive biology (to be added to the teacher's resource)
The assumption is that health education messages are better understood, if people have a certain degree of knowledge of reproductive biology. Moreover, some basic knowledge of the reproductive process is presumed necessary, in order to understand what happens and what is required when things go wrong. A diagram of the reproductive region is seen as a necessary ingredient in teaching the skill of TSE. The application of cancer related information might be included as follows: "What do you really know about your body?". For example: "the seminal vesicle is part of the internal genital system designed to produce sperm; Testicles produce sperm".

Knowledge of how to carry out TSE
The findings showed that procedural knowledge is the most important "ingredient" in the programme and as such, is seen as a pre-requisite to action. There is therefore, a need to detail the procedure and provide diagrammatic illustration of the self-screening process. A check list is also provided to reiterate the main action points. This stage is applied as
follows: "Do you know how to do Testicular Self Examination?; hold your scrotum in the palm of your hand...".

**Control beliefs**
It would appear that people like to be in control of their own health. Moreover, people who perceive control over action are more likely to carry out self screening. Moreover, in this regard, control is associated with psychological well being. An aim of the programme is, therefore:

1) to encourage boys to take control over their health ("be in control of your health; don't be ruled by your emotions; you can protect yourself")
2) to encourage the desire for autonomy ("It's up to you").

**Significant others**
The assumption is that significant others including peers have a significant influence on boys' preventive action. Thus it is another aim of the programme to:

1) draw attention to others, to motivate and enlist social support ("It helps to talk, speak to a friend").

**Emotional Cognitions**

**Embarrassment**
The assumption is that where people are embarrassed about self screening issues, they are less likely to make positive decisions about TSE. The programme aims to deal with the embarrassment factor by raising self esteem and self-confidence:

1) to empower people by acknowledging embarrassment as a "normal" reaction to sensitive issues of health ("You may not be aware that embarrassment about ones "private parts" is normal, but is most strongly felt by young people")
2) to encourage private information seeking and encourage the desire for social support ("speak to a friend")
3) to stress the negative effects of emotions such as embarrassment in preventive action ("you may suspect that the key is to overcome embarrassment when it is really important")
4) to suggest coping strategies ("despite embarrassment, checking for abnormalities and seeing your doctor, if there is a change, is very important").
Fear/anxiety

The assumption is that there is an optimal, low level of threat which acts as a motivator to self screening action. As TSE practice needs to be sustained over time (repeated monthly) and high fear arousing information motivates in the short-term only, it is important to acknowledge such a fear response and raise awareness to it. The aim of the programme is therefore:

1) to provide factual information and minimise threat, to raise concern and to motivate whilst also providing re-assuring factual information ("TC can be treated successfully, if detected early")

2) to acknowledge fear in this respect as common ("if you find anything about TSE embarrassing or worrying, you are not alone; you may not be aware that embarrassment and fear are the most frequent reasons for failing to report changes in the testes to the GP")

3) to discuss coping strategies ("for the sake of self protection and peace of mind, we must all overcome embarrassment and fear - it makes sense"). A reassuring message may follow, ("if an abnormality is detected it is most probably not cancer and if it is, it can be treated with a good chance of total recovery").

Behavioural Routines, Planning, Self Concept and further cognitions

Empirical findings as well as those from appraisal studies have clear implications for programme development and should be incorporated into the programme. Some of these components may be more appropriately incorporated into Part Two, the interactive section of the programme, as they lend themselves to elaboration and discussion.

Health behaviour routines and habit factors, such as exercise, have been shown to be important in decision making concerning TSE. Thus, such health practices might be addressed to draw on what people already do to protect their health ("you may already carry out a regular health protective practice").

In addition, a self concept component (conscientiousness) has been a significant predictor of positive decision making ("are you the sort of person to act if it makes sense?"). It may thus be an important function of the programme to induce self reflection. This notion
would seem to be supported by the fact that cognitive elaboration and pre-occupation with TSE are important factors in decision making about TSE. Likewise, planning ought to be included as a powerful predictor of action ("pause for a moment and think how easy it is to achieve peace of mind").

Furthermore, reminders appear to be important and need to be included. Here the idea is to make pupils aware of the need to plan and consider how they might remind themselves to self-screen regularly ("think how you can remind yourself to be regular about TSE"). Anticipated regret, as another reflective component may be included as follows ("you may regret not having self-screened").

Significant others' wishes, already mentioned above, may be incorporated by also drawing on the sense of responsibility for significant others' well-being ("for the sake of people who care for you, TSE makes sense"). Furthermore, drawing on the need for affiliation with the peer group and on perceived health norms ("most people do something to protect their health") is also of significance.

Additionally, the acknowledgement in the programme of past experience with cancer may be important, particularly when employed in the interactive session. It is here that pupils may be encouraged to talk about their experience for their own benefit and that of others ("you may know someone who has TC"). As the subject of cancer is not widely discussed in society at large, such discourse may be particularly valuable. Thus, emotional cognitions such as fear of cancer, may be best considered at Stage Two ("now that you know there is a risk, think how TSE can give you peace of mind"). For similar reasons an optimistic bias component to counteract unrealistic optimism may be included as follows: "most people think it won't happen to them".

Finally but no less significantly, in terms of combating embarrassment, is an element of humour within the programme. This might be incorporated through the use of cartoons in the information booklet (refer to appendix 14.0) and possibly by providing examples to teachers in the resource booklet. In this regard, there is evidence to show that the use of humour in the classroom can be successfully taught (Powell and Anderson, 1985). Moreover, it appears that humour actually reinforces what is being taught. In this regard,
the use of imagery techniques may be usefully employed in the classroom to replace negative imagery concerning TC prevention by the humorous type.
CHAPTER 14
GENERAL DISCUSSION

The overall aim of this investigation was twofold. Firstly it endeavoured to forge a bridge between health psychology as a scientific discipline and the applied discipline of health promotion. Secondly, the objective was also to make a contribution to the understanding of psychological theory and research concerning the study of preventive behaviour. This was to be achieved by developing an integrated health promotion programme to promote TSE in adolescents.

To all intents and purposes, this programme was to be firmly rooted in both psychological theory and the practice of health promotion. To this end, a series of qualitative and quantitative methodologies were used and data was collected from a general population sample and from school children. Components of SCMs, as well as self reported behaviour were measured and existing health promotion programmes were evaluated. By comparing and contrasting components of three of the most frequently used models, a new Hybrid Social Cognition Model (HSCM), stressing action planning of decision making, was found to be the most appropriate model to underpin the proposed programme.

A User-friendly Hybrid Model: Explaining Self Screening Practice

The present investigation's aim of bringing health psychology and health promotion closer together was realised by taking a more eclectic approach to preventive action. Through the development of a hybrid model and applying this model to programme design, a more user friendly approach has thus been demonstrated.

The main outcome of this research project is characterised by the emergence of a new hybrid model (HSCM) to explain TSE practice. This new eclectic approach to prevention avoids the narrow focus on rational cognitions and extends the parameters of traditional SCMs. It achieves this by including emotional cognitions, self perceptions, behavioural routine and planning factors. Moreover, a stage approach to decision making, which is suggested by the model, draws attention to the importance of responding to people's
information, planning and emotional needs associated with a particular stage of decision making. In this regard, such an approach appears to emphasise a more focused approach to health promotion practice along with a small-scale 'individualistic' rather than a large-scale 'community' perspective.

Moreover, these additional facets to the theoretical framework widen the scope of health promotion practice by providing increased options to health educators. Thus, the eclectic approach leading to a more broadly inclusive (as opposed to tight) conceptualisation of health promotion may bring about changes in attitude toward theory use. Perhaps most important is the introduction of a model which is able to provide explanations and practical solutions concerning sensitive issues of health care. It is anticipated that the new HSCM may capture the imagination of health promoters who are used to only limited success in such areas of health care (e.g. sex education) (Oakley et al, 1995).

Extending the Scope of Health Promotion Practice:
Applying the Hybrid Social Cognition Model

The most important link in this chain of connections between theory and practice, is undoubtedly the fact that the "value expectancy approach" of SC-theorising is already firmly grounded in health promotion practice itself. The new hybrid model is, thus, an extension of what is already established practice, based on part-application of psychological theory or on common sense. Concepts such as cost-benefit analysis of behaviour translated by health education into providing the promise of reward for desirable behaviour, have long been utilised by practitioners. So have other concepts, including self efficacy, self esteem and a stage approach to learning, if not decision making. By elaborating the explanatory framework, refining the concepts and sharpening the focus of explanations in TSE decision making, new opportunities are provided for health education practice.

Costs and benefits

What value expectancy theories, such as the new HSCM, have offered in addition, is a finer definition of what this means to the individual and his/her ability to value the action outcome. Thus, in the newly developed programme the idea of outcome expectancy was taken further from the long-term elusive prospect of better health and the avoidance of
disease, to emphasise the more immediate benefits. These benefits include the preservation of fitness, good looks, being in control and gaining peace of mind.

In addition, the new HSCM purports emotional cognitions to be important. Thus, emotional costs and benefits are much more prominent in this model than in others. This has lead to the inclusion into the programme of what might be termed "positive emotion incentives" or "feel good factors", concerning a positive self image, self confidence, autonomy and control.

Self efficacy
Self perceptions, such as self efficacy, present another example with which health promotion is already familiar. This concept is related to barriers and alerts the health promoter to be aware of how the individual feels about his/her ability to perform the behaviour. Thus, strategies are incorporated into the programme to counteract these barriers.

Extension and refinement of this practice are suggested by the new model. These include suggestions as to how to improve the perception of self efficacy. This is in accordance with Bandura's (1986) assertion that a change in belief about one's ability to successfully execute a given action, mediates the initiation and maintenance of behaviour change. Not only must pupils possess skills to remove barriers, but they must also believe in the effectiveness of these responses and feel confident that they can implement those skills (Bandura, 1977).

Self regulatory skills
Although the development of a sense of self efficacy ought to be the primary aim of health education, the endpoint of a programme must also be the independence of the person to carry out a given behaviour. A health education programme, therefore, must focus on fostering a pupil's self image as an effective self manager of behaviour.

Thus, the teaching of self-regulatory skills must be part of health education. It is here that psychological theory can have great influence on health education practice. Therefore, the objective of a programme is to foster pupils' involvement, self control, and self
management in the absence of supervision. Such skills teaching has long been common in clinical practice, where teaching adherence to medical recommendations is the focus (Leventhal et al, 1984). In this context, the planning stage of TSE decision making requires health education to focus on the teaching of self regulatory skills. These might include skills such as behavioural rehearsal and the use of imagery or auto suggestion.

Such skills training has been successfully included in a smoking cessation programme developed by Marks (1992), whose programme titled "Quit For Life" has been successfully applied in health districts in the UK. In his programme, Marks uses imagery techniques to bolster self efficacy, also drawing attention to the scientific basis of these methods (e.g. Imagery and Achievement in Sport - Marks, 1994). This programme is a good example of how psychological theory and insight can be successfully applied to health promotion programme design.

**Behaviour/habit**

Self efficacy is also related to past behavioural practice and habit and routines in prevention. It is clear that successful execution of a past health behaviour or habit "fuels" the individual's perception of self efficacy and may benefit other behavioural practices. Thus, the new model suggests that the past practice of behaviour routines and habits may be drawn on by health educators to bolster self esteem and raise self efficacy, both of action and the self.

**Self perception/self identity**

Self identity ties in with the notion that people wish to be consistent and "conscientious" about what they do, in line with their self concept. This conforms to health education's wider aim, including the notion that health is a state of complete physical, mental and social well being, not merely the absence of disease or infirmity (WHO, 1946). The idea here is that young people high on autonomy, are better able to cope with negative emotions, including those encountered in cancer prevention.

**Emotional cognitions**

The new HSCM informs health promotion that emotional barriers to screening ought to be given greater scope and more attention in programme design. This is especially true
where a health behaviour is deemed "sensitive" and barriers to action such as fear and embarrassment may be anticipated. The application of such emotional cognitions to the new programme, has taken the form of addressing the issues of fear and embarrassment directly. The idea here is to raise awareness of the pitfalls and the negative consequences of reacting emotionally instead of rationally.

**Knowledge**

The issue of knowledge warrants special consideration here as it is the primary aim of all health education to increase health relevant knowledge and information. However, the extent to which an increase of knowledge is necessary for action remains less certain.

Quite unexpectedly, findings from this study de-emphasise the importance of knowledge. This is in contrast to the notion outlined in the introductory part of this thesis suggesting that fear of cancer (which prevails in our society) might be accentuated by a lack of cancer knowledge (specifically a lack of knowledge of the step-wise nature of cancer development). An apparent focus on the end-stages of cancer development, with its associated statistical inferences about probabilities and susceptibilities, it is argued, may be responsible for the persistent perception of cancer as an incurable and terminal disease. Such an explanation would seem to be supported by Tversky and Kahneman's research into "heuristics and biases" of human reasoning. They have argued that such biases are likely to be prevalent in such real life decision making (Kahneman et al, 1982).

How should knowledge be addressed in practice given its limited importance? Levels of knowledge following the intervention remained relatively low. Moreover, the information intervention has not addressed adequately the crucial information components thought to affect peoples perception (the process of cancer development itself). In fact, the intervention has only concerned itself with basic information about TC and TSE. The apparent lack of increase in knowledge observed after the booklet intervention is therefore not surprising.

On the other hand, respondents reported swift reaction to the survey questionnaire itself. This suggests that a message containing a minimum of information to be sufficient for bringing about positive preventive action. Here, Leventhal's (1970) suggestion that high
threat messages bring about short term behaviour change, may serve as a plausible explanation, implicating an emotional (fear) reaction to the message rather than one of rational contemplation. The notion of a spontaneous fear reactions would seem to be supported by the fact that an information seeking component was found to be a significant predictor of positive decision making. The implications of the findings are that health education messages, containing minimum information, ought to be followed up with programmes conveying more detailed information to ensure sustained, regular action. This type of information dissemination would seem to fit into a stage-wise conceptual framework of learning and decision making in health education. Such a framework has been successfully applied in this project.

**Stages of decision making**
A stage approach, applied to the present programme, presents another example of how health education practice might be advanced. At the educational level we know that knowledge is best presented step by step to aid assimilation. Stage theory also suggests a step by step decision making process involving stages of awareness, risk/perception and planning. The implications for health promotion are that these stages may suggest specific interventions.

It is easy to see how a stage approach can be successfully applied, allowing health promoters to focus on a particular stage of decision making in an attempt to move the individual toward behaviour change. For example, the health promoter may wish to respond to emotional needs at a particular time, as distinct from planning needs, to facilitate emotional adjustment to a sensitive health message. Whilst such emotional support may be necessary at every stage of decision making, greatest input may be required at a stage where pupils realise their own vulnerability. On the other hand, it is clear that awareness raising must precede risk perception and planning of action. Stages are clearly a most useful concept for programme design.

They may demonstrate how some programme participants take up a behaviour as soon as they learn about the risk. Others may need more information to be "stimulated" into action. In contrast, others still may need encouragement and reassurance and the raising of self esteem and self confidence.
Whilst Leventhal's information processing model, separating emotions from action, provides a plausible explanation here, more recent models (e.g. Fazio, 1990) have also attempted to explain health behaviours in relation to affect. Fazio's spontaneous processing model would seem to explain how certain cognitions (highly accessible attitudes) may guide behaviour through selective attention and interpretation of a situation. This process is seen as automatic rather than deliberate. As a result, certain environmental cues may trigger behaviour in a spontaneous manner (without deliberation). Such a process might explain the occurrence of response bias in the research context and most probably the quick behavioural response to the TSE questionnaire itself.

The hybrid model further suggests that planning (formulating action plans) may be addressed in the programme to stimulate thoughts about action and reminders. In particular, the programme might alert the person to deal with relapse of the behaviour and to suggest strategies to maintain regularity of action.

The above examples demonstrate the extent to which psychological theory can inform health promotion practice and extend the way in which health promotion is applied in the field. Where practitioners are able to build on previous experience and their knowledge and understanding of everyday practice, they can better see the usefulness of additional facets of behaviour change, suggested by psychological theories. Most important perhaps, is the introduction of a version of a SCM which has its roots in health promotion practice itself. Such a model has probably the greatest chance of being successfully adopted in every day practice.

**Contributions of the Investigation**

However, the contribution of this investigation goes beyond the practice of health promotion. The project has also enhanced the understanding of the study of health behaviour. Importantly, it has highlighted the difficulty involved in the investigation of sensitive issues of health care. In this regard, perhaps the most important contribution has been made in enhancing the understanding concerning a more eclectic approach to theory development with its focus on emotional cognitions.
As for the contribution of this investigation to the understanding of research methodology in this area, it might be said that the integration of qualitative and quantitative methods has been shown to be a valuable methodology for advancing knowledge concerning the perception of TC particularly by informing quantitative inquiry into TSE. Moreover, through the evaluation of the health promotion video, the need for a more "user" oriented methodology has been demonstrated. The study has exposed TSE as a sensitive issue in health education research and has shown response bias to be a confounding factor. The implications of this finding point to the need for building safeguards into the study design concerning such sensitive issues in health research.

Lastly but by no means least, it is important to address the criticism levelled at SCMs, noting their individualistic nature. SCMs reinforce the notion that behaviour change is initiated by the individual. A stage approach too suggests a more 'individualistic' focus also leading to stage-tailored interventions for individuals. For example, as a result of stage models, national training programmes are underway to provide training in brief-stage specific interventions to health care staff (e.g. first year resident doctors training to provide brief smoking intervention) (Ashworth, 1997).

Consideration of the criticism concerning SCMs was based on findings from qualitative studies (focus groups) exposing people's awareness of government responsibility. Participants perceived lack of control over health issues, highlights the notion that Governments too have a responsibility to promote health. In this regard, health psychologists emphasise and perpetuate the increasing pre-occupation with control over health and its consequences, without addressing the role of governments and society at large. Brownell (1991) argues that the focus on educating individuals to change their behaviour relieves society of its responsibility. This individualism ignores environmental, economic and social determinants of health and illness, resulting in scapegoating. It has been suggested that changing social variables may be an easier option than encouraging control over the relatively uncontrollable (Jane Ogden in Health Psychology Update, 1992 pp36). It is here that politics enter health psychology. Clearly, psychologists must act as key personnel in alerting the public to broader issues of health, as its role in changing individual behaviour is increasingly recognised by some as weak and ineffective (Redmann et al, 1990).
Government policy, as Marks (1994) pointed out, "is based on questionable assumptions about behaviour and health which, contrary to scientific evidence, hold that high risk behaviours are the consequence of individual choices informed by attitudes, beliefs and knowledge". He asserts further that: "it is falsely assumed that ill health is created by lifestyle and that poverty, stressful work, poor housing, unemployment, and racism are unimportant" p119. He finishes by saying "even the most effective of programmes will be of limited impact while inequalities and privilege remain a cornerstone of British Society" p121.

However, it is precisely the economics of health care which may in the end explain the half-hearted attempts of governments to provide effective health care policies, especially with regards to the major threats to health e.g. smoking.

A recent study carried out by Erasmus University (1997) reported on in the Independent (October, 1997) confirms what many lay people have long suspected that "a good patient is a dead patient" (focus groups). The Erasmus study calculated the lifetime cost of health care among smokers and non-smokers and found that it is cheaper for the health service if people die young than if they live to a great age (as non-smokers would). The writer suggested that this may explain why governments shy away from taking firmer action against smoking (Laurance, 1997).

As for the promotion of health, it is the remit of all health professionals (MacCormick and Gardener, 1990). Such common remit brings with it the possibility of a conflict of both economic and professional interests, leading to either conflicting or inappropriate programmes (e.g. TSE video).

The role of psychology theories in such health education is clear. Strengthening of self efficacy and control in individuals will have as a by product, an increase in autonomy, leading the individual to seek further information from sources other than those offered by health education at school (e.g. media). Where the remit of health psychology as educator of the public goes hand in hand with enhancing the empowerment and control of the individual, the criticisms levelled at SCMs are probably unfounded. Where health education does not directly address health care politics, through encouraging autonomy
and self-efficacy, it is the health educator who provides the individual with the greatest chance to "tackle" the politics of health care, even to lobby parliament for "equal time for men" in health promotion.

Conclusion

The primary aim of forging a link between psychological theory and health promotion practice has been realised by applying SCMs to TC prevention. A "user friendly" hybrid social cognition model has been developed and applied to health education programme design. The holistic approach to health education potentially widens the scope for everyday practice and increases opportunities for teachers.

The empirical evidence for a stage approach to decision making has been suggestive, a planning stage being of particular importance when applied to programme development and delivery. By presenting factual and procedural information, concerning self-regulatory skills, in a way which facilitates learning, emotional adjustment and autonomy, as well as paving the way for taking control, the programme has been deemed successful by pupils. However, a problem of this investigation has been the use of self reports. This method appears to have grave limitations particularly for measuring affective and other self-presentational components of decision making. Therefore Health Psychology must re-evaluate the use and usefulness of such measures, especially where sensitive issues of health care are concerned.


Table 1: Measures, results and materials used in the investigation and appendix numbers

<table>
<thead>
<tr>
<th>Measures/Results</th>
<th>Appendix Numbers</th>
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<td>2. Post-evaluation (Video)</td>
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<td>3. Follow-up evaluation (Video)</td>
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<td>4. Pilot survey (Scales)</td>
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<td>5. Surrey Testicular Health Survey</td>
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<td>6. Pre-intervention (Booklet)</td>
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<td>7. Post-intervention (Booklet)</td>
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<td>9. Pre-intervention (Seminar)</td>
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<td>12. Draft Information Booklet</td>
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<td>13. Cartoons</td>
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<td>14. Results (Qualitative)</td>
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Table 2: Scales used in the investigation and their appendix numbers

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APPENDIX 7.1
VIDEO EVALUATION (post)

Video Evaluation Questionnaire
You have been watching a health promotion video on Testicular Self Examination. We are very interested in your opinion about the video and would like you to answer some questions about it. Please use the space below to express your opinion.

1. Which part of the video is most outstanding in your mind?
2. What did you like best about the health promotion video?
3. What did you dislike about the video?
4. What are the main things that you have learned from the video?
5. Which part of the video convinced you most (if at all) that you should look after your health?
6. Are you glad you watched the video (if so why? - if not, why not?)
7. Can you describe your feelings as you watched the video?
8. What other ways of learning about TSE can you think of that might be better than a video?
9. Do you intend to carry out regular TSE?

APPENDIX 7.2
VIDEO EVALUATION (follow-up)

Awareness of Testicular Cancer
This part of the questionnaire is designed to determine people's awareness of cancer and cancer screening. Please answer the questions below using the following rating scale.

completely unaware very much aware
1 2 3 4 5

Please place the number corresponding to your awareness in the brackets beside the question.

1. How aware are you of the causes of TC?
2. How aware are you of the treatments of TC?
3. How aware are you of the importance of early detection to prevent the development of TC?
4. How aware are you of the signs and symptoms which might signal TC?
5. How aware are you of the incidence of TC?
6. How aware are you of the practice of TSE for the purpose of early detection of cancer?
7. How aware are you overall of TC?
8. Since you watched the video on TSE, have you examined your testicles?
9. How often have you carried out TSE since you watched the video? once....twice....more often....
10. If you have not carried out TSE since you watched the video, state why not.......
11. Do you intend to practice TSE?
12. Have you thought about the time and place that you might carry out TSE?
Appendix 7.3
Summary of Open-Ended Findings
Examples of Responses

Q1 Which part of the video was most outstanding?
* the demonstration of testicular self examination
* the bloke feeling his balls
* the bloke playing with himself
* the image of a man touching the testicles of another
* being told how to self examine
* the cause of cancer
* the age of getting cancer
* the lives it could save
* how easy it is to find

Q2. What did you like best about the health promotion video?
* information about seriousness of cancer
* information about signs and symptoms
* being told about high rate of cure
* how to prevent getting cancer
* being told how to examine myself
* that it is not a painful examination
* when it finished
* the bloke talking
* the diagrams

Q3. What did you dislike about the video?
* showing the man's testicles
* the bloke playing with his penis
* someone touching the other men testicles
* the graphic detail
* not enough information about cause
* it was a bit over the top
* the music is dated
* all of it
* too heavy

Q4. What are the main things you have learned from the video?
* how to do TSE
* that TSE is a good thing
* being told about cancer
* that people get TC because they are embarrassed
* about the treatment of cancer
* self screening after a bath
* not to be shy
* to go to your doctor
Q5. Which part of the video convinced you most (if at all) that you should look after your health?
* the bit about the bloke who died
* the risk of catching it
* fear
* it just scares you
* you should check
* cancer kills
* the self examination
* being told about it
* none of it
* gaining information
* that I might be at risk

Q6. Are you glad you watched the video (if so, Why, if not, Why not?)
* yes, because of information
* yes, I value my health
* yes, it worried me a bit
* yes, I can now save myself
* no, embarrassing
* no, boring
* no, disgusting
* no, it scared me
* no, better being told

Q7. Can you describe your feelings as you watched the video?
* disgusted
* worried
* shocked
* drowsy
* bored
* hopeful
* sick
* embarrassed
* emotional
* relief
* amazed

Q8. What better way of learning about TSE can you think of?
* literature
* real life talk
* video is best
* updated video
* computer

Embarrassment and Private Access
A prominent finding of this study was the extreme embarrassment and adverse emotional reaction (disgust) to the graphic demonstration of the self screening procedure. Pupils confirmed their embarrassment in class discussion and elaborated on their feelings about the health promotion
video. Their body language suggested considerable discomfort. Boys reported extreme embarrassment as a result of having watched the video in the presence of others. Moreover, they explicitly wished to have had access to such "sensitive" information in "private" to avoid embarrassment. Moreover, boys felt strongly that computer programmes and literature provided a better way of learning about TSE. However, despite the embarrassing experience, the video was in general considered a highly valued and effective teaching medium.

Humour
An interesting feature was that boys felt the health education message could be delivered in a more light hearted way (eg. comic strip, cartoons). In this context it was interesting to note that they resorted to humour in the post video discussion. A most striking feature of the results was that despite the negative emotional reaction and extreme embarrassment, pupils appreciated the information and re-assurance they had obtained from the video. They appreciated having been made aware of the problem ("to think how ignorant I have been"). In particular, they appreciated having learned about procedural aspects of the self examination ("I now know how to do it"). A further observation was that health education tutors appeared unable to deal successfully with the emotional reaction of their pupils.

Anxiety and Reassurance
The effect of the message on the children appears to have been both, anxiety arousing as well as reassuring ("it scared me a bit-It's frightening- I hope I won't get it- Thinking whether I have got the disease- I now know how to save myself-Being told that there is a cure-That TC is rarely fatal, not very common").

Behavioural Control
Many responses revealed a concern with control ("I now know how I can save myself-I can save my life-I can make sure my health stays good").

Benefits
There was a clear realisation of the benefits of screening ("TSE is a good thing- TSE is so simple- That it provides early detection-That TSE protects").

Information seeking
A wish to learn more about the possible causes of cancer was prevalent. In particular regarding testicular cancer ("More information about how you might get it").

Positive emotions
There was a sense that the boys, despite being embarrassed, were not only greatly interested and curious to learn more, but that their feelings were not altogether negative. This appears to be supported by reports of the emotions experienced while watching the video (hopeful, proud, interested, touched, relief, importance).

Preferred method of learning
Because of the severe embarrassment experienced as a result of viewing the programme, pupils expressed the wish to access such "embarrassing" information in private. It was interesting to note, however, that many pupils did consider the video to be an ideal medium for learning. However, computer programmes were considered by boys to be the preferred learning tool.
APPENDIX 8.1
PILOT QUESTIONNAIRE

Awareness of Testicular Cancer
This part of the questionnaire is designed to determine people's awareness of testicular cancer. Below are a number of facts about testicular cancer. Please read each one and then rate how aware YOU are of it. The more aware you are, the higher your rating. Please use the following rating scale:

completely unaware 1 2 3 4 5 very much aware

HOW AWARE ARE YOU OF THE FOLLOWING FACTS?
1. Undescended testicles are associated with the development of testicular cancer
2. That Inguinal Hernia is a risk factor for TC
3. That Hydrocele is a risk factor for TC
4. Testicular cancer tends to run in families
5. Men born to a woman who had previously had miscarriages are more likely to develop TC
6. That early detection of TC means that treatment is usually successful
7. That TC is most frequent in white middle class men
8. That there has been an increase in TC over the last ten years in young men
9. The chance of contracting TC is about 2.5 in one thousand
10. Men born to women who had taken the contraceptive pill may be more likely to develop TC
11. That 95% of TC responds very well to treatment
12. That TC is the most common form of cancer among young men aged 15 to 35 years
13. That treatment of TC is usually successful when the disease is detected early
14. That TC can be easily detected through regular self examination
15. When examining your testicles for cancer you should look for changes in weight and size
16. The best time to examine your testicles is when your scrotum is relaxed
17. One of the symptoms of TC is a lump on the testicle
18. That effective TSE for detecting abnormalities is very simple
19. One of the symptoms of possible TC is a change in the firmness of the testicles
20. That TC is not usually painful
21. Most testicular abnormalities turn out to be non-cancerous
22. That regular TSE is recommended by the medical profession
23. That the GP will give instruction as to how to carry out TSE effectively
24. That early detection of TSE will prevent the need for extensive surgery
25. That early detection of TC makes successful treatment very likely
26. That surgery for TC need not interfere with sexual activities
27. One testicle normally hangs lower than the other
28. Testicles produce sperm
29. Testicles should feel smooth and firm not hard and lumpy
30. There is no connection between vasectomy and TC
APPENDIX 8.2

Awareness of Testicular Cancer
This part of the questionnaire is designed to determine people's awareness of cancer and cancer screening. Please answer the question below using the following rating scale.

completely unaware 1 2 3 4 5 very much aware

Please place the number corresponding to your awareness in the brackets beside the question.

1. How aware are you of the causes of TC?
2. How aware are you of the treatments of TC?
3. How aware are you of the importance of early detection to prevent the development of TC?
4. How aware are you of the signs and symptoms which might signal TC?
5. How aware are you of the incidence of TC?
6. How aware are you of the practice of TSE for the purpose of early detection?
7. How aware are you overall of TC?

APPENDIX 8.3

Risk Factors of Testicular Cancer
1. Can you think of any factors that you may have heard of that protect against TC? (if so, please specify)
2. Can you think of any factors that you may have heard of that increase the risk of TC? (if so, please specify)

APPENDIX 8.7

Beliefs concerning Testicular Cancer
In this section we are going to ask a number of questions about preventative behaviour. In particular, we will be asking a number of questions about TSE in which a person checks themselves for abnormalities in their testicles.
Below are a number of statements about testicular cancer and self examination. Please read each one and then decide whether you agree with the statement or not. There are no right or wrong answers, we are just interested in your opinion. Please use the rating scale below to say how strongly you agree or disagree with each statement. Place your answer in the brackets beside each statement.

Strongly Disagree 1 2 3 4 5 Strongly Agree

1. I am more susceptible to TC than others
2. I believe that TSE is sufficiently important that I should make an effort to fit it into my routine
3. TSE is very easy to perform
4. There is really nothing I can do to prevent TSE
5. TSE means the loss of one's testicles
6. I am aware of health education literature on preventing TC
7. I believe that TSE is a simple procedure
8. I believe that TC is very common
9. I do intend to carry out TSE
10. TSE would be embarrassing to do
11. I believe I can avoid cancer by will power
12. TC is a fatal disease
13. I sometimes talk about TC with my friends
14. TC can be cured if detected at an early stage
15. The probability of me getting TC is very small
16. It is very likely that I will examine my testicles regularly for abnormalities in the future
17. I have more important things to think about than TSE
18. I am quite capable of carrying out TSE effectively
19. TC will make a person unable to have children
20. Easy access to information about TSE would encourage me to do it
21. TSE is a necessary part of guarding my health
22. People of my age are not likely to get TC
23. TSE sounds like the kind of thing I should be doing
24. The thought of asking my GP for advice on TSE is embarrassing
25. I would prefer to leave any kind of examination of my body to my GP
26. TC is a very serious disease
27. My parents encourage me to examine my testicles
28. Practising TSE will give me peace of mind
29. I feel that I am protected from TC because of my lifestyle
30. I would not like to do TSE because the thought of finding something wrong is frightening
31. I like the idea of taking control and examining my own testicles
32. TC destroys lives
33. My teachers encourage me to examine myself regularly
34. I believe that TSE is one of the few things I can do to protect myself against TC
35. People like me do not get TC
36. I can easily see how I can fit regular TSE into my lifestyle
37. I would not know how to go about TSE
38. I am good at doing necessary things like TSE even though I do not like it
39. The prospect of TC is very frightening
40. I consider it my duty to my family in the future to do TSE
41. I intend to find out more about TSE
42. Regular TSE would be a rewarding practice
43. Any man can get TC
44. It would be difficult to find time to perform regular TSE
45. If I decide to do TSE I will do it regularly and thoroughly
46. TC may make a person impotent
47. My GP would be a good source of advice for finding out about TSE
48. I would feel less of a man if my testicles were lost due to cancer
49. TSE may help identify other non-cancerous problems that might develop with my testicles
50. I cannot imagine me getting TC
51. I can see how I could deal with any obstacles that might stop me performing regular TSE
52. TSE is not a good idea because one should not go looking for trouble
53. I can avoid cancer by choosing an appropriate lifestyle
54. The treatment for cancer is very damaging
55. I am aware that my friends practice regular TSE
56. I feel that surgery on my testicles would damage my sex appeal
57. TSE ensures that cancer is detected early enough for successful treatment
58. I intend to find out more about TC
59. I value the beauty and perfection of my testicles
60. I feel my GP would be dismissive of me if I went to him/her with a testicular problem

APPENDIX 8.8

Coping with Testicular Cancer

This part of the questionnaire aims to determine how YOU IMAGINE you might cope with testicular cancer. As before, you are asked to indicate on a scale from 1 to 5 how much you agree with each statement.

We do realise that this part of the questionnaire may be upsetting to some of you. If you feel that the questions are too intrusive or upsetting please feel entirely free to pass over this section without answering.

Strongly Disagree Strongly Agree
1 2 3 4 5

1. If I developed TC I would soon adjust to the reality of it
2. I think that I could cope with TC quite well
3. If I developed TC, my most important worry would be the possibility of death
4. If I developed TC I would be most worried about the necessary lifestyle changes
5. I would not be able to cope with the pain of TC
6. If I developed cancer, I would put up a good fight
7. I could not stand the uncertainty that would come with having TC
8. If I got TC and I had not carried out regular TSE, I would not forgive myself
9. I would find having TC very embarrassing
10. If I had cancer, a bad part would be the painful treatment
11. If I had cancer, a bad part would be the lengthy treatment
12. If I had cancer, a bad part would be the side effects of the treatment
13. If I had cancer, a bad part would be the fact that the treatment would mean hospitalisation

APPENDIX 8.9

Common Worries about Testicular Cancer

Below is a list of 12 common worries that people have when they think about testicular cancer. Please read each one and then rank them from 1 to 12 in the order that you would worry about them. 1 is most worrying and 12 is least worrying.

Mutilating surgery ( )
Loss of my family ( )
Pain ( )
Loneliness ( )
The treatment ( )
I would become a burden ( )
Loss of masculinity ( )
Embarrassment ( )
Sterility ( )
Death ( )
Loss of sexual enjoyment ( )
I would be dehumanised ( )

APPENDIX 8.10

Risk Factors and Testicular Cancer
This part of the questionnaire is designed to find out what you think might be the main risk and protection factors for testicular cancer. Below is a list of factors that lay people sometimes associate with testicular cancer rightly or wrongly. These are either factors which are sometimes thought to protect against testicular cancer or factors that may be thought to increase the risk of getting it. Please read each one carefully and then decide whether it is a protective or a risk factor and then indicate on the scale the degree of protection or risk it offers in relation to testicular cancer.

<table>
<thead>
<tr>
<th>protective</th>
<th>neither</th>
<th>risky</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Smoking ( )
Heavy drinking of alcohol ( )
Eating a high fat diet ( )
Taking no exercise ( )
Having unprotected sex ( )
Having had a testicular injury ( )
Having had an undescended testicle ( )
Water Pollution ( )
Air Pollution ( )
Masturbation ( )
Psychological stress ( )
Wearing loose underpants ( )
Sexual abstinence ( )
Having regular health checks ( )
Performing regular self examination ( )
Being older ( )
Having a close relative who had testicular cancer ( )
Having a close relative who had another form of cancer ( )

Can you think of any other factors that you may have heard of that protect against testicular cancer? (if so, please specify)

Can you think of any other factors that you may have heard of that increase the risk of testicular cancer? (if so, please specify)
APPENDIX 8.11

Future Plans
Please answer these questions if you do intend to practice self screening in the near future.

1. How will you try to get into the habit of regular self examination?
2. How might you remind yourself to be regular about practising self screening?
3. Have you thought about the time and place that you will carry out self screening?

APPENDIX 8.12

Background Detail
Finally we would like to ask you just a few quick background questions

What is your age?
What is your occupation? (or the occupation of your parents)
What is your ethnic origin?

APPENDIX 8.13

Health Behaviours
Please indicate how regularly you take exercise by putting a tick beside the appropriate option below

Less regular than most people ( )
About average ( )
More regular than most people ( )

Do you practice regular TSE? (yes no)
Do you intend to practice regular TSE? (yes no)

Do you smoke Cigarettes? (yes no)
If yes approximately how many cigarettes a day? ( )

Do you drink Alcohol? ( )
If yes, please use the following scale to indicate the approximate average number of units you consume per week ( )

1 glass of wine = 1 unit
1 measure of spirit = 1 unit
1/2 pint of beer/lager = 1 unit
APPENDIX 8.14

Significant Others

* Who are the two people in your life whose opinion you value most?.................................

* How likely do you think these people are to advise you to carry out regular TSE?

* How likely is it that you would comply with their wishes?

Please circle the appropriate number below

very unlikely 1 2 3 4 5 very likely

APPENDIX 8.15

Values

Finally, please read the list of issues below and order them according to the importance they have for you. The most important issue will have the number 1 beside it and the least important will have the number 7.

Having good health ( )
Having fun ( )
Having good friends ( )
Being admired ( )
Being wealthy ( )
Being successful at work ( )
Having a good image ( )

APPENDIX 11.1

BOOKLET APPRAISAL QUESTIONNAIRE (post)

Below are a number of statements concerning the booklet. Please read each one and then decide whether you agree with the statement or not. Please use the rating scale below to say how strongly you agree or disagree with each statement. Place your answer in the bracket beside it.

agree disagree

1 2 3 4 5

1. The booklet has provided me with all the information I need to enable me to make a decision about screening
2. I now intend to carry out regular self screening
3. I do need further information about TSE before I make up my mind about screening
4. I aim to show the booklet to my friend
5. I will discuss the booklet with my parent(s)
6. It would be helpful to discuss the booklet with a health care professional
7. The content of the booklet has made me anxious about my testicular health
8. Any discussion of the content of the booklet would be embarrassing
9. It is preferable to learn about TSE from a booklet rather than with others
10. I am now confident that I can carry out TSE effectively
I would prefer learning the skill to self examine by:
11. * watching a health promotion video about it
12. * listening to an instructor teaching TSE
13. * watching a demonstration of TSE on a dummy

I would prefer learning the skill to self examine in private by:
14. * reading about it from a health education booklet
15. * watching a health promotion video at home

APPENDIX 11.2
BOOKLET APPRAISAL QUESTIONNAIRE (follow-up)

Four weeks ago you received a first draft of an information booklet for the promotion of testicular self screening. We would now like to ask your opinion about the booklet and to answer a few questions. Please use the space below to express your views.

1. Which part of the booklet stood out most?
2. Which part of the booklet was most informative?
3. Did the booklet convince you that you should look after your testicular health?
4. What feelings did you experience as you read the booklet?
5. Do you think that there are better ways of learning about TSE than from a booklet (if yes what are they?)
6. How often have you carried out TSE (if at all) since you read the information booklet?
   * not at all * once * twice * three times * more often
7. Did the survey questionnaire you completed earlier prompt you to examine your testicles?
   * not at all * once * twice * three times * more often

APPENDIX 12.1
SEMINAR APPRAISAL QUESTIONNAIRE (pre)

Beliefs Concerning Testicular Self Examination
Below are a number of statements about testicular cancer. Please read each one and decide whether you agree with the statement or not. Please use the rating scale below to say how strongly you agree or disagree with each statement. Place your answer in the brackets beside each statement.

<table>
<thead>
<tr>
<th>do not agree</th>
<th>very much agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

1. I have never heard of TC before today
2. The thought of developing TC at my age is very frightening
3. TSE is an effective method for the detection of abnormalities
4. My family would approve of TSE
5. I intend to carry out regular TSE
6. TC won't happen to people of my age
7. TSE will give me peace of mind
8. I am perfectly able to carry out TSE effectively
9. I am inclined to follow my parent's advice on health matters
10. The consequences of TSE are frightening
11. TSE is embarrassing to do
12. There is really nothing I can do to prevent TC
13. I plan to carry out TSE
14. I am aware that most of my friends carry out TSE
15. I have never thought of self screening my testicles
16. I am not at all sure about TSE
17. I am doing regular screening of my testicles
18. TC is a very serious disease

Now please indicate your opinion on the scale below

Not at all likely 1 2 3 4 5 very likely

19. I would rate the chance of me developing TC at nil - at 1 in 10 - at 1 in 100 - at 1 in 1000 - at 1 in 10000 - at 1 in 100000.

20. How likely do you think it is that you will develop TC?
21. How likely do you think it is that you will carry out regular TSE?

**APPENDIX 12.2**

**Seminar Appraisal Questionnaire (post)**

Below are a number of statements concerning the seminar. Please read each one and then decide whether you agree with the statement or not. Please use the rating scale below to say how strongly you agree or disagree with each statement. Place your answer in the bracket beside it.

<table>
<thead>
<tr>
<th>agree</th>
<th>1 2 3 4 5</th>
<th>disagree</th>
</tr>
</thead>
</table>

1. The seminar has provided me with all the information I need to enable me to make a decision about screening
2. I now intend to carry out regular self screening
3. I do need further information about TSE before I make up my mind about screening
4. I aim to discuss the seminar with my friend
5. I will discuss the seminar with my parent(s)
6. It would be helpful to discuss the seminar with a health care professional
7. The content of the seminar has made me anxious about my testicular health
8. Any discussion of the content of the seminar would be embarrassing
9. It is preferable to learn about TSE from a seminar rather than with others
10. I am now confident that I can carry out TSE effectively

I would prefer learning the skill to self examine by:
11. * watching a health promotion video about it
12. * listening to an instructor teaching TSE
13. * watching a demonstration of TSE on a dummy
I would prefer learning the skill to self examine in private by:
14. * reading about it from a health education booklet
15. * watching a health promotion video at home

APPENDIX 12.3

Seminar Appraisal Questionnaire (follow-up)
A few weeks ago you attended a health education session on Testicular Cancer Prevention. We would now like to ask you a few questions about the session. Please use the space below to express your views.
1. What was the most important piece of information you obtained from the session?
2. What thoughts went through your mind during the session?
3. What feelings did you experience during the session?
4. Do you think that there are better ways of learning about TSE. If so what are they?............
5. Have you since discussed TSE with a friend?
   * Yes  * No
6. Have you since discussed TSE with your parent(s)?
   * Yes  * No
7. How often have you carried out TSE since you attended the session at school?
   * not at all  * once  * twice  * three times  * more often

Now please recall the information content of the session and answer the following questions.

1. When is TSE best carried out?
2. How often should TSE be carried out?
4. Why is self screening so important?
5. What would you be looking for when examining your testicles?
6. Who is most at risk of developing TC?
7. What do you do if your testicles have changed in some way?
8. What do you do if embarrassment prevents you from consulting your doctor?
Knowledge of Male Biology

Below is a diagram of the male pelvic region. Please look at the diagram and write the appropriate body part beside the relevant number below. Please do not guess, if you do not know a particular body part just leave it blank. We are not interested in finding out if you personally have a good knowledge but we are, rather, interested in general knowledge among people of your age. Remember your name has not been recorded. If you do not know the medical term for a part please feel free to use whatever terms you are most familiar with.

1. ........................................ 2. ........................................
3. ........................................ 4. ........................................
5. ........................................ 6. ........................................
7. ........................................ 8. ........................................
9. ........................................ 10. ......................................
11. ....................................... 12. ......................................
13. ....................................... 14. ......................................
15. ....................................... 16. ......................................
1. Penis
2. Bladder
3. Seminal Vesicle
4. Testicle
5. Pubic Bone
6. Vas Defrens
7. Anus
8. Prostate
9. Epididymis
10. Glans
11. Scrotum
12. Foreskin
13. Rectum
14. Urethral Opening
The Testicular Cancer Quiz

In this section we are interested in your basic knowledge of testicular cancer. Below are a number of multiple choice questions. Please read each one and then circle either the a, b or c which represents the correct answer in your view. If you do not know the answer circle the d option.

1. How many types of cancer are there?
   a) less than 100
   b) more than 200
   c) more than 1000
   d) Do not know

2. What is the success rate for the treatment of the most common form of testicular cancer?
   a) about 10 percent
   b) about 50 percent
   c) about 90 percent
   d) Do not know

3. When is testicular self screening best carried out?
   a) After a warm bath
   b) After exercise
   c) After urinating
   d) Do not know

4. How often should testicular self screening be carried out?
   a) About once a month
   b) Every day
   c) About every 6 months
   d) Do not know

5. What kind of investigation does a hospital carry out when testicular cancer is suspected?
   a) Use of surgery
   b) Use of a scanner
   c) Use of drugs
   d) Do not know

6. What is the most common cause of delay in approaching a doctor after noticing some abnormality?
   a) Forgetfulness
   b) Embarrassment
   c) Not caring
   d) Do not know
7. What are the first symptoms of testicular cancer?
   a) Feeling sick
   b) Weight loss
   c) A swelling or lump
   d) Do not know

8. What is the normal appearance of the testicles?
   a) Each testicle is the same size and shape as the other
   b) One testicle hangs down lower than the other
   c) One testicle is behind the other
   d) Do not know

9. Which of the following have been associated with the development of testicular cancer?
   a) having a vasectomy
   b) having had undescended testicles
   c) wearing tight underpants
   d) Do not know

10. What is the incidence of testicular cancer?
     a) 3 in 1000
     b) 10 in 1000
     c) 50 in 1000
     d) Do not know

11. Over the past 20 years has the incidence of testicular cancer has...
     a) increased
     b) stayed the same
     c) decreased
     d) Do not know

12. What is the proportion of testicular cancers that are first detected by self examination?
     a) 1 out of 10
     b) 5 out of 10
     c) 9 out of 10
     d) Do not know

13. What age group is most likely to get testicular cancer?
     a) 15-40 years
     b) 40-60 years
     c) 60-80 years
     d) Do not know

14. What is involved in a testicular cancer check-up performed by the GP?
     a) Blood tests
     b) X-Ray tests
     c) Feeling the testicles by hand
     d) Do not know
15. What are the changes in the testicles that are most associated with testicular cancer?
   a) Becoming more Droopy
   b) Changing colour
   c) Becoming firmer
   d) Do not know

16. What is the most frequently occurring cancer among men between the ages of 15 to 35?
   a) Lung Cancer
   b) Testicular Cancer
   c) Skin Cancer
   d) Do not know
Dear Sir,
This questionnaire is part of an investigation into Cancer Prevention. The information gained from this survey will be used to develop a health education programme to prevent Testicular Cancer among young men.

In view of the potential importance of this research, we hope that you will be willing to complete the questionnaire which will take approximately 30 minutes to complete. Please note that your answers will be totally confidential, you do not need to state your name.

However, despite this anonymity some people may find some of the questions difficult or embarrassing. This is an unfortunate feature of the nature of this research. Please, if you do find some of the questions difficult, simply ignore them and move on to the next.

The nature of this investigation also demands a small number of followup questions to be asked in a few months time. If you are willing to be contacted, please write your name and where we can contact you in the space provided. As soon as we have matched your answers, this page will be detached and destoyed.

Name:

Contact Address:

THANK YOU VERY MUCH FOR PARTICIPATING IN THIS RESEARCH.

Barbel Pee  Department of Psychology
General Background
Firstly, we need to ask you just a few quick background questions.

What is your age? What is your occupation? 
What is the occupation of your parents? 
What is your country of origin? 
What is your religion?

Knowledge of Testicular Cancer
In this section we are interested in your basic knowledge of testicular cancer. Below are a number of multiple choice questions. Please circle either the a, b or c which represents the correct answer in your view. If you do not know the answer circle the d option.

1. How many types of cancer are there?
   a) less than 100
   b) more than 200
   c) more than 1000
   d) Do not know

2. What is the success rate for the treatment of the most common form of testicular cancer?
   a) about 10 percent
   b) about 50 percent
   c) about 90 percent
   d) Do not know

3. When is testicular self screening best carried out?
   a) After a warm bath
   b) After exercise
   c) After urinating
   d) Do not know

4. How often should testicular self screening be carried out?
   a) About once a month
   b) Every day
   c) About every 6 months
   d) Do not know

5. What kind of investigation does a hospital carry out when testicular cancer is suspected?
   a) Use of surgery
   b) Use of a scanner
   c) Use of drugs
   d) Do not know

6. What is the most common cause of delay in approaching a doctor after noticing some abnormality?
   a) Forgetfulness
   b) Embarrassment
   c) Not caring
   d) Do not know
7. What are the first symptoms of testicular cancer?
   a) Feeling sick
   b) Weight loss
   c) A swelling or lump
   d) Do not know

8. What is the normal appearance of the testicles?
   a) Each testicle is the same size and shape as the other
   b) One testicle hangs down lower than the other
   c) One testicle is behind the other
   d) Do not know

9. Which of the following have been associated with the development of testicular cancer?
   a) having a vasectomy
   b) having had undescended testicles
   c) wearing tight underpants
   d) Do not know

10. What is the incidence of testicular cancer?
    a) 3 in 1000
    b) 10 in 1000
    c) 50 in 1000
    d) Do not know

11. What is the proportion of testicular cancers that are first detected by self examination?
    a) 1 out of 10
    b) 5 out of 10
    c) 9 out of 10
    d) Do not know

12. What age group is most likely to get testicular cancer?
    a) 15-40 years
    b) 40-60 years
    c) 60-80 years
    d) Do not know

13. What is involved in a testicular cancer check-up performed by the GP?
    a) Blood tests
    b) X-Ray tests
    c) Feeling the testicles by hand
    d) Do not know

14. What changes in the testicles are associated with testicular cancer?
    a) Becoming more droopy
    b) Changing colour
    c) Becoming firmer
    d) Do not know
Knowledge Of Male Reproductive Anatomy
Below is an anatomical drawing of male reproductive anatomy. Below the drawing is a list of body parts preceded by a letter. If you think you know were a particular body part is on the drawing, place the corresponding letter on to the body part in question. Do not worry if you do not know some of the parts, this is not an examination. We are interested to know what kind of information would be useful to include in a teaching pack.

A. Penis B. Scrotum C. Vas Defrens D. Testicle
E. Epididymis F. Seminal Vesicle G. Forskin H. Prostrate
I. Urethra J. Glans K. Bladder L. Anus
M. Pubic Hair N. Urethral Opening O. Pubic Bone P. Rectum
Beliefs Concerning Testicular Self Examination

In this section we are going to ask a number of questions about the beliefs and attitudes that you may have with regard to testicular cancer. Below are a number of statements about testicular cancer. Please read each one and then decide whether you agree with the statement or not. There are no right or wrong answers, we are just interested in your opinion. Please use the rating scale below to say how strongly you agree or disagree with each statement. Place your answer in the brackets beside each statement.

<table>
<thead>
<tr>
<th>Not at all</th>
<th></th>
<th></th>
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<th>Very Much</th>
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<tbody>
<tr>
<td>1. My parents encourage me to examine my testicles regularly to prevent the development of cancer</td>
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<tr>
<td>2. The thought of developing testicular cancer at my age is very frightening</td>
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<td>3. I am good at doing necessary things like testicular self screening even though I do not like it</td>
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<td>4. I can see many ways in which to remind myself to self-examine regularly</td>
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<td>5. My teacher encourages me to self examine</td>
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<td>6. I cannot imagine me getting testicular cancer</td>
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<tr>
<td>7. I expect to cope with the inconvenience of testicular self examination as self screening could save my life</td>
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<tr>
<td>8. I have often wondered how I would cope with a serious disease such as testicular cancer</td>
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<tr>
<td>9. I know someone who has testicular cancer</td>
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<tr>
<td>10. People of my age are not likely to get testicular cancer</td>
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<tr>
<td>11. I am quite capable of carrying out testicular self examination effectively</td>
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<tr>
<td>12. Testicular cancer can be cured if detected at an early stage</td>
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<tr>
<td>13. The probability of me getting testicular cancer is very small</td>
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<tr>
<td>14. I believe that testicular self examination is a simple procedure</td>
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<tr>
<td>15. It would be difficult to find the time to do regular testicular self screening</td>
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<tr>
<td>16. I feel that I am protected from testicular cancer because of my lifestyle</td>
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<tr>
<td>17. Testicular self examination is the only way to protect myself from developing testicular cancer</td>
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<tr>
<td>18. Testicular cancer leads to the loss of ones testicles</td>
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<tr>
<td>19. I have in the past thought about how I would cope with a serious disease such as cancer</td>
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</table>
20. Testicular cancer makes a person impotent ................................. ( )
21. I intend to find out more about testicular self screening ............... ( )
22. Testicular self examination is an effective procedure to prevent testicular cancer ......................................................... ( )
23. Testicular self examination can be a painful procedure ............... ( )
24. The thought of asking my GP for advice on testicular self screening is embarrassing ............................................................ ( )
25. Practising testicular self examination will give me peace of mind .... ( )
26. I imagine that I would regret not having self screened if ever I was affected by testicular cancer ................................................. ( )
27. Testicular cancer is usually fatal ........................................... ( )
28. I believe that most people of my age self screen regularly .......... ( )
29. It is very likely that I will examine my testicles in the near future .................................................................................. ( )
30. Testicular self examination would be embarrassing to do .......... ( )
31. People like me do not get testicular cancer ............................. ( )
32. Testicular cancer is a very serious disease .............................. ( )
33. I would prefer to leave any kind of examination of my body to my GP...( )
34. Testicular cancer would destroy my sex life ............................ ( )
35. I plan to carry out regular self screening ................................ ( )
36. I believe that most people take some form of preventive measures to protect themselves from illness ........................................... ( )
37. I am less susceptible to testicular cancer than others of my age...... ( )
38. I like the idea of taking control over my health and examining my own testicles ................................................................. ( )
39. I can see how I can deal with any obstacles that might stop me from performing regular self screening ...................................... ( )
40. I believe that most men carry out regular self screening ......... ( )
41. I would not like to do testicular self examination because the thought of finding something wrong is frightening ....................... ( )
42. I have in the past been pre-occupied with the prospect of developing testicular cancer ......................................................... ( )
43. I would not know how to carry out testicular self screening ....... ( )
44. I have watched television programmes about testicular cancer prevention ................................................................. ( )
45. I sometimes talk about testicular self examination with my friends .. ( )
46. I am aware of health promotion leaflets to teach testicular self examination ................................................................. ( )
47. Regular testicular self examination would be a rewarding practice .... ( )
48. Testicular self examination may help identify other non-cancerous abnormalities.

49. Testicular cancer will make a person unable to have children.

50. Testicular self examination is not a good idea because one should not go looking for trouble.

51. The likelihood that I will develop testicular cancer if I carry out regular testicular self examination is very small.

52. There is really nothing I can do to prevent testicular cancer.

53. I can easily imagine the time and the place to carry out testicular self screening.

54. Testicular self examination ensures that cancer is detected early enough for successful treatment.

55. I believe that testicular self examination is one of the few things I can do to protect myself from developing testicular.

56. Testicular self screening can be easily incorporated into my lifestyle routine.

57. I know I will be conscientious about testicular self screening if I decide to do it.

---

**The Influence Of Important Others**

Here we are interested in knowing whose opinion you tend to respect, and their possible influence upon you in the decision you might make regarding your health. Please name two people in your life whose opinion you value most?

---

Using the scale below, please indicate your answers to the following questions in the brackets provided.

<table>
<thead>
<tr>
<th>Very unlikely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

1. How likely do you think these people are to advise you to carry out regular testicular self-examination.

2. How likely is it that you would comply with their wishes.

3. How likely are you to develop testicular cancer if you do not carry out regular testicular self-examination.

4. How likely are you to develop testicular cancer if you do carry out regular testicular self-examination.

5. How likely is it that you will carry out testicular self-examination to prevent the development of testicular cancer.
Values

In this section we are interested in the value that you place upon your life and body. We are using a 'forced ranking' procedure here because, although most people place a high value on all of these features listed below, we are interested in their relative value to you.

Please read the lists of issues below and order each item on the list in terms of the value they have for you. The most important issue will have the number 1 beside it, the second most important the number 2 and so on to the least important which will have the number 8.

- Having good looks
- Being wealthy
- Having fun
- Being successful
- Having good friends
- Having a good image
- Having good health
- Having a fit body

Please do the same for the list of body parts below

- Eyes
- Ears
- Penis
- Hands
- Teeth
- Legs
- Testicles
- Mouth

GENERAL HEALTH

In this section we are asking a number of questions about your health but with particular reference to testicular cancer screening.

How regular do you exercise? (please tick)
- Less regular than most people
- About average
- More regular than most

Do you smoke cigarettes? Yes...No....
If yes, approximately how many cigarettes per day?.......

Do you drink alcohol? Yes...No....
If yes, please indicate the approximate number of units you consume per week?..........  

1 Glass of wine = 1 unit
1 measure of spirit = 1 unit
1/2 pint of beer/lager/cider = 1 unit

Had you ever heard of testicular self-examination before today? Yes...No
If yes, do you carry out regular testicular self-examination? Yes...No
Had you thought about self examining before today? Yes...No
Do you plan to find out more about Testicular self-screening? Yes...No
Do you intend to find out more about testicular cancer? Yes...No
Do you now plan to carry out self screening as soon as possible? Yes...No
Finally, please answer the following open ended questions. These are designed to tap any views or ideas that you may have about testicular self examination that have not been addressed in the previous sections. Please feel free to write as little or as much as you like in response to these questions. Remember, if you feel that any questions are too hard or otherwise intrusive, please ignore them and go on to the next. Any further comments may be written over the page.

If you do intend to carry out testicular self screening in the future, how will you try to get into the habit of regular screening?

How might you remind yourself to be regular about practising self screening?

Have you thought about the time and place that you will carry out self screening?

Can you think of any factors that you may have heard of that protect against testicular cancer?

Can you think of any factor that you may have heard of that increase the risk of developing testicular cancer?

Imagine that you may have Testicular Cancer. How do you imagine you would cope? Which factors do you imagine to be the most difficult to cope with?

Imagining the same scenario, which factors related to testicular cancer do you imagine to be the least difficult to cope with?

Now, I would like you to imagine that you are in the process of carrying out testicular self examination at home? What thoughts and feelings do you imagine will go through your mind in this situation?

What factors might prevent you from examining your testicles regularly?

Thank you very much for helping us with this research.
EVERYONE HAS HEARD OF CANCER -
BUT DOES ANYBODY KNOW ABOUT TESTICULAR CANCER?

YOU WOULDN'T THINK THAT HE HAD CANCER, WOULD YOU?

The most important thing about testicular cancer is that it can be treated successfully - if detected early

You can protect yourself

BE AWARE!
BE IN CONTROL!

TESTICULAR SELF EXAMINATION PROTECTS!
TESTICULAR SELF EXAMINATION COULD SAVE YOUR LIFE!

This booklet is designed to inform you about testicular cancer and how you can protect yourself.

Be in control of your health
ITS' UP TO YOU!

LEARN ABOUT TESTICULAR HEALTH AND GAIN CONTROL!

WHAT DO YOU REALLY KNOW ABOUT YOUR TESTICLES?

FOR EXAMPLE:
* The SEMINAL VESICLE (A) is part of the internal genital system designed to produce sperm
* THE SCROTUM (B) is the pouch which hangs outside your body and contains the testes
* THE TESTES (C) (Gonads) are responsible for the production of sperm?
* That THE EPIDIDYMIS (D) is a mass of tubes located at the back of each testicle. It is here that new sperm having been produced in the seminiferous tubules gain maturity and mobility. They are stored there until just before ejaculation when they travel, via the vas deferens to the prostrate gland where the sperm will be mixed with secretions to form the semen or seminal fluid. This fluid is pushed out through the urethra
* THE URETHRA (E) is the tube which leads from the bladder and through which the urine is voided and the URETER (H) is the tube which leads from each of the kidneys to the bladder
* That THE VAS DEFERENS (F) is the tube which carries sperm from the testes to the urethra. It is the VAS which is cut in a vasectomy, thus stopping the sperm from continuing their passage
* THE PROSTRATE GLAND (G) at the base of the bladder is involved in semen production.
WHAT DO YOU KNOW ABOUT TESTICULAR CANCER?

FOR EXAMPLE:
* Cancer can develop in the testes and spread to other parts of the body
* Early detection of testicular cancer can prevent the development and spread of cancer to other parts of the body
* People as young as 15 years can be affected by testicular cancer
* Testicular cancer can develop in men of any age but is the most common cancer in men aged 15 to 40 years
* Early detection and subsequent treatment of testicular cancer would improve your chance of a full recovery
* Few people know about testicular cancer

DO YOU KNOW WHO IS MOST AT RISK?
* Although any man can develop testicular cancer, some men are more at risk than others
* Someone with a history of undescended testicles is more at risk of testicular cancer
* An undescended testicle is one which did not, as is normal shortly after birth, descend into the scrotum
* Someone with a family history of testicular cancer is more at risk of testicular cancer
* Someone who himself has a history of testicular cancer is more at risk of testicular cancer

WHAT DO YOU KNOW ABOUT TESTICULAR SELF EXAMINATION?
* Few people know about testicular self screening
* Checking for changes makes sense because it lowers the risk of developing cancer
* Knowing your body is paramount for self-protection
* You can examine your testicles yourself without having to visit a Doctor for screening
* It can be carried out by you in the privacy of your home
* You might examine you testicles once a month after a warm bath
* Testicular examination is not painful
DO YOU KNOW HOW TO DO TESTICULAR SELF EXAMINATION?

HERE IS HOW IT IS DONE!

Whilst you are standing;
*hold your scrotum in the palm of your hands and use your thumb and fingers of both hands to examine each of your testes. You should be able to feel a soft tube at the top of each testicle. This the epididymis which stores the sperm and should not be confused with an abnormal lump.
*Check each testis for any lumps, swelling, slight enlargement or change in firmness. Normally testicles should be smooth without any lumps.
*Note their size and weight. It is normal for one testicle to be larger than the other one, but they should roughly be the same weight.
*If you do notice anything abnormal you should see your Doctor immediately. It won’t necessarily be cancer but it’s best to make sure.

PROCEDURAL CHECKLIST

1. Hold your scrotum in the palm of your hand
2. Use fingers and thumbs of both hands to examine each testicle
3. Check each testes for any lumps, swelling, slight enlargement, change of firmness
4. Note their size and weight
WHAT ABOUT EMBARRASSMENT AND FEAR?

*You may not be aware that embarrassment and fear are the most frequent reasons for failing to report changes in the testes to the GP
*that some people are embarrassed to see their doctor, and afraid of finding something wrong with their testicles
*that embarrassment about one's 'private parts' is normal, but is most strongly felt by young people
* you may suspect that the key is to overcome embarrassment when it is really important
*that despite embarrassment, checking for abnormalities and seeing your Doctor, if there is a change, is very important

DON'T BE RULED BY YOUR EMOTIONS!
BE BODY AWARE!

*if you find anything about TSE embarrassing or worrying, you are not alone, many people do
*it helps to talk, speak to a friend
*for the sake of self-protection and piece of mind, we must all overcome embarrassment and fear - it makes sense
*if an abnormality is detected it is most probably not cancer and if it is, it can be treated with a good chance of total recovery
*body awareness makes sense because the benefits of self screening, far outweigh the costs

DON'T LET EMBARRASSMENT KEEP YOU IGNORANT about your body, keep you in the dark about changes, prevent you from asking advice, from seeking a diagnosis and treatment in good time

FOR PEACE OF MIND, OVERCOME YOUR EMBARRASSMENT BE IN CONTROL OF YOUR HEALTH
Seek advise early when the disease is easy to treat, when the benefits are greatest and the costs are minimal. So much is gained by doing so little.

Protect your health, your looks, your fitness, be body aware!

EXAMINE YOURSELF-ONCE EVERY MONTH-FOR PEACE OF MIND

IT'S EASY!
IT MAKES SENSE!

IT'S UP TO You!
Appendix 14.0

ONE LUMP OR TWO?

MY MALCOLM'S VERY KEEN ON SELF-EXAMINATION. THE DOCTOR SAYS HE'S ONLY GOT TO DO IT ONCE A MONTH BUT HE SEEMS TO BE AT IT EVERYDAY!

(SPLURT)

COOOMP!!