

Curtin University

**KNOWLEDGE AND BELIEFS OF CANCER
PREVENTION BY SENIORS**

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ABSTRACT

Introduction For most cancers, globally, the highest incidence rates are in the older age groups. In contrast with other major causes of death among older people, cancer mortality has not in general declined, indicating that primary prevention remains a valuable approach. The review of current literature clearly indicates that taking preventive action can decrease cancer rates. Even though this is known, a lot of older people do not take preventive actions against cancer.

Objectives This pilot study assessed the knowledge, beliefs and perceptions of older people, aged 60 years and above, in relation to cancer prevention. The preventive health actions taken by this group, and the various barriers and motivators to these health actions were also assessed.

Methods A mixed methodology was used to assess the above objectives. . A sample of 50 males and females aged 60 years and above participated in the study. Seven focus group discussions and two interviews were conducted and the participants in these discussions completed a questionnaire. Data was analysed using SPSS version 14 and, a thematic analysis was completed for the qualitative data.

Results A total of 50 older people ranging from 60 to 76 years old (mean age: 68 years) participated in the study. The results indicate that older people are aware of recommended preventive health actions in relation to cancer. However, most do not adhere to these preventive actions, either because they do not perceive the benefits if the actions are initiated after the age of 60 or because some risk factors are not perceived to be related to cancer.

Conclusion The results highlight the crucial role of information regarding primary prevention of cancer after the age of 60. They suggest the need for consistent information to older people of their role and importance of cancer prevention after the age of 60. In addition, interventions to improve cancer prevention in this age group should be tailored to their specific age-related beliefs about prevention and doctor-patient communication. Preventive actions in relation to cancer are relevant at any age.

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LIST OF ABBREVIATIONS

AACR	Australasian Association of Cancer Registries
ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
BMI	Body Mass Index
CHD	Coronary Heart Disease
CRC	colorectal cancer
CVD	Cardiovascular Disease
FG	Focus Group
FOBT	Faecal Occult Blood Test
HBM	Health Belief Model
HPV	Human Papilloma Virus
IARC	International Agency for Research on Cancer
IGF	Insulin Growth Factor
NBCC	National Breast Cancer Centre
NHMRC	National Health and Medical Research Council
NMSC	Non-Melanoma Skin Cancer
OFHEA	Office of Health and Environmental Health Assessment
WHO	World Health Organisation
UV	Ultraviolet

CHAPTER ONE: INTRODUCTION

Background

The number of older people is growing rapidly worldwide. More than 580 million people in the world are older than 60 years and the number is projected to rise to 1,000 million by 2020 (WHO 2000). According to a report by the World Health Organisation (WHO 2002), the number of people aged 60 years and over is estimated to grow to almost 2 billion by 2050, at which time the population of older persons will be larger than the population of children (0-14) for the first time in history (WHO 2000).

In Australia, the Australian Institute of Health and Welfare (AIHW) reports in the series of Australian Bureau of Statistics (ABS) population projections, that the total population is expected to increase by 12% from 19,413,240 as at 30 June 2001 to 21,765,911 by 30 June 2011. In the same period, the population in the age range 65 and over is projected to increase by 30% from 2,435,534 to 3,169,188 (Australian Bureau of Statistics 2001; Australian Institute of Health and Welfare 2005).

With this increase in life expectancy, the leading causes of death have shifted from infectious diseases to non-communicable diseases and from younger to older individuals (Australian Bureau of Statistics 2002). In industrialised countries, about 75% of deaths in persons older than the age of 65 are now from cardiovascular disease (CVD) and cancer (Kahana, Lawrence et al. 2002).

Internationally, annual age-standardised cancer incidence rates per 100,000 elderly persons (1988 to 1992), calculated based on data from cancer registries in 51 countries in five continents kept by the International Agency for Research on Cancer (IARC) and the International Association of Cancer Registries (IACR), shows that the proportion of all cancers among elderly men and women were 61 and 56% respectively (International Agency for Research on Cancer (IARC) 2002; MacInnis, Dallas et al. 2004). Cancer incidence rises as the population ages. Fifty percent of all cancer diagnoses and 60% of all cancer deaths in the United States occur in people older than 65 years of age (MacInnis et al. 2004).

All cancers combined (except non-melanoma skin cancer), when based on the standardised rates, are almost 7-fold more frequent among elderly men (2,158 per 100,000 person-years), and around 4-fold more frequent among elderly women (1,192

per 100,000 person-years) than among younger persons (30 to 64 years old) (MacInnis, Dallas et al. 2004).

In Australia, cancer is a notifiable disease, (which by law has to be reported to the health department), in all states and territories and is the only major disease category for which an almost complete coverage of incidence data is available (Mathers, Vos et al. 1999). Cancer is also a major cause of death in Australia AIHW and Australasian Association of Cancer Registries (AACR) 2002).

For most cancers, the highest incidence rates are in the older age groups, so that (even with the relatively stable trends in the incidence rates) the projected increase in the Australian population, (particularly the increased population in the older age groups), will lead to large increases in the total number of new cases of cancer (AIHW and AACR 2002). In 2001, the average age of first diagnosis of a cancer for males was 66 years and the median age was 69 years. The average age of first diagnosis for females was 64 years and the median age was 65 years. For the overall population, the average age of first diagnosis was 65 years and the median age was 68 years (AIHW 2005).

The population in the age groups from 50–59 years and above is increasing rapidly as the generation born during the baby boom (1946 to 1961) reaches these ages. This is leading to an increase in new cases of cancer much greater than overall population growth, despite a small decline in age-standardised incidence in recent years (ABS 2001).

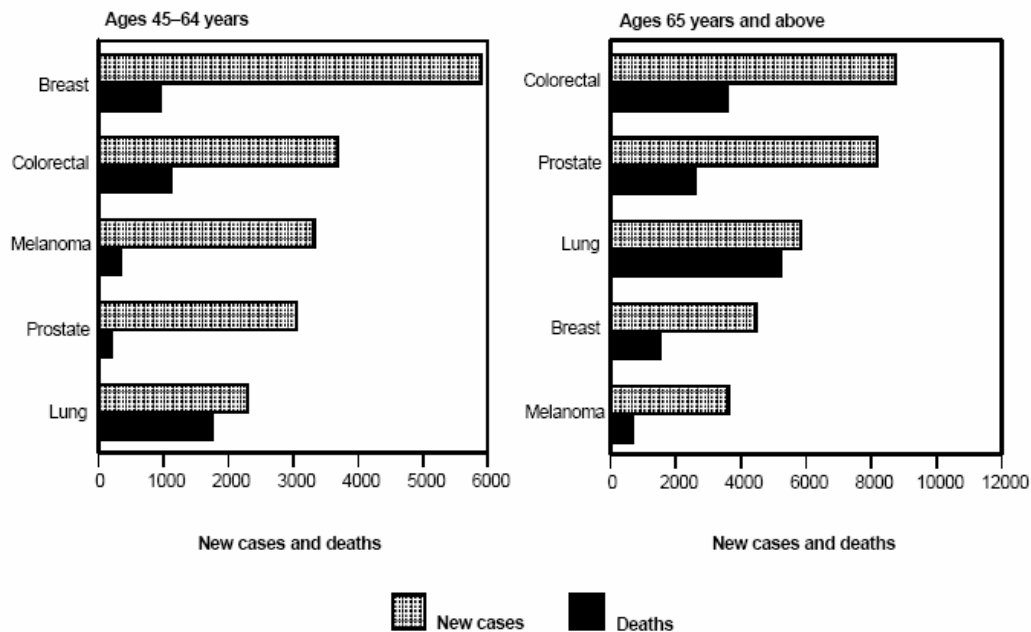
For women, the number of new cases of cancer is projected to increase by 29% from 40,578 in 2001 to 52,356 in 2011, with a 95% prediction interval from 49,356 to 55,777 (AIHW 2005). For men, the number of new cases is projected to increase by 32% from 47,820 in 2001 to 63,087 in 2011, with a 95% prediction interval from 58,122 to 68,752 (AIHW 2005).

However, globally, large variations exist between occurrences of different cancer sites. Contrary to the pattern in younger age groups, in which annual cancer rates are almost equally distributed between the two genders, elderly men have an almost double cancer incidence rate compared with elderly women (Goldberg and Chavin 1997). Studies done in the United States show that for all major specific cancer sites, except testicular cancer, the incidence rate is significantly higher among the elderly than among any groups of younger and middle-aged persons (McTiernan 2003).

According to Zabelegui (1998), cancer of the prostate (451 per 100,000), the lung (449 per 100,000) and the colon (176 per 100,000) make up around half of all diagnosed cancers among elderly men. Prostate cancer is around 22 times more frequent among elderly men than among younger men. The corresponding most frequent cancers among elderly women, making up 48% of all malignant cancers, are breast (248 per 100,000), colon (133 per 100,000), lung (118 per 100,000) and stomach cancer (75 per 100,000).

In Australia, the number of person-years of life lost due to cancer is generally dominated by the most common cancers due to the large numbers of cases diagnosed, rather than by those less common cancers that occur earlier in life (AIHW 2005). Lung cancer is responsible for the highest number of person-years of life lost before 75 years of age (44,978 in 2001), followed by colorectal cancer (29,768) and breast cancer (28,733) (AIHW 2005). This is illustrated by the following figure.

Figure 1: Most frequently occurring cancer by age



Source: Australian Institute of Health and Welfare (2005)

In Australia, the elderly comprise an important group among those affected with melanoma (Jelfs, Giles et al. 1994; National Cancer Control Initiative (NCCI) 2003). The age-specific incidence of melanoma continues to rise throughout life, most steeply in men (NCCI 2003). While incidence rates have levelled off or are falling in younger age groups, they continue to rise steeply in the elderly (Jelfs, Giles et al. 1994). However, it is not incidence, but mortality, that most strongly conveys the predicament of the elderly in the population with respect to melanoma (NCCI 2003). Mortality from melanoma for Australian men aged between 80 and 84 years is 10 times that of those aged between 40 and 44 years (48.16 v. 4.92 per 100,000 person-years) (National Health and Medical Research Council (NHMRC) 1996).

In contrast with other major causes of death among the elderly, cancer incidence and mortality have not in general declined, indicating that primary prevention (especially cessation of tobacco smoking) remains a most valuable approach to decrease mortality (Jha and Chaloupka 1999). Thus, research into preventable causes is important for future prevention.

Statement of the problem

The review of current literature clearly indicates that taking preventive action can decrease cancer rates. Further, older people in Australia contribute to their communities and society through voluntary work for welfare and community organisations, child care for grandchildren and other forms of caring. According to a report by the ABS 2000, older people spent around 30% of their waking hours on unpaid work, comprising domestic activities, shopping, child-care and voluntary work. As such, a healthy life for this group of people is not only important to health care expenditure but also to the community in general.

In addition there is little research about older people taking preventive action or about their knowledge, perceptions and beliefs in relation to cancer prevention. Although a study done by Donovan, Carter et al. (2004), on changes in beliefs about cancer in Western Australia showed there is improved knowledge on cancer prevention, this study did not focus specifically on older people but rather on all age groups. The greatest morbidity and mortality burden due to cancer lies in those aged 60 years and above (NCCI, 2003). As such, great attention to this age group is important. There is also little information on barriers and motivating factors among older people in relation to cancer prevention. Therefore, there is a need for further studies in this area. Such research is necessary to improve cancer prevention among older people. This study is a formative step towards a large proposed research program in this area.

RESEARCH QUESTION

Objectives

The aim of the study was to examine preventive actions taken by older people (aged 60 years and above) in relation to cancer.

Specific objectives

1. To assess the knowledge, perceptions and beliefs of cancer prevention, including screening, among Western Australians aged 60 years and above.
2. To identify the motivators and barriers to cancer prevention in this age group.
3. To assess specific health actions taken by older people to prevent cancer.

BENEFITS OF THE STUDY

This is a preliminary step of a proposed major study to be carried out among older people regarding beliefs and perceptions of cancer prevention.

The results of this study will benefit future and on-going cancer education programs because they show the need to identify seniors' level of knowledge about cancer, they elicited and addressed beliefs about causality and prevention and they indicate that health information should be provided in the most accessible and understandable manner.

Further, the information from this study can be used to better inform and tailor cancer prevention interventions, especially in making those interventions more age-relevant to older people above 60 years of age.

LIMITATIONS OF THE STUDY

Several methodological limitations should be taken into account when considering the results. Primarily, the study methodology is subject to selection bias. Although the participants were randomly selected from a database, held at the Positive Aging Foundation. This data based contained, only those who were willing to participate in research mainly relating to health. In addition, the database was chosen on the basis of convenience. Also, focus groups only can reach those who voluntarily want to participate,

which may under-represent those who do not participate and the elderly who live in institutions. In addition, the sample was geographically homogenous (i.e. older people living in the Perth metropolitan area) and, as such, the findings may not apply to those living in the country areas or in other states. The reviewers need to be aware that there could have been a self-selection bias as 42% of the sample had been diagnosed with cancer. Conducting a large-scale survey, along with detailed personal interviews may help eliminate this limitation in future research.

DEFINITION OF TERMS

Malignant	Refers to cells or tumours growing in an uncontrolled fashion. Often used to describe cancers, this term implies aggressive invasion, to the point where surrounding structures are compromised or destroyed. Alternatively, a tumour that begins in one spot and spreads to a distant site is described as malignant (AIHW 2005).
Neoplasm	New abnormal growth of tissue, also called cancer.
Notifiable disease	A disease, which by law has to be reported to the health department.
Screening	Is used to denote a systematic effort to detect unsuspected disease by either performing a total-body examination or assessing the risk for cancer by laboratory tests such as radiographic/radiological examinations
Older person	In the context of this study, the term older person refers to any person aged 60 years and above

ORGANISATION OF THE DISSERTATION

This dissertation is organised into three major sections. Chapters one and two provide the background information and orientate the reader to the main purpose of the study.

Chapters three and four describe and detail the methods and the results. Chapters five and six give the outcome of the results and the specific conclusions that can be drawn from the whole study.

Chapter one describes the growing population of older people, globally and in Australia. It further illustrates the growing cancer burden among older people in general, that is, globally and in Australia. This chapter also outlines the objectives of the study, its

significance and conceptual framework, benefits and limitations of the study and organisation of the dissertation.

Chapter two reviews the literature pertaining to cancer prevention among people aged 60 years and above. Beliefs and perceptions in relation to cancer at their particular ages are also discussed. This chapter also reviews literature related to the benefits of preventive action for older people, including the barriers and motivators to these preventive actions and, finally, summarises the gaps in the current literature.

Chapter three provides the overall methodology of the study. This chapter outlines the methods of sampling, data collection procedures, and ethical considerations and data analysis.

Chapter four describes the results of the study. The results from the questionnaire and focus groups are given in this section.

Chapter five gives the synthesis of the results. Detailing of the phenomena that emerge from both data sets and the plausible explanations of the same are also given.

Chapter six gives a brief summary of how the objectives of the study have been achieved and concluding statements.

CONCEPTUAL FRAMEWORK

The models that have been used to explain cancer prevention and screening behaviour are the Health Belief Model (HBM)(Rosenstock and Rimer 1990; Glanz, Rimer et al. 2002), the Theory of Reasoned Action (Ajzen and Fishbein 1980) and Social Cognitive Theory (Glanz, Rimer et al. 2002). For example, certain constructs of the HBM, such as beliefs about the seriousness of cancer, perceived cancer susceptibility and benefits of cancer prevention and screening, are 'predisposing' factors, while the 'cue to action' in the HBM can be a 'reinforcing factor' if the cue is from encouragement of others. Similarly, the belief about the influence of others' views about cancer prevention, a construct of the Theory of Reasoned Action, is a 'predisposing' factor. The PRECEDE- PROCEED Model has also been used in cancer prevention and screening research (Bell, Alcalay et al. 1997). For instance, knowledge of, beliefs about and attitudes towards cancer and cancer prevention are considered predisposing factors, while costs and transport enabling factors, and physician recommendations are examples of reinforcing factors.

The theoretical model guiding this research is mainly the Health Belief Model, in which an individual's beliefs and a set of modifying factors are viewed as predictive of actions taken. In this model, Glanz (2002), states that, in order for an individual to take action to avoid a disease, one would have to believe (1) that he/she was personally susceptible to it; (2) that the occurrence of the disease would have at least moderate severity on some aspect of his/her life; (3) that taking a particular action would be beneficial by reducing susceptibility or, if the disease occurred, by reducing its severity; and (4) that taking the action itself would not be impeded by barriers such as cost, convenience, pain and embarrassment, or other negative consequences. In addition, "cues to action," which are physical symptoms or messages from the environment (e.g., media reports or television advertisements), other demographic or psychosocial variables, and belief in one's ability to successfully execute the behaviour required to achieve the desired outcome, are motivating factors affecting the likelihood of action.

Beliefs about susceptibility, risk behaviours and avoidance practices may influence participation in preventive actions, depending upon whether the recommended action, in this case, health behaviour, is perceived to be beneficial toward eliminating or reducing the negative outcome, such as the disease of cancer (Godin and Shephard 1990). Identifying beliefs and resultant barriers is the first critical step towards increasing participation in health promotion and prevention.

CHAPTER TWO: LITERATURE REVIEW

Introduction

In Australia, malignant neoplasms (cancers) are the leading cause of death, at a rate of 740 per 100,000 persons in people aged 65-74 years (AIHW 2005, De Looper et al. 2001). In 1998, heart disease and cancer remained the leading causes of death among older people, although, by 75 years and over, all circulatory conditions become the leading cause of death, peaking at a rate of 7,513 per 100,000 persons for those aged 85 years and over (Australian Bureau of Statistics 1999).

In contrast with other major causes of death among the elderly, cancer incidence and mortality have not in general declined, indicating that primary prevention remains an important approach to decrease mortality (Jha and Chaloupka 1999). Thus, research into preventable causes is urgently needed to inform future prevention programs for older people.

The following review of literature focuses on prevalence of preventable risk factors for cancer among older people and the costs attributable to cancer, as well as benefits older people can derive from adopting healthy lifestyles. The motivators and barriers to both screening and the adoption of healthy lifestyles in this age group are discussed.

An overview of preventable risk factors for cancer among older people

According to the Australia Bureau of Statistics (2001), almost half of all older persons aged 65 years and above (48%) were either overweight (34%) or obese (14%). This represents an increase from 1995, when 39% of older persons were reported as being overweight or obese. Of older people aged 65 years and over, those aged 65-74 years were more likely to be overweight or obese than older age groups. Overall, in this age group, 59% of males and 52% of females were overweight or obese (Australian Bureau of Statistics 2001).

Physical activity in this age group has also been reported to be low. According to a survey carried out in 1999, there was a substantial difference in exercise levels between the different groups of older people. While 35% of persons aged 65-74 reported being

sedentary, almost half (49%) of persons aged 75-84 years and 63% of persons aged 85 years and over reported being sedentary in the two weeks prior to the survey (Armstrong, Bauman et al. 2000).

Further, this survey reported that around 9% of older persons were current smokers, with a lower rate for those aged 85 years and over (4%). This is considerably lower than the proportion of smokers in the general population where, in 2001, 24% of persons aged 18 years and over were current smokers (28% of males and 21% of females). However, 40% of older persons reported being ex-smokers, with considerably higher rates for males (59% compared to 24% of female ex-smokers) (Armstrong, Bauman et al. 2000).

Despite the potential benefits of preventive health behaviours, many elders do not engage in them, compared to younger individuals (Zulkowski, Burton et al. 1999). They also tend to receive less preventive care, such as cancer screening and flu vaccinations, and fewer nutrition and exercise interventions (Gill, Baker et al. 2002, Zulkowski, Burton et al. 1999; Zulkowski 2000)

Costs due to cancer

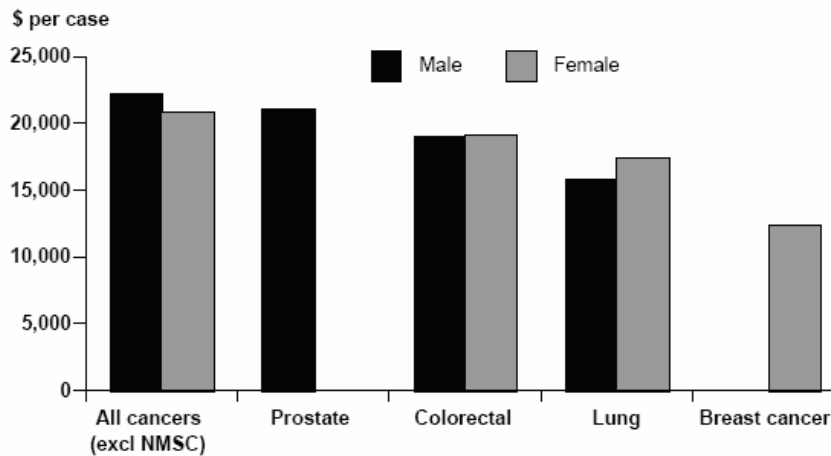
According to a report by the Australian Institute of Health and Welfare (2005) on health system expenditures, the total expenditure on cancers was \$1.2 billion for males and \$0.9 billion for females in 2001. The most expensive cancer for males (all age groups) was prostate cancer while breast cancer was the most costly cancer for females. Non-melanoma skin cancer (NMSC) was the second most expensive for both males and females (AIHW 2005).

In the group aged 65 and over, prostate cancer was the most expensive for males, followed by NMSC. For females 65 and over, the most expensive was colorectal cancer followed by NMSC. People aged 65 and over accounted for 45% of the total expenditure on cancer and 48% of instances (more than 200,000) of cancer in 2000–01 (Australian Institute of Health and Welfare 2005).

The five most expensive cancers accounted for 52% of total expenditure in this age group, and were responsible for 54% of the 26,772 deaths due to cancer in this group (Australian Institute of Health and Welfare 2005).

The following figure shows treatment expenditure per case for males and females aged 65 and over for the five most expensive cancers. Average treatment costs for cancer in this group (excluding NMSC) were about \$21,000 for both males and females.

Figure 2: Treatment expenditure for cancers per case, four most expensive cancers, males and females aged 65 and over, Australia, 2000–04



Source: ABS (2002)

Knowledge and beliefs regarding cancer risk factors and preventive actions among older people

Studies have indicated that, despite the increased risk of various cancers with increasing age (Wilcox and Stefanick 1999), older people do not believe they are at greater risk of these diseases than middle-aged people (Breslow, Sorkin et al. 1997).

Although evidence examining the link between knowledge and behaviour change has produced mixed findings, there is increasing evidence that feeling at greater risk for a disease may result in an increase in preventive health behaviours (Briganti, Shaw et al. 2003). Perceived risk and the belief that one is vulnerable are thought to be a significant predictor of self protective behaviour (Rogers 1983).

Studies have shown that positive self-perception of, or attitude toward, ageing is beneficial for physical and emotional well-being (Maier and Smith 1999). Furthermore, studies have reported that older individuals with more positive self-perception of ageing

survived 7.5 years longer than those with less positive self-perception of ageing (Levy 1996).

A study completed in Western Australia by Donovan et al (2004) showed that, although the knowledge and perceptions of cancer risk factors have increased over time in the general population, there is still room for improvement. This study further reported that the proportion of people (aged 20 and over) willing to participate in screening without the obvious symptoms of cancer has not changed since 1964. Donovan further noted that there is still a substantial proportion of those who hold the view that cancer is incurable.

Benefits of preventive health actions for older people in relation to cancer

The World Health Organisation (WHO) Ageing and Health Program indicates that pathogenic approaches (curative approaches) cannot meet the challenges of global ageing and, therefore, it is important to understand and promote factors known to keep people healthy (preventive approach) (WHO 2000).

Most studies that examine preventive health behaviours focus on young or middle-aged adults (Goldberg and Chavin 1997; Rothenbacher, Lutz et al. 1997). This may be due, in part, to assumptions that (a) illnesses are inevitable in old age so they are not likely to benefit from preventive health behaviours, and (b) altering longstanding poor health behaviours in late life is too difficult (Kahana, Lawrence et al. 2002). Nevertheless, research has demonstrated that engaging in preventive health behaviours can help decrease morbidity in older adults and they are not unduly resistant to trying interventions (Godin and Shephard 1990; Taylor, Hasselblad et al. 2002). For example, older individuals who give up smoking, even as late as age 65, can extend their life span, compared to those who continue to smoke (Fiatarone, O'Neill et al. 1994; Taylor, Hasselblad et al. 2002). Likewise, individuals over the age of 75 who participated in an exercise-training intervention increased their muscle strength and mobility, as well as slowed the progression of functional decline (Fiatarone, O'Neill et al. 1994; Gill, Baker et al. 2002).

Regardless of the predisposing factors, diet and lifestyle influence morbidity and mortality during the course of life (Bingham, Day et al. 2003; Carter, Elward et al. 1991).

Because of the cumulative effect of adverse factors throughout life, it is particularly important for older persons to adopt diet and lifestyle practices that minimise their risk of death and maximise their prospects for a healthy ageing (Bingham, Day et al. 2003). Health promotion activities, including changes in diet and exercise patterns, can contribute to an increase in life expectancy and better health. Such benefits are most effective when healthy lifestyles are adopted early in life, however, positive effects can occur at any age (Carter, Elward et al. 1991; Chernoff 2001).

Dietary patterns and other modifiable lifestyle factors are associated with mortality from all causes; coronary artery disease, other cardiovascular diseases and cancers (Bijinen, Caspersen et al. 1994; Haveman-Niles, DeGroot et al. 2002).

In a study by Haveman-Niles et al. 2002, a 10 year follow up, men and women between the ages of 70 and 90 years who had adhered to a Mediterranean diet, were non-smokers or had stopped smoking more than 15 years ago, were physically active and had used alcohol moderately, had less than half the mortality from all causes, cancer, coronary heart disease (CHD), CVD and mortality from other causes than those who did not. In this study, 60-64% of the mortality was associated with lack of adherence to the low risk pattern. This supports the hypothesis that people who have a low risk lifestyle are less likely to die from all causes and cause specific mortality, even at ages of 70 to 90 years.

The following section will focus on a review of literature on the benefits of preventive lifestyle factors and screening among older people in relation to cancer. Factors such as physical exercise, diet, smoking, ultraviolet radiation, obesity, social isolation and alcohol will be reviewed. In relation to screening, literature regarding the benefits of screening for certain types of cancers that have the highest mortality impact on Australians will be reviewed.

Lifestyle risk factors for cancer

Although health status in old age is strongly influenced by health-related behaviours and circumstances earlier in life, there is an increasing body of evidence indicating that the adoption of health-promoting behaviours later in life can have significant benefits (Ory, Kinney et al. 2003).

Many chronic diseases that are associated with ageing, however, are caused, in large part, by lifestyle factors (Wilcox and Stefanick 1999). Beginning moderately vigorous activity, quitting cigarette smoking, maintaining normal blood pressure and avoiding obesity are separately associated with lower rates of death from all causes and from coronary heart disease and cancer among middle-aged and older people (Haveman-Niles, DeGroot et al. 2002).

Physical exercise

The current pattern of physical activity in Australia is of concern. Overall, less than half of the adult population (46%) achieves the current recommended level of 150 minutes per week (AIHW, De Looper et al. 2001). The proportion of Australians reporting no physical activity is increasing (13.4% in 1997 to 15.3% in 2000) (Armstrong, Bauman et al. 2000). On the other hand, over one-third of adults indicate an intention to be more active in the next month (37% of men and 36% of women) which has increased since 1997 (Armstrong, Bauman et al. 2000). There is evidence that participation in leisure-time physical activity has also declined in some groups.

Regular physical activity offers one of the greatest opportunities to extend years of active independent life for older persons (Bijinen, Caspersen et al. 1994; Brown, Yore et al. 2005). Despite extensive evidence about the benefits of exercise, less than 40% of adults aged 65 years and older exercise routinely (Brown, Yore et al. 2005).

Participation in physical activity confers many health benefits at any age but is especially important for older people (Simon 2006). This includes reducing risk factors for a number of lifestyle-related diseases such as diabetes, heart disease, colon cancer (Christmas and Andersen 2000) and breast cancer (US Preventive Services Task Force 2002).

People who have been sedentary most of their lives can gain health benefits from changing to a moderate-intensity physically active lifestyle (Christmas & Andersen 2000). The strongest evidence linking physical activity and cancer has been for two of the most common cancers: breast cancer and colon cancer (IARC, 2002). Whether physical activity reduces the risk of all other cancers including rectal, endometrial, prostate,

testicular, kidney and lung cancer remains less certain due to limited data (IARC, 2002; Lee 2003).

Regular physical activity appears to protect against cancer, independently of its protection through weight control. (Physical activity controls weight through energy balance). Epidemiological studies have shown positive associations between overweight and obesity and several cancers (Friedenreich and Orenstein 2002; IARC 2002; McTiernan 2003; Thune and Furberg 2001). Thus, both physical inactivity and weight gain are considered independent risk factors for cancer.

The Population Attributable Risk (the percentage in a population of a given health outcome attributable to inactivity) estimated for physical inactivity has evidence for two types of cancer: colon cancer and breast cancer (The Cancer Council Australia 2004). Further, the World Health Organization estimated that 10% of breast cancers and 16% of colon cancers worldwide could be attributed to physical inactivity (WHO 2000). This is similar to other estimates from single studies. Mezzetti et al (1998) estimated that 11% of breast cancer risk could be attributed to physical inactivity, while Slattery and Edwards (1997) estimated that 13% of colon cancer risk also could be attributed to physical inactivity. It is likely that these estimates grossly underestimate the true magnitude of burden, due to the wide variation in measurement of physical activity and the unaccounted-for contribution of physical inactivity to greater body mass (IARC 2002). In broad terms, therefore, it is suggested that increasing physical activity would avoid one-fifth to one-third of the incidence of colon cancer (IARC 2002). An Australian appraisal of the impact of physical inactivity suggested that the Population Attributable Risk for colon cancer was 19% and for breast cancer was 9% (Shephard, Vuillemin et al. 2003).

Diet

Approximately 30% of cancer deaths can be attributed to adult diet (White, Shannon et al. 1997). Some of the most convincing dietary evidence links high folate intake with a lower risk of colon cancer (Sandhu, White et al. 2001; White, Shannon et al. 1997). Whereas some studies report that use of multivitamins is protective for colorectal cancer, especially if used for over 15 years (Jacobs, Connell et al. 2001), dietary supplements

have not been so far subjected to testing that could determine their effectiveness and evaluate possible risks (Michels, Giovannucci et al. 2000; Polk 2006).

Higher intake of red meat has been associated with increased risk of colon cancer and linked to prostate cancer (Willett, Stampfer et al. 1990). Increased fruit and vegetable consumption plays a protective role in a large number of epithelial cancers (Sandhu, White et al. 2001); this evidence has led to recommendations by the National Academy of Sciences, the U.S. Department of Agriculture, and the U.S. Department of Health and Human Services to consume five or more servings of fruits and vegetables per day.

There is accumulating evidence that body weight, physical activity and some aspects of dietary habits influence the risk of some types of cancers. Although some reports show that the precise effect of diet is not clear (Thompson, Demark-Wahnefried et al. 1999), other studies indicate that over-consumption of energy is likely to be a determinant of some types of cancer and some other aspects of diet are associated with cancer risk (Giovannucci 1999; Giovannucci 2001; Thompson, Demark-Wahnefried et al. 1999). Ensuring an adequate intake of fruit and vegetables is likely to reduce the risk of cancer of the mouth, oesophagus, stomach and colorectum (WHO and FAO 2003). The evidence supporting a probable protective effect of fruit and vegetables is strongest in relation to cancers of the digestive tract. Yet, even on this subject, the strength of association is not clear.

While some studies show that fruit and vegetable consumption probably reduces the risk of cancers of the gastrointestinal tract (Cook, Rutishauser et al. 2001), more recent prospective studies have not found results to support this (Bingham, Day et al. 2003; Michels, Giovannucci et al. 2000). However, these two latter studies relate only to colon or rectal cancer, and the strongest effects have generally been shown for upper alimentary tract cancers (e.g. mouth, pharyngeal, laryngeal, oesophagus and stomach).

Diets high in red meat and/or high-fat dairy products are associated with increased prostate cancer risk, while diets rich in fruits and vegetables are associated with lower risk (Cohen, Kristal et al. 2000; Giovannucci 1999). Several epidemiological studies also support the hypothesis that diets rich in tomatoes and tomato products are associated with a reduced risk of prostate cancer (Cohen, Kristal et al. 2000; Cook, Rutishauser et al. 2001; Giovannucci 1999).

Despite the existing scientific evidence that a healthy diet is important in cancer prevention, studies have indicated that older people have resorted to dietary supplements

rather than diets rich in fruits, vegetables and cereals (Cook, Rutishauser et al. 2001). For example, a survey by the American Institute for Cancer Research (AICR) showed that, as people grow older, they are much less likely to make the kind of dietary changes that can lower cancer risk (Polk 2006). This survey also revealed that the percentage of Americans who turn, instead, to dietary supplements for cancer prevention rises sharply after age 65. But dietary supplements have not been subjected to the kind of testing that could determine their effectiveness and evaluate possible risks (Polk 2006).

Smoking

In Australia, tobacco smoking is the largest single preventable cause of death and disease, killing more than 19,000 Australians each year (Ridolfo and Stevenson 2001).

Unless current smokers quit, the current death rates will continue, unabated, for the next fifty years (Jha and Chaloupka 1999). Mortality from tobacco in the first half of the 21st century will be affected much more by the number of adult smokers who stop than by the number of adolescents who start. Research has found that stopping smoking before middle age avoids more than 90% of the risk attributable to tobacco (Peto, Lopez et al. 1994).

Although a lower proportion of older people smoke than in most adult age groups, the sheer number of older smokers ensures that this group will eventually become a major contributor to health care costs (Orleans 1997). Cigarette smoking is the leading cause of premature death among older people, primarily due to cardiovascular disease and cancer (Orleans 1997).

Smoking complicates a number of illnesses common among older people, including heart disease, high blood pressure, circulatory and vascular conditions, duodenal ulcers, osteoporosis and diabetes, and it impairs the effectiveness of many medications prescribed to treat those chronic conditions (Morgan, Noll et al. 1996). Thus, smoking is a serious health hazard for older adults.

However, evidence has accrued to demonstrate that older smokers, despite their 30 or 40 years of smoking, can still benefit considerably from quitting smoking (Heramson, Omenn et al. 1988). Cessation of smoking extends years of life and years of active life by preventing or reducing the impact of acute and chronic illnesses that limit independence.

Stopping smoking has substantial immediate and long term health benefits for smokers of all ages (Rimer, Orleans et al. 1994). The excess risk of death from smoking falls soon after cessation and continues to do so for at least 10-15 years (Edwards 2004). Former smokers live longer than continuing smokers, no matter what age they stop smoking, though the impact of quitting on mortality is greatest at younger ages (Edwards 2004). The rate and extent of reduction of risk varies between diseases. For lung cancer, the risk falls over 10 years to about 30-50% that of continuing smokers, but the risk remains raised even after 20 years of abstinence (Edwards 2004). There is benefit from quitting at all ages, but stopping before age 30 removes 90% of the lifelong risk of lung cancer (Edwards 2004). The excess risk of oral and oesophageal cancer caused by smoking is halved within five years of cessation (Hamajima 2002). This clearly shows that people aged 60 years and over can still benefit from quitting.

There is well-documented evidence of the health effects of exposure to environmental tobacco smoke or 'passive smoking' (Office of Health and Environmental Assessment (OHEA) 1992). The US Environmental Protection Agency report classified environmental tobacco smoke as a Class A carcinogen and concluded that exposure causes lung cancer (OHEA 1992). A review of the scientific evidence by the National Health and Medical Research Council in Australia in 1997 concluded that passive smoking causes respiratory illness in children and lung cancer in adults, contributes to the symptoms of asthma in children, and may also cause coronary heart disease in adults (NHMRC 1997).

Social isolation

Studies have shown that positive self-perception of, or attitude toward, ageing is beneficial for physical and emotional well-being (MacKie, Freudenberger et al. 1989). Furthermore, studies have reported that older individuals with more positive self-perception of ageing survive 7.5 years longer than those with less positive self-perception of ageing (Levy 1996; Maier and Smith 1999).

Further, studies have shown that social support can play an important role in self-perception and use of preventive health care services (Love, Carbone et al. 1993). Support or pressure from family and friends may provide the necessary information,

encouragement or logistic means for individuals to seek preventive health care.

Interaction within one's social network may affect the decision to seek or avoid cancer screening (Calvocoressi, Kasl et al. 2004; Potts, Hurwicz et al. 1992; Vogot, Mullooly et al. 1992). For example, Zapka (1999) tested this hypothesis empirically and found that people with fewer social contacts were less likely to have had a medical or dental check-up than those with larger social networks. This study further reported that social interactions were associated with having ever had a mammogram, as well as having had one in the past year. Harlan, Bernstetn et al (1991) found that married women are more likely than unmarried women to have had a cervical smear. Similar studies have also shown that marital status is influential in men's health behaviours (Gallant and Dorn 2001). In this study, being married was predictive of less alcohol consumption for men.

Social networks and social support variables are influential in men's health behaviours. In a study involving 2,303 Medicare recipients, Potts et al (1992) found that individuals with stronger social support networks, and those endorsing more health-promotive beliefs, engaged in more positive health behaviours. Also, Pinto, Eakin et al (2000) reported that gender and a supportive family environment consistently predict good health practices.

For health behaviours in particular, people with larger social networks and more frequent contact may practise more preventive health care behaviours (e.g., use of cancer screening tests) and engage more in health promotion activities like eating a healthy diet and abstaining from tobacco (Allen, Sorensen et al. 1999; Carter, Elward et al. 1991). For example, social integration was positively associated with mammography and occult blood stool screening tests in a study among African Americans aged 55 years and over (Kang and Bloom 1993). Social network influences screening attendance. A study by Allen et al 1999 showed that moderate to high levels of social connectedness are associated with use of colorectal cancer screening (Allen et al. 1999). Also, participation in community groups has been associated with screening behaviour (Kang and Bloom 1993).

Overweight and Obesity

Some studies have shown that Insulin and insulin-like growth factor (IGF) are major determinants of proliferation and apoptosis and thus may influence carcinogenesis (Giovannucci 2001). Strong evidence directly implicating a cancer-enhancing effect of

insulin has come from models in which animals are treated with insulin injections (Calle, Rodriguez et al. 2003; Giovannucci 2001). In Australia, 3% of all cancer deaths have been attributed to a Body Mass Index (BMI) of $>25 \text{ kg/m}^2$ (Australian Institute of Health and Welfare 2005)

There also is evidence that obese postmenopausal women are at increased risk for breast and cervical cancers and that they present with more advanced diseases (Calle, Rodriguez et al. 2003; Canada Fitness Survey 1984).

According to a prospective cohort study by (MacInnis et al. 2004) in Melbourne, Australia, there is a relationship between estimates of body size and composition, and risk of colon cancer, in men aged 27-75 years. The results suggested that body size and composition might be related to risk of colon cancer in men through two different pathways, via an association with central adiposity (waist) and via an association with non-adipose mass. The authors further showed that men might be able to avoid or reduce central adiposity by increasing their physical activity. Other studies that have supported this evidence also indicate that physical activity might, in itself, have a beneficial effect on colon cancer risk independently from adiposity (Colditz, Cannuscio et al. 1997); for example, by increasing insulin sensitivity.

Alcohol

According to the IARC (1988), alcohol has been classified as a group one carcinogen for cancers of the mouth, oesophagus and liver. Other reports have not only supported this evidence but also they have shown that alcohol increases the risk of both colorectal cancer and breast cancer (The Cancer Council of Australia 2004; World Cancer Research Fund and Research 1997).

The evidence of a dose response relation between alcohol and breast cancer has also grown stronger. There is convincing evidence that alcohol consumption, even at low levels, increases the risk of breast cancer (World Cancer Research Fund and Research 1997). Ridolfo and Stevenson (2001) estimated that 12% of breast cancer is caused by any level of alcohol consumption. In addition to this, a study by Hamajima (2002) showed that the relative risk of breast cancer increases with increased intake of alcohol.

In this study, the risk of breast cancer increased by 7.1 % (95% CI, 5.5-8.7%) for each additional 10g standard drink of alcohol consumed daily.

Although some studies show that moderate alcohol intake is beneficial for some diseases (English, Holman et al. 1995), other studies have shown that any level of alcohol consumption may cause female breast cancer (Ridolfo and Stevenson 2001). The harm caused by alcohol consumption, such as the development of cancer and other illnesses, and injury, has been estimated at 4.9% of the total disease burden in Australia (The Cancer Council Australia 2004).

Taking into account the benefits of alcohol intake, such as heart disease prevention, as well as the harms, alcohol is estimated to be associated with 2.2% of the total disease burden in Australia (The Cancer Council Australia 2004). This raises important issues for public information in distinguishing between the effects of drinking that are low risk, risky (where the risk of harm increases beyond any possible benefit) and high risk (where there is substantial risk of serious harm). However, results from a review conducted by Fillmore, Kerr et al (2006) indicated there were systematic misclassifications in previous studies that showed there were cardiac health benefits from alcohol intake. Further, this study shows that those studies that examined the benefits of alcohol and were error free found no significant all-cause or cardiac protection, suggesting that the cardiac protection afforded by alcohol may have been overestimated.

Ultraviolet radiation

The principal cancer related to ultraviolet (UV) radiation is skin cancer and Australia has the highest rates of skin cancer in the world (The Cancer Council Australia 2004).

The impact of skin cancer is high in Australia. Data obtained from population surveys suggest that more than 370,000 Australians, equivalent to almost 2% of the population, are treated for skin cancer each year (NCCI 2003). Skin cancer includes cutaneous malignant melanoma and non-melanoma skin cancers (NMSC), namely basal cell carcinoma and squamous cell carcinoma.

In adult life, recreational (intermittent) sun exposure appears to be the strongest determinant of melanoma risk, followed by total sun exposure and occupational exposure (Armstrong 1996; NHMRC, 1996).

In Australia, commentaries suggest that ‘primary prevention programs aimed at reducing sunlight exposure may be having an effect on skin cancer rates’ (Kristal and Cohen 2000; Staples, Marks et al. 1998) and that changes in adult behaviour have resulted in some reduction in skin cancer incidence (Slevin, Clarkson et al. 2000). However, the health benefits of primary prevention after the age of 60 have not been researched (Slevin, Clarkson et al. 2000).

Screening

People who adhere to recommended screening guidelines may bring smaller and more treatable tumours to medical attention and may experience less mortality from cancer than those who do not participate in regular screening (Messecar 2000; Neilson and Whynes 1995).

Breast cancer

Although there is epidemiological evidence of possible risk factors for breast cancer, some studies have indicated that there is limited potential for prevention (Mezzetti, La Vecchia et al. 1998). Most risk factors are not readily amenable to change, while lifestyle-related factors that could potentially be modified are associated with only a small proportion of breast cancer risk.

Despite the strength of family history as a risk factor for breast cancer, inherited genetic susceptibility accounts for only about 5% of cases, and for eight out of nine women who develop breast cancer there is no strong family history of the disease (Collaborative Group on Hormonal Factors in Breast Cancer (CGHFBC) 2002).

Modifiable lifestyle factors have also been shown to have various associations with breast cancer. There is convincing evidence that alcohol consumption, even at low levels, increases the risk of breast cancer (Ridolfo and Stevenson 2001). Diet, physical activity and the maintenance of a healthy weight may play some role in protecting against breast cancer (Friedenreich and Orenstein 2002).

On the other hand, studies done on screening for breast cancer have indicated that the natural history of breast cancer can be interrupted, and death delayed, through the detection of invasive disease when tumours are small and at an early stage (CGHFBC 2002). In addition, mammography in the context of an organised screening program is

effective in the detection of a large proportion of early tumours in asymptomatic women. The International Agency for Research on Cancer concluded that routine mammography screening reduced the risk of dying of breast cancer by 25% in women aged 50-69 years (IARC 2002).

In Australia, even with a fully established mammography screening program, more than half of all breast cancers are found by a woman or her doctor after noticing a change in the breast (The Cancer Council Australia 2004). Although screen-detected breast cancers are typically smaller, the majority of non-screen detected breast cancers are found at an early stage and treated conservatively (i.e. with surgery that removes as little of the breast as possible). This supports efforts to promote early detection beyond the mammography-screening program (The Cancer Council Australia 2004). Mammography is associated with reductions in breast cancer mortality and is most effective when women have regular screenings every 2 years (AIHW and NBCC 1999).

Screening aims to detect a significant proportion of breast cancers that are small and of a low grade, enabling better health outcomes from earlier treatment (AIHW and AACR 2002). Research has clearly demonstrated a significant benefit from population mammography screening for women in the target group. It has been estimated that for every 1,460 women screened, 13.5 biopsies and 7.4 breast cancers detected, one death from breast cancer is prevented (AIHW and NBCC 1999). Screening 10,000 women in this age group is estimated to prevent approximately 10 to 20 deaths from breast cancer over 10 years (United Kingdom Trial of Early Detection of Breast Cancer Group 1999). Studies have indicated that benefits from the screening program, if they occur, will not be seen until 5 to 10 years after a high participation rate is achieved (The Cancer Council Australia 2004).

If 70% of Australian women in the target group participated in the screening program, death rates from breast cancer for women over 50 years, offered screening, would fall by approximately 25–30% (Australian Health Ministers Advisory Council 1990). Evidence of greatest benefit exists for the target age group (women aged 50 to 69 years). The Cancer Council recommends that all women in this age group have a mammogram every two years through BreastScreen Australia. Debate, however, is increasing around

the benefit of extending screening to women in the decades either side of this age bracket (The Cancer Council Australia 2004).

An Australian review of the benefits of screening women aged 40 to 49 years concluded that there is less benefit in screening these women. The benefit is greater for those at the older end of the age bracket, and for those with a strong family history of breast cancer. The benefit of screening women aged 40 to 49 years is estimated at approximately one-third that of women aged 50 to 69 years (Barrat, Irwig et al. 2002).

With increasing life expectancy, the value of screening women over seventy years has also come under investigation. Barratt et al. (2002) estimate the benefit of screening women aged 70 to 79 years to be about 40–72% of that achieved in women aged 50 to 69 years; this declines further with increasing age and when quality-of-life adjustment is made. They estimate that extending screening to women aged 70 to 79 years is relatively cost-effective and similar to the cost-effectiveness of extending screening to women aged 40 to 49 years.

Cervical cancer

In 2000, cancer of the cervix accounted for 745 new cancers in Australian women, representing 1.9% of all new cancer cases (excluding non-melanoma skin cancer) (AIHW and AACR 2002). The lifetime risk of a woman developing cervical cancer before the age of 75 years is 1 in 170 (AIHW) and AACR 2002). It is the fifteenth most common cause of cancer death in Australian women, accounting for 262 deaths in 2001 (AIHW and AACR 2002).

Because of the growing evidence that Human Papilloma Virus (HPV) is a necessary factor in the development of cervical cancer, case control studies have been conducted to assess the contribution of co-factors to the risk of cervical cancer. These studies have indicated that long-term use of oral contraceptives, seven or more full-term pregnancies and cigarette smoking may significantly increase the risk of developing cervical cancer (Hamajima 2002).

It has been estimated that screening using the Pap test has the potential to reduce squamous cell carcinoma of the cervix by up to 90% (AIHW and NBCC) 1999).

In Australia, the age-standardised incidence rate for cervical cancer declined by an average of 5.7% each year between 1990 and 2000. Mortality rates have also fallen by an average of 5.2% per year since 1990. These gains can be attributed, in part, to the success of the National Cervical Screening Program (AIHW and NBCC 1999).

Colorectal cancer

Colorectal cancer is largely a preventable disease and studies done in the US estimate that, with widespread adoption of colorectal screening practices, as many as 30,000 lives could be saved each year (Winawer, Fletcher et al. 1997).

Empirical evidence suggests that both primary (diet and physical activity) and secondary (screening and early detection) prevention strategies are effective means of reducing CRC incidence and mortality (Pinto, Eakin et al. 2000). Secondary prevention through regular screening is valuable because CRC can have a lag period during which the disease is detectable but asymptomatic (Aimee, Kramish et al. 2002).

Several studies have demonstrated that screening is cost effective in improving CRC outcomes (Sonnenberg, Delco et al. 2000), is associated with decreased mortality (Kronberg, Fenger et al. 1999) and that routine screening and colonoscopic removal of adenomatous colorectal polyps has been associated with decreased CRC incidence (Aimee, Kramish et al. 2002).

Skin cancer

The epidemiological literature concerned with predisposing factors for skin cancer emphasizes the considerable influence of ultraviolet (UV) radiation on the incidence of skin cancer. Australia has the highest rates of skin cancer in the world (Armstrong 1996). Because primary prevention of skin cancer emphasizes actions to be taken by children and young adults, secondary prevention is the main issue for those over 65 years (AIHW 2005).

The major health benefits sought from skin cancer screening are reduced mortality and associated suffering, lower rates of recurrence and subsequent treatment, and less treatment-related discomfort or disfigurement. Another potential benefit of screening is

improved patient knowledge, self-examination skills and risk reduction behaviours (AIHW 2005).

Despite conflicting reports on the differences between the effectiveness of specialists and GPs in detecting malignant melanoma (NCCI 2003), a systematic review concluded that there was insufficient evidence to prove an overall difference (Chen, Bravata et al. 2001). Nevertheless, a number of studies have indicated that the benign-to-malignant ratio of pigmented skin lesions is very high (around 30:1) in the general practice setting in Australia (Del Mar, Green et al. 1994), indicating that the primary care provider is important in detecting skin cancer in the early stages.

Barriers and motivators to preventive health action among older people

Perceived risk, the belief that one is vulnerable to a disease, is thought to be a significant predictor of self-protective behaviour in both the Health Belief Model and the Protective Motivation Theory (Rogers 1983; Janz and Becker 1984; Glanz, Rimer et al. 2002). For example, perceived susceptibility, together with other concepts such as perceived severity, perceived benefits and perceived barriers, play a significant role in predicting an individual's likelihood of taking preventive action. (Ajzen and Fishbein 1980).

Some studies have indicated that health care for elderly persons is often discontinuous and focuses on the alleviation of medical symptoms, rather than prevention (Johnson and Wolinsky 1994). This is particularly the case for people aged 65 years and over, for whom social and socio-economic barriers may exert an additional powerful negative influence on health resources and health status (Ajzen and Fishbein 1980; Johnson and Wolinsky 1994).

Because the elderly are under-represented in cancer screening activities, the identification of factors that encourage or discourage them to engage in secondary cancer prevention activities is a health care priority (Zabelegui 1998).

Studies have shown that patients aged 75 years and older are as likely as younger patients to benefit from some screening, and especially from colorectal cancer (CRC) screening (Winawer, Fletcher et al. 1997). While guidelines advocate some screening (for example CRC screening) should begin at age 50 for individuals at average risk, there is no consensus regarding the age at which clinicians should stop screening. The problem is

that, as patients get older, physicians are sometimes hesitant to screen patients because of the risks from sedation (Winawer, Fletcher et al. 1997). Research has documented that older adults are an under-served population in terms of communication regarding cancer prevention and control. In terms of prevention, doctors are less likely to discuss preventive practices and recommend cancer screening tests to elderly patients than to middle aged individuals. In terms of cancer care, physician communication has been found to be largely inadequate in meeting older patients' needs, based on both insufficient information given to patients and information presented in a manner too difficult to understand (Christmas and Andersen 2000). However, importance of physician recommendations has been documented in a number of studies of mammography and several studies of cancer screening (Vernon 1997).

Older people also face the barriers of physical and mental incapacity or lack of finances, which may restrict mobility and promote isolation (Watson and Hall 2001). A number of variables have been reported to affect older adults' willingness to engage in specific primary and secondary health promoting activities. These include socio-economic factors (Lewis and Asch 1999; Messecar 2000) as well as beliefs and attitudes of both patients and providers (Rothenbacher, Lutz et al. 1997). Also, Gallant and Dorn (2001) reported that the factors that influence older people's health behaviours vary by behaviour, gender and race.

Summary of the gaps in the above literature

From the above literature, it is clear that few studies have compared what older people in general know about all types of cancers and how the knowledge and perceived risk factors relate to preventive health behaviours and screening of cancer. Also, knowledge and beliefs regarding cancer prevention among older people, in particular, have received little empirical study. Furthermore, research on knowledge and beliefs of risk factors in relation to cancer has tended to be specific to the cancer type. Few studies have focused on cancer in general and especially for older people aged 60 years and above.

CHAPTER THREE: METHODOLOGY

Introduction

The following chapter describes the methods used to investigate beliefs and perceptions of cancer prevention among older people aged 60 years and over.

Details of ethical considerations, data collection methods and the process of data analysis are described. Validity and integrity of data collection methods were enhanced through reducing moderator bias during focus group discussions. Also, the use of various methods of data collection ensured that the results were checked for convergence.

The chapter describes how methods such as interviews can be used to validate and confirm the results of focus group discussions.

Data collection

Sampling

Names and addresses of potential subjects were randomly selected from a database of seniors (n=235), 60 years and above (Positive Aging Foundation). They were sent a letter inviting their participation, followed by a phone call based on a procedure that has been found to enhance recruitment rates. (The letter outlined the nature of the study, the time required of the participants and the venue for the FGs along with details about ethical issues and confidentiality, (see Appendix).

Focus groups

Seven focus groups (FGs) were conducted, involving men and women 60 years of age or older, until consistent and dominant themes were identified. Each group comprised of 6 to 8 participants.

As the primary purpose of the focus groups was to reveal the participants' perceptions in relation to cancer and the relevance of cancer prevention strategies to this age group, a series of questions was asked that explored the current activity related to prevention as well as their perceptions regarding the feasibility of adopting preventive behaviour. The

focus group questions were based on previous studies and literature, and utilised the Health Belief Model as the guiding theoretical model.

All focus group sessions were audio-taped and an observer who completed a confidentiality form took notes during each session, as a back up in case of equipment failure and as a guide to transcription of data.

At the beginning of each focus group (FG), participants were asked to complete a brief questionnaire (see Appendix 1). As well as demographics, closed ended questions were asked about beliefs and practices in relation to cancer prevention and screening, to complement the data collected by the FGs.

The focus group guidelines and the questionnaire were pre-tested, on a sample of the target group that was not included in the study sample. This helped clarify the questions and enabled necessary adjustment to be made prior to the commencement of the formal FGs.

The first series of FGs were carried out in June 2006. Of the 100 participants invited to voluntarily participate, 45 of them responded by e-mail or by telephone and 22 agreed to participate in the FGs. The remaining 23 called to ask for information regarding cancer prevention. (The researcher voluntarily gave the requested information and referred others to the relevant places where they could get help.) For others, it was not convenient for them to attend the meetings or they had changed their addresses. One participant could not make it for the meeting and later called requesting an interview in her house. This was used as an opportunity to discuss and validate the information collected from the previous focus groups.

The second series of focus groups was conducted in July 2006 and letters were sent to 135 more potential participants requesting that they attend a focus group discussion. Only 19 participants responded, and all accepted to participate in the focus groups.

Further, the recruitment of additional participants (nine) were snowballed from the two series of focus groups. In this case, the participants were requested to invite more participants for the focus group discussion.

Eligibility

The participants were male and female Australians, English speaking, had no history of mental illness, and were above 60 years of age but below 80 years.

The participants were also living in the Perth Metropolitan area.

Validity

The use of various types of data collection method allowed the researcher to compare the results of the focus groups and the questionnaire (triangulate) and to check for ideas that where they strengthened (convergence). This approach has been known to enhance the scope and density of the study. Further, data from the interviews, FGs and questionnaires were all used for comparative purposes.

Use of focus groups underscores the context-specificity of the data collected due to the fact that focus groups are likely to elicit participants' general ideas rather than individual's point of view (Sim 1998). Efforts were made to carry out detailed single interviews to check for this potential bias. Efforts were also made to minimise observer bias during focus group discussions through referring the findings and conclusions back to the respondents.

Skilled facilitation skills and the fact that, the composition of the group was similar, in terms of social background and age assisted the participants to be confident in voicing their views.

Ethical considerations

The data collected for this dissertation was stored and analysed according to Curtin University's Human Research Ethics Committee Guidelines and was identified via code only.

All the information collected was stored in a locked cupboard in the supervisor's office and was accessible only to the researcher and the supervisors. Data on computers was password protected and only accessible to the researcher and the supervisors.

Participants' identities were kept anonymous in all documents (reports and articles) written as part of the project.

Subjects completed an informed consent form stipulating that: their participation was voluntary, they had the right to withdraw from the study at any time, the requirements of them in the study, and that confidentiality would be maintained (see Appendix Two). The participants were also given materials on cancer prevention and a brochure on the cancer help line for support services.

Data analysis

Data analysis utilised a common qualitative method/process (exploration and inspection) first recommended by Blumer (1969). Data analysis began immediately following each FGD. The process of exploration and inspection commenced as soon as the first focus group was transcribed. This process allowed the researcher to gain understanding about the subject matter and to better focus the questions in the later focus groups.

The comments made by the group participants were transcribed from the audio-tapes and then manually coded and categorised using a cutting and pasting technique in order to detect themes. Data were then analysed according to the recommendations of Miles and Huberman (1994), where recurrent patterns are noted and clustered to form categories of data in order to generalise meaning.

Throughout the whole process, the transcribed data from the FGs was analysed, guided by the theoretical models used to formulate the focus group guideline questions. Initially, the coding process was carried out as a process of open coding (Strauss & Corbin 1990a) generating eight separate categories. These were then used as sub-categories for the process of axial coding (Strauss and Corbin 1990), whereby data is put back together in new ways to create clusters of related categories based on the emergent themes. These Meta clusters were: lack knowledge, could perceive benefits and could not perceive benefits.

The coding categories were then audited by two other researchers and the findings were checked with the consultant for research on ageing in order to ascertain whether the interpretations made by the researcher accorded with those of the participants. Then,

results were collated, presented thematically and supported by direct quotes from focus group participants.

A statistician cross-checked the data entered from the brief questionnaire for validity and accuracy. Univariate analysis was then undertaken on the demographic data and the other variables such as health actions and knowledge of cancer prevention using SPSS version 13. Both datasets were analysed separately and neither compared until both analyses were complete.

COMPARING THE RESULTS FROM THE TWO DATA SETS

A number of mixed methods publications outline the various ways in which qualitative and quantitative methods can be combined (Morgan 2005, Tashakkori and Teddlie 2003). For the purposes of this study, with its focus on mixed methods, the significant aspects of mixed methods appear to be: purpose, process, analysis and interpretation.

In terms of purpose, qualitative research was used to help identify the relevant variables for the major study (Barbour 1999), and to examine the same question with different methods, using the questionnaire and focus groups (Tashakkori and Teddlie 2003).

Bryman (1995) pointed out that:

'Most researchers rely primarily on a method associated with either quantitative or qualitative methods and then buttress their findings with a method associated with the other tradition' (p128).

In this case, both datasets were brought together at the 'analysis/interpretation' phase, often known as 'triangulation'. Bringing different methods together almost inevitably raises discrepancies in findings and their interpretation (Tashakkori & Teddlie 2003). However, the investigation of such differences may be as illuminating as their points of similarity (Bryman 1995).

By presenting quantitative and qualitative data collected within this pilot study, the researchers were able to demonstrate how divergent and convergent quantitative and qualitative data can lead to producing a greater research yield from each dataset; secondly, combining both types of data at the analysis stage produces more than the sum of its parts; and thirdly, the complementary nature of qualitative and quantitative methods was emphasised. In doing so, this study demonstrates how the combination of

quantitative and qualitative data leads to conclusions different from those that would have been drawn through relying on one or other method alone.

In this approach, the datasets have been treated as complementary, rather than making an attempt to integrate them, since each approach reflects a different view on how beliefs and perceptions of cancer prevention, especially among older people, ought to be studied. With regard to the quantitative data, the sample size was modest, and thus not powered to detect small differences in the key outcome measures.

CHAPTER FOUR: RESULTS

Introduction

This section consists of the results of focus group discussions and interviews, complemented by the questionnaire. The demographic variables have been quantitatively described; both qualitative and quantitative approach to knowledge, beliefs and perceptions of various risk factors for cancer have been analysed ; and the barriers and motivators of cancer prevention have been presented.

Both data sets (quantitative and qualitative) have been analysed separately but the convergence of the same have been presented together. In addition, the results of both male and female participants have been combined due to the similar nature of their responses.

Demographics

Of the 50 seniors who participated in the study, 31(62%) were females while 19(38 %) were males. The females were of similar age to males with a median age of 68 years and 67 years respectively (Table 1).

Of the 50 participants, 14 (45.2%) females and 7 (36.8%) males had been diagnosed with at least one type of cancer. Of all the participants, 26 (52 %) were living alone while 24 (48%) were living at least with a partner or a close family member.

Table 1, below, shows these characteristics

Table 1 Participants' characteristics

Age		
Male: (Mean: 67.9, Median: 68.0)		Range (61-75)
Female: (Mean: 67.7, Median: 67.0)		Range (60-76)
Gender		
Male		19 (38)
Female		31 (62)
Living status		
Alone		26 (52)
Partner		21 (42)
Other		3 (6)
Cancer diagnosis status		
Male		
Yes		12 (36.8)
No		7 (63.2)
Female		
Yes		17 (54.8)
No		14 (45.2)
Values given as n (%), unless otherwise indicated.		N=50

Cancer prevention knowledge and beliefs

The Meta clusters that were generated were: lack knowledge, could perceive benefits and could not perceive benefits. For each of these themes, the data reflect what participants discussed when the question was posed.

From the questionnaire, most of the participants agreed that something could be done to prevent cancer, even at an age of 60. Table two shows that more than 70% of the males and about 64% of females disagreed with the statement that nothing could be done to prevent cancer after the age of 60.

Table 2 Beliefs of cancer prevention after age 60

			n=50						
			unsure	SD	2	4	5	6	SA
gender	male (n=19)	nothing can be done(%)	.0	36.8	42.1	5.3	.0	10.5	5.3
	female (n=31)	nothing can be done (%)	3.2	61.3	3.2	6.5	6.5	9.7	9.7

The above compares well with the information collected from the focus groups because the majority of the participants were able to identify factors necessary for cancer prevention after the age of 60.

The most commonly mentioned ways of preventing cancer after the age of 60 focused on three main themes: change of lifestyle factors, medical interventions such as doctor visits and self-examination, and getting information about cancer.

Factors such as exercise, healthy diet, family history and stopping smoking were mentioned. With respect to seeking out information, some of the participants felt they would only search for information on cancer prevention if they had been diagnosed with cancer.

["I would not bother with that information unless I require it... until I get diagnosed with cancer. There is so much information at the moment, which is commercial."]

Greater knowledge on ways to prevent cancer was more common among the younger participants than the older ones. The younger the person was, the more likely he/she was to identify various lifestyle factors that are relevant to cancer prevention after the age of 60.

["If you have a positive lifestyle and pay attention to diet, environment factors, exercise, weight and things like that, age is not relevant. It doesn't mean that simply because you have turned 60 these things become irrelevant."]

On the other hand, older participants had a different perception of cancer prevention factors.

["Don't keep to a too strict diet. I don't think it is right to be a fanatic. We used to eat a lot of red meat when we were young, but we never appeared to be unhealthy. Though I would admit there are a lot of chemicals in food anyway. I'm now 76 and I don't have cancer."]

Table 3 shows the various themes that emerged when the risk factors were discussed in the focus groups.

Table 3 Knowledge, beliefs and perceptions of risk factors

Risk factor	Themes
Smoking and cancer	<ul style="list-style-type: none"> • Could perceive the benefits of cessation • Could not perceive the benefits of cessation
Physical exercise and cancer	<ul style="list-style-type: none"> • Lack of knowledge • Insufficient information • Cannot perceive any benefits of physical exercise • No link between exercise and cancer prevention
Protection from the sun and skin cancer	<ul style="list-style-type: none"> • Could perceive benefits • It's too late
Healthy diet and cancer	<ul style="list-style-type: none"> • Could perceive the benefits • Could not perceive benefits
Obesity and cancer	<ul style="list-style-type: none"> • Cannot see the connection • Lack of knowledge • Linked to other conditions but not cancer
Screening	<ul style="list-style-type: none"> • Important
Loneliness and cancer	<ul style="list-style-type: none"> • No connection • Linked to survival but not prevention
Alcohol and cancer	<ul style="list-style-type: none"> • No relationship • Misconception

Table 4, shows the strength of agreement about the preventability of cancer if modifying various risk factors occurred after the age of 60.

Table 4 Beliefs of various risk factors in relation to cancer prevention after age 60

	unsure	SD	2	3	4	5	6	SA
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Smoking	10	14	0	6	12	8	12	38
Physical exercise	6	6	0	2	18	12	16	40
Diet	0	4	6	0	6	12	14	58
Sun exposure	0	8	2	6	10	8	24	42
Obesity	6	6	0	0	6	30	16	36
Screening	0	4	0	2	8	8	20	58
Loneliness	12	12	6	2	28	8	12	20
Alcohol	12	8	10	2	18	24	20	6

n=50

[SD_ strongly disagree, SA_ strongly agree]

Smoking cessation and cancer

A majority of the participants (50%) in the study could perceive benefits of stopping smoking early in life, but the respondents viewed this differently if smoking was stopped after the age of 60 (Table 4). This is clearly shown by the various themes that emerged from the focus groups.

Some of the participants could perceive the benefits of smoking cessation and others could not perceive any benefits, if quitting was after the age of 60.

Could perceive the benefits of cessation

Some participants felt there were benefits at whatever age. For those who were previously smoking, they mentioned they could now realize the benefits of quitting smoking.

[“Stopping smoking may help any time if you had cancer. I was a heavy smoker and stopped smoking 20 years ago, but the doctor told me this doesn’t mean that the damage hasn’t already been done. But I think not stopping would make the damage worse.”]

[“At age of 64, I used to smoke three packets per day but now I have quit and I feel my lungs are nice and clear.”]

However, not all participants could perceive the cessation benefits in relation to cancer. Some could only relate the benefits to other medical conditions, but not cancer.

[“...Yes can help especially in heart problems.”]

["I'm not sure giving up smoking after age 60 will help prevent cancer. I think it is too late but can help with things like emphysema."]

Could not perceive the benefits of cessation

Some of the participants in this category did not realize the primary importance of giving up smoking, i.e. they did not think it would help in any way. This is evident from the responses of the focus group discussions.

["The earlier you start smoking the earlier you quickly get the cancer [lung cancer] anyway and stopping doesn't help."]

["My mother smoked all her life. She doesn't have cancer [lung cancer].

["My husband stopped smoking at age 62, 5 years later he died of lung cancer. The intervening five years didn't help."]

On the other hand, others felt that giving up smoking when one is much younger is the only time when one can realize the benefits.

["When you are younger it might help, but not after 60."]

["Remove it? No way! It wouldn't. If the damage has already been done in the earlier years it can't help."]

Regular physical exercise and cancer

The results of the questionnaire indicate that a majority (>56%) of the participants strongly agreed that physical exercise was important after the age of 60 (Table 4). However, the in-depth exploration of the qualitative methods revealed a different perspective of the participants.

Several themes emerged from the focus groups. Most of the participants could only see the importance of physical exercise as it relates to general well-being but few identified a link between physical exercise and cancer prevention. This differed among various participants to some degree, as there was a group that lacked knowledge on the importance of physical exercise in cancer prevention and there was another group that was knowledgeable but did not have sufficient information.

Lack of knowledge

Several participants were not aware of what causes cancer and so were not able to mention any benefit of physical exercise in cancer prevention.

["I don't know if it prevents cancer."]

["I'm not aware of what causes cancer so I'm unsure of preventive methods."]

["I know nothing; probably it helps you keep a healthy body than preventing cancer."]

Insufficient information

This group of participants could perceive some benefits but could only link the benefits to other conditions or to only a particular cancer.

["I don't know if it can prevent cancer. May be, it can help with other diseases like high blood pressure but not cancer."]

Some of the participants thought that the benefit of physical exercise is to keep one healthy from other minor illnesses that could lead to cancer.

["My understanding is that we all have a cancer predisposition and if you are not healthy, you can get something else like a virus and then it gets further."]

Some participants believed that physical activity is beneficial in cancer prevention if one does not have genetic predisposition to cancer.

["If you don't have genetic tendency, then the exercise would do you good [prevent cancer] .It can improve the situation."]

Whereas some participants believed that exercise could prevent cancer, they thought it could only be beneficial to some cancers.

["Certain types of cancer, yes, for example lung cancer. If you exercise you get more oxygen to the lungs. But I don't know how it can prevent cancer such as skin or breast cancer."]

Cannot perceive any benefits of physical exercise in relation to cancer prevention

Other participants expressed that cancer was inevitable after the age of 60 and exercise would not make a difference.

["I have a friend of mine that used to jog twice every day, participated in marathon and stuck to a rigid diet and he died of cancer. If you have to get cancer you will get it."]

["I don't agree [with regular physical exercise]. My husband did exercises faithfully, died in January this year due to cancer. The fact you are fit, I mean you do exercise, doesn't prevent cancer."]

Some of the respondents could only perceive benefits of other preventable risk factors for cancer but not physical exercise

["...May be diet can prevent cancer but, for exercise, I have no idea."]

Generally, respondents attributed broad health benefits of physical exercise to fitness and general well being, but most of them believed physical exercise could not prevent cancer.

Sun exposure and cancer

The results of the questionnaire show that more than 60% (Table 4) of the participants agree that protecting the skin from the sun after age 60 can help prevent skin cancer. However, the qualitative results indicate that the general feeling of most of the participants was that the damage had already been laid down during the early years of life and protecting the skin at 60 years and above would not make much difference.

["If you did not look after your skin earlier, 60 is a bit late to start. Nothing much you can do at this time."]

Whereas the majority felt nothing could be done, a few still said they do protect the skin from the sun.

["I think it is the same at any age. A lot of people think they are already old since they have very little time left but I think 60 is still very young. Still good to preserve life."]

Some still believed that for one to get skin cancer, it all depends on genetics and not the amount of sun to which you get exposed.

["I think if you are genetically predisposed you will actually get it [skin cancer]. My husband was born in Holland where it is cold, never went out, but died of skin cancers. So I think it goes down to genetics. I had my skin burnt in the beach when I was young, I am now 70 and I have no cancer. So I think it doesn't matter how much you protect yourself from the sun."]

Healthy diet and cancer

Most of the participants believed that diet played an important role in cancer prevention. The results from both the questionnaire and the focus groups emphasize the same. Table 4 shows that 58% strongly agreed that a healthy diet could help prevent cancer after the age of 60.

From the focus groups, a majority could perceive the benefits of a good diet even after the age of 60.

["A friend of mine who is 80 was with bowel cancer has gone through it because of exercise and a healthy life style like good diet. The family believes she is going through it."]

["Diet is still very important. By taking good diet, I feel better, I feel healthier, I can cope better I can do daily tasks"]

More common was the perception that a healthy diet, no matter at what age, will help prevent cancer.

["A healthy diet no matter what age will help prevent cancer and many other things."]

However some respondents still felt that the benefits could only be realised if one started a good diet while young in life.

["If you had a good diet after 60, [your health] may not change, but having it the whole of your life may help."]

On the other hand, a few of the participants could not perceive any benefits of a good diet at all.

["...there must be people in this world with terrible diets and they don't have cancer."]

["My husband and I have always had a healthy diet. We have never had take-away food but it did not stop him from having prostate cancer, though he is fine, I think diet may not stop you from getting cancer."]

There was a misconception from a few of the participants that if one had a genetic predisposition to cancer, then there is nothing that one can do to prevent cancer.

["You should check your genetics. If the chances of getting cancer are already there, then, there is nothing much one can do. It is already there."]

Types of diet that can prevent cancer

A majority of the participants were able to identify different types of diet that can prevent cancer.

The most commonly mentioned ways of preventing cancer focused on low intake of red meat, a diet involving fruits and vegetables, a balanced diet and eating enough roughage. They also mentioned that everything taken in moderation and as fresh as possible is good.

["Don't crave anything in excess, and as fresh as possible."]

Factors such as a diet low in fat, high in fibre, and natural foods rather than processed foods were emphasized.

Although a majority of the participants knew the type of diet that can prevent cancer, some still believed that there is nothing one can do to prevent cancer.

["I don't know, if something's going to happen it is going to happen."]

Bowel cancer prevention

The most commonly mentioned ways of preventing bowel cancer after the age of 60 focused on two main themes including change of lifestyle factors and medical interventions.

Issues regarding lifestyle factors included: healthy diet, exercise, roughage, regular bowel habits and taking plenty of water. Although these issues came up, some of the seniors

mentioned that issues such as incontinence inhibited some of them from making healthy lifestyle choices such as drinking plenty of water.

[“But I do think a lot of older people fear incontinence. I tend to think a lot of older people fear to do good things because they see the physical reaction of it.”]

Healthcare providers were clearly and repeatedly identified as an important source of influence, encouragement and feedback for the adoption and on-going performance of a health behaviour.

[“I would trust my GP more on matters concerning cancer prevention.”]

Also, medical intervention through having regular check-ups by the doctor was frequently mentioned. Some of the participants also mentioned that screening was quite important if one had a family history of bowel cancer

[“Regular screening, especially if you have cancer in your family, to catch it early.”]

Reducing weight and cancer

The results of the questionnaire show that over 50% of the participants strongly agreed that reducing weight would prevent cancer after the age of 60. However, in the focus groups, many of the participants mentioned that there was no link between weight and getting cancer. More common was the feeling that reducing weight would prevent other chronic diseases, such as heart disease and diabetes, but not cancer.

[“I know it affects lots of things like diabetes and blood pressure but not cancer.”]

[“Reducing weight affects all parts of us. It helps our hearts but I don’t know about cancer.”]

[“Overweight is more prevalent in heart conditions but not in cancer.”]

[“I think reducing weight is beneficial to immune system, circulation and heart conditions but, again, for cancer there is a question mark.”]

Others didn’t see any need for cancer prevention since they believed cancer was often inevitable.

["I know nothing about this [obesity and cancer prevention] but I can't see the connection. I think cancer will come along if it has to."]

["I don't think anything at the moment can prevent cancer. It is just there. One can get it at any time. There are many styles of cancer."]

However some of the respondents had a feeling that obesity can cause cancer but how it occurs most of them did not have any idea.

["Maybe being obese may make cancer more likely, I don't know!"]

Alcohol intake and cancer

The general perception of most of the participants was that there is no relationship between alcohol and cancer. This is also clearly shown by the questionnaire where only 6% of the participants strongly agreed that low or zero alcohol intake could prevent cancer after the age of 60. The qualitative results indicate the same. Most of the participants did not think there was a link between alcohol and cancer and others could not perceive the benefits.

["For cancer, I have no idea. I enjoy a couple of glasses."]

["My grandfather never had a drink in his life and died at 66 of stomach cancer. My father, on the other hand, used to drink and died in sleep at 88."]

["No, I don't think so, cancer doesn't come into it. I am not sure how alcohol gets connected to cancer."]

For those who thought it would cause cancer, they were not sure what sort of cancer it would cause and whether moderate amounts would lead to cancer.

["I think excessive alcohol may cause cancer. It may stimulate a lot of toxins especially when combined with smoking."]

Some of the group participants believed that one's destiny is already set and, if you have cancer, alcohol makes you forget.

["Our destiny is already set. Maybe doing exercise and eating healthy may keep you healthy but, when it is my time to go, I go."]

[I don't know of any direct link of cancer and alcohol. I think, if you've got cancer, alcohol makes you forget about it.]

Social isolation and cancer prevention

Of the 50 participants that responded to this question, only 20% strongly accepted that reducing social isolation could prevent cancer. The results of the focus groups indicate a similar perception of the study participants. Three main themes emerged from the discussion. There was a group that could acknowledge that loneliness was not healthy but could not link it to cancer.

["Rather than preventing cancer, when you meet with people this lets you do something about it."]

["I think being isolated shows you are not feeling good about yourself. You need a little bit of social contact."]

While on the other hand there was a group that could only associate not being lonely with survival, if one had cancer, but necessarily with cancer prevention.

["I know being with other people can help one stand the cancer but I can't see it preventing cancer."]

The third group of participants were those who did not perceive any benefits of social contact towards cancer prevention.

["I disagree with that. I have met many people who have their families and lead a very social life but they have cancer. I have not met lonely people with cancer. If they have cancer, I don't know."]

["I don't think it prevents cancer. Whether alone or with people, it has nothing to do with cancer prevention."]

["If you had cancer it would not change anything."]

However a few participants mentioned that, when one is lonely, one is likely to be depressed and not have a healthy lifestyle.

["If you are depressed you are not likely to take a healthy lifestyle."]

Changing lifestyle and cancer survival

A majority of the participants could perceive benefits of changing one's lifestyle to survival but believed this was dependent on the type, stage and location of cancer.

[“Depends on cancer and the changes e.g. for stopping smoking is quite obvious.”]

[“It depends on where the cancer is. For instance, if it is in the spine it can't help.”]

[“Yes. It depends on what cancer you have and how far it is. I mean how advanced the cancer is.”]

In addition to this, some thought that changing one's lifestyle would only help if the cancer were related to a lifestyle factor.

[“It depends on what type of cancer you have. If it is related to lifestyle such as heavy drinking and smoking, (those are the ones I know), then changing lifestyle would help.”]

There were those who could perceive the benefits, especially after observing a sick relative.

[“My father was diagnosed with lung cancer after the age of 60 and he changed his lifestyle. This increased his survival with 6 years.”]

Screening after age 60

The general expression of most of the participants was that screening is important for most of the cancers, even after the age of 60. From the questionnaire, more than 60% of the participants agreed that screening would prevent cancer.

From the focus group discussions, the most mentioned reason for screening was that ‘small cancers can be detected before they become big ones’.

Most of the participants, who could perceive the benefits of screening, linked them to survival.

[My husband was diagnosed at 65 years, has done radiotherapy and, due to regular check-ups and treatment, the PSA reduced from 28 to 2.]

However, factors such as fear of the unknown or the diagnosis status were frequently mentioned as barriers to screening.

["I think it is worthwhile but I'm too scared of finding out the truth."]

In addition to this, some of the respondents mentioned that the current cut-off age for screening for some cancers left them out.

["Yes I'm horrified when I was told after 70 I will not be screened [for breast cancer]."]

["At 70 they will not screen and I think women are living much longer than that."]

Most of the participants agreed that health professionals would play an important role in encouraging screening behaviours among older people. The more common was the agreement that an invitation letter or a reminder would be very important in enforcing a positive screening behaviour. This is shown by Table 5, which indicates that most of the respondents had a tendency to strongly agree that an invitation for screening for various cancers from a health professional would encourage older people to go for screening. On average, more than 70% of the participants strongly agreed that an invitation letter from a health professional would encourage them to attend screening for the various cancers (Table 5).

Table 5 Percentages of people who would go for screening if sent an invitation letter

	strongly disagree	3	4	5	6	Strongly agree
	%	%	%	%	%	%
an invitation letter would make me attend screening for breast cancer	0	0	0	0	0	100
an invitation letter would make me attend screening for bowel cancer	4	0	10	0	12	74
an invitation letter would make me attend screening for cervical cancer	0	0	0	6	6	87
an invitation letter would make me attend screening for skin cancer	0	6	4	0	15	75
an invitation letter would make me attend screening for prostate cancer	0	0	0	17	28	56

n=50

Less than 20% (Table 6) of the participants agreed that other factors such as transport, cost, fear or time determined whether they would attend screening or not.

Table 6 Perceptions of Barriers to Screening

	SD	2	3	4	5	6	SA
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Transport	51	4	7	18	0	13	7
Cost	54	4	0	17	2	9	13
Fear	60	2	7	4	4	13	9
Time	78	0	4	0	4	7	7

n= 50 [SD __ Strongly Disagree, SA __ Strongly Agree]

Health behaviour changes made after the age of 60

Two major themes emerged from this question. Most of the responses were focused on lifestyle changes and work-related changes. Some of the respondents felt that they had more time for themselves since they were not working and, as such, they could exercise more.

["I exercise twice a week, that is, aerobics - since I don't go to work."]

Others believed that the skin was fragile at this age and so they used more protective measures to prevent skin cancer.

["I have skin protection because the skin becomes fragile."]

Motivators and barriers to lifestyle changes

At least 50% (Table 7) of the participants strongly believed that a health professional's advice would encourage them to adopt healthy behaviours. On the other hand, a majority (>50%) agreed that they lacked confidence to take up health behaviour changes (Table 7).

Table 7 Confidence to make behaviour changes and likely effects of health worker advice

	SD	2	3	4	5	6	SA
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
confidence	13	2	2	15	13	19	36
Health worker advice	6	12	0	4	12	16	49

n = 50 [SD __ Strongly Disagree, SA __ Strongly

The results are congruent to those from the focus groups. Although some of the participants were confident that they could make health behaviour changes, many still felt that they lacked confidence.

["I don't know the answer. I keep on stopping and coming back to it [*smoking*]."]

["It is so hard to change a habit. I have tried to quit smoking but every time I go for a holiday I go back to it again."]

["I fear going for screening. I just don't want to find out."]

Other factors that were mentioned by a few of the participants as hindering them from participating in some of the activities that promote health were time, loneliness, attitude and poor health.

["It is good if people had a medical day and give people a chance to participate in physical exercise. People are too busy any way."]

["I'm lonely, I lack the will, I think losing one's loved one can contribute."]

["It is a traditional idea when you retire to sit and read the paper."]

["... But I do think a lot of older people fear incontinence. I tend to think a lot of older people fear to do good things because they see the physical reaction of it."]

CHAPTER FIVE: DISCUSSION

Introduction

This study examined older (60 years and above) Australians' knowledge, beliefs and perceptions on cancer prevention, the health actions taken by this age group to prevent cancer, and barriers and motivators to health actions.

The use of focus groups ensured that the findings were based on the experiences and the views of the participants and allowed themes that were important to the participants to emerge. Firstly, the qualitative study revealed a number of dimensions not measured by the quantitative study, as well as those aspects that were similar in both methods of data collection. The results of the questionnaire clearly show that a majority of the participants not only articulated the benefits of preventive health action in relation to cancer but also agreed that after age 60 it is still worthwhile to attempt to prevent cancer. This was common for most of the risk factors with only a couple (alcohol consumption and social isolation) being viewed as less important. On the other hand, though the qualitative results were synergistic to this, they also revealed a different perspective of the participants' perceptions in regard to some of the healthy actions, such as quitting smoking, weight control and physical exercise. The general indication of the qualitative results was that 'it is too late to start' and that the health benefits would be more for other health conditions than for cancer.

Moreover, results indicate that the challenges older people face and the way they think about cancer prevention are remarkably consistent across gender in this study. However, the conclusions drawn from this study apply to only this age group. Further studies are needed to determine the universality of these factors to older people of other cultures and other age groups.

Knowledge of cancer prevention after the age of 60

Good knowledge on ways to prevent cancer was common among the participants in this study. However, the perception of the benefits they would derive by adhering to the preventive behaviour after the age of 60 was not clear to this group. Most of the older

people in this study believed that these benefits would only be realized if preventive lifestyles were started early in life. They strongly believed that after 60 is probably too late to start preventive health actions. In addition to this, most of them lacked knowledge on how long one would take to realize the benefits after changing from a certain lifestyle. Although the health benefits are greater when a healthy behaviour is adopted early, studies show that substantial health benefits can be realized at any age (Chernoff 2001). Among the numerous health benefits associated with healthy lifestyles such as physical activity are reduced disability and mortality due to colon cancer and other diseases such as coronary heart disease (CHD), diabetes and hypertension (Macera, et al. 2003). Also, benefits of quitting smoking can be gained even as little as 5 years after smoking cessation for all ages (Edwards 2004).

The increase in the level of knowledge on cancer prevention in this study reaffirms the results of a study by Donovan et al (2004) who noted that knowledge on cancer prevention has increased since 1964. Although Donovan noted that the television was a main source of information on cancer prevention, the qualitative results of this study showed that some of the participants did not trust the media because of its commercial nature and they would rather get information from their general practitioners.

In this study, screening was mentioned as being very important after the age of 60, but it was totally viewed as a separate entity and not as a behavioural preventive action. Screening was discussed as a different issue from preventive health actions. Early detection of cancer was never viewed as a preventive action for most of the cancers (as evidenced by the results of qualitative data) and this may be the reason as to why most of the participants believed that it is not worthwhile to start preventive health actions after 60 years of age.

Behaviour changes made after age 60

When posed with the question about what health behaviour changes they have made after the age of 60, very few mentioned they had made any changes. Although most knew what the term 'healthy behaviour' means, many said it was difficult to change their previous lifestyles due to factors such as loneliness, and the feeling that it was too late to do

anything. This revelation needs to be framed from the understanding that 42% of the sample had a cancer diagnosis and hence experience with the medical system experience, and yet they still had little understanding of prevention and little sense of self-efficacy. This finding is supported by the other studies that report disparities between knowledge and practice of healthy behaviours, and especially so for older people (Eiser, Pendry et al. 2000).

To some of the participants, the influence of others was significant in making health changes. This was in reference to risk factors such as smoking. Though they acknowledged that they knew the benefits of quitting, social set-ups facilitated their return to the habit.

Screening after the age of 60

The results of both the qualitative and quantitative methods indicate that screening was viewed as important to the participants in this study. Over 80% of the participants agreed that it is worthwhile to be screened after the age of 60. In addition, the participants repeatedly mentioned that screening attendance would be increased if a health worker was involved. Studies have shown that a variety of factors influence behaviour, including attitudes (Godin & Shephard 1990), specific health-related knowledge (Friedman et al. 1998), and physician-patient interaction (Fox & Stein 1991). In this study, health professional recommendations were mentioned as the most important reinforcing factor for cancer screening. The importance of physician recommendations has been documented in a number of studies of mammography and several studies of colorectal cancer screening (Vernon 1997). The qualitative data from this study provides insight into the context of these recommendations, or the nature of the interaction about cancer screening between patient and provider. Clearly, the quality of such advice was important to many of these participants.

Given that older people are more likely to visit a health professional, there exists plenty of opportunity for health professionals to provide health information and counselling that can reach most older people (Yong, Borland et al. 2005). Brief, physician-delivered quit-smoking advice and counselling tailored specifically for midlife and older smokers (ages 50–74) has been successfully shown to be twice as effective as a generic smoking

cessation protocol (Morgan, Noll et al. 1996). Health professionals have a particularly important role to play in helping older people adopt a positive lifestyle.

The results of the questionnaire indicate barriers such as cost, transport and fears were not important to the majority of this study group in relation to screening attendance.

Relatively few participants (20%) agreed that factors such as transport, cost or fear determined whether they went for screening. Although these factors did not come out in the qualitative data either, other factors such as policy barriers were detected. The participants were horrified by the fact that after the age of 70 they would not be screened for some cancers.

[“Yes, I was horrified when I was told after 70 I will not be screened [for breast cancer].”]

[“At 70 they will not screen and I think women are living much longer than that.”]

This indicates that the measures used in the quantitative method, with the intention of capturing various dimensions of screening barriers, did not adequately encapsulate barriers that were perceived to be important by the participants. As such, the complementary nature of the qualitative data was apparently important in this respect.

Smoking cessation and cancer

Stopping smoking has substantial immediate and long-term health benefits for smokers of all ages. Several studies show that the cancer prevention benefits can be gained even as little as 5 years after smoking cessation (Edwards 2004). He further notes that the excess risk of oral and oesophageal cancer caused by smoking is halved within five years of cessation.

The questionnaire results of this study show that half (50%) of the participants agreed it was worthwhile to stop smoking after the age of 60. However, after in-depth probing through the focus group discussions, the general outcome was that older people believe the damage has already happened in the early years and, as such, benefits can only be realized if one quits smoking early. These results extend previous research which has indicated that general reluctance to quit smoking may stem from the fact that many older people may feel that it is too late to do anything about it as the damage is thought to have been done (Parry, Thomson et al. 2001). There is also a perception among older people

that little will be gained from quitting and that quitting would be more difficult for them given the duration of their smoking habit (Parry, Thomson et al. 2001).

Physical exercise and cancer

The qualitative results of this study indicate that a majority of the seniors do perceive the benefits of physical exercise in relation to cancer prevention. More common was the belief that other lifestyle factors, other than physical exercise, were more important in cancer prevention.

[“...maybe diet can prevent cancer but, for exercise, I have no idea.”]

[“I don’t know, I think if you are going to get it, you will get it, maybe diet may help.”]

This is similar to the results of other studies that have indicated that older respondents, male and female, consider other health-related behaviours, such as a healthy diet and adequate rest, to be more important for their health than exercise (Canada Fitness Survey 1984).

There was a strong belief that physical exercise was important in maintaining general well-being. Although their collective views echoed the extensive body of knowledge which endorses the belief that regular physical activity makes a significant contribution to one's state of well-being and quality of life in the later years (Poole 2001), this group of older people generally lacked knowledge on how physical exercise could prevent the development of cancer. They were also not able to perceive the delayed onset of cancer as a result of physical exercise and much of their perception was influenced by life experiences.

[“I don’t agree [with regular physical exercise]. My husband did exercises faithfully - died in January this year due to cancer. The fact you are fit, I mean you do exercise, doesn’t prevent cancer.”]

On the other hand, the quantitative data shows that a majority of the participants (>50%) agreed that physical exercise was worthwhile after the age of 60. Although these results differ to some extent, they are complementary in another way. The fact that ‘the link’ of physical exercise as it relates to cancer prevention was not clear to the participants may explain the reason as to why the results differ.

With reference to the results being complementary, the quantitative results were only able to give the researchers an insight as to the depth of understanding of the participants about physical exercise and cancer prevention. In this case, their understanding was related to general well-being. After an in-depth exploration of the question using qualitative methods, it was clear that most of the participants were not able to link physical exercise to cancer prevention or to cancer survival. For those who were able to relate physical exercise to cancer prevention, they actually thought physical exercise prevents other diseases that could lead to cancer.

[“..... if you are not healthy, you can get something else like a virus and then it gets further.”]

Further, the qualitative methods were not only able to review some fatalistic attitudes about cancer but also over-emphasis of genetic predisposition in relation to cancer prevention. In this case, cancer was viewed as inevitable and if you had the genetic potential to get it, then exercise was viewed as only ‘good’ for those not predisposed, giving the connotation that, for those with a genetic predisposition, nothing much can be done.

[“If you don’t have genetic tendency, then the exercise would do you good [prevent cancer]. It can improve the situation.”]

[“I have a friend of mine that used to jog twice every day, participated in marathon and stuck to a rigid diet and he died of cancer. If you have to get cancer you will get it.”]

These fatalistic attitudes may give an indication of the method in which media campaigns could approach cancer prevention messages and the importance of tailoring these messages to older people.

Sun exposure and cancer

Although the quantitative results show that over half (64%) of the participants agree that protecting the skin from the sun can prevent cancer after age 60, the qualitative results show that the general feeling of most of the participants was that, if the damage had been laid down in earlier years of life, protecting the skin from the sun after the age of 60 would not make a big difference. Much of this perception was influenced by their own

life experiences and those of family members. In this case, the role of interplay of many factors leading to skin cancer was not seen. Genetic predisposition was singled out and the length of exposure to the sun was not perceived nor was the benefit of changing the lifestyle seen.

[“I think if you are genetically predisposed you will actually get it [skin cancer]. My husband was born in Holland where it is cold, never went out but died of skin cancers. So I think it goes down to genetics. I had my skin burnt in the beach when I was young. I am now 70 and I have no cancer. So I think it doesn’t matter how much you protect yourself from the sun.”]

However, some of the participants believed that the skin was fragile after the age of 60 and requires adequate sun exposure, but they mentioned that they do use protective measures, such as gloves when driving, and sunscreen.

Healthy diet and cancer

Generally results of both the qualitative and quantitative methods reveal that the participants of this study were knowledgeable on the importance of a healthy diet and knew the different types of diet that were healthy. However, some still could not perceive the benefits.

Although benefits of a good a diet can be realized at any age, the results of this study still show that many of the older people are not able to relate these benefits to cancer prevention. The evidence that emerges is that past experience has a lot to do with current behaviour. Experience of a family member adhering to a healthy diet yet dying of cancer may translate into people abandoning a healthy lifestyle. In this case, cancer was viewed as inevitable. A clarification of the role of multiple factors causing cancer would be beneficial to older people to encourage them to continue to adhere to their previous healthy behaviours. This is because some of the older people could only single out a specific risk factor to cancer but could not view the combination of other risk factors leading to cancer.

For those who strongly disagreed that diet is important in cancer prevention after the age of 60, age was viewed as the predetermining factor to start a healthy diet. The general belief in this group was that after age 60 there was nothing one could do if a healthy diet was never started earlier in life. In this group, genetic predisposition to cancer was also

looked at as the major factor that could determine if cancer was to develop or not. In this case, healthy diet was viewed as irrelevant to cancer prevention if one had a family history of cancer.

Although specific studies focusing on older people's beliefs of cancer and diet have not been done (Polk 2006), this would be an initial step towards individualised health promotion messages, as opposed to generalised media messages that might not be perceived as relevant by older people.

Bowel cancer prevention after age 60

Generally most of the participants were knowledgeable of the different ways to prevent bowel cancers. More commonly mentioned were check-ups, especially if one had a family history of bowel cancer. However, a discrepancy between knowledge and practice of bowel cancer prevention existed in this study group. Perceived ways to stay healthy did not necessarily correspond with respondents' actual behaviours. Clearly the participants had the knowledge but didn't practise it. For some, physical conditions such as incontinence were a de-motivator to taking plenty of water. However, the role of the healthcare providers was clearly and repeatedly identified as an important source of influence, encouragement and feedback for on-going check-ups and adoption of healthy behaviour in relation to bowel cancer.

Weight control and cancer

Although most of the participants knew that healthy diet can prevent cancer and that exercise too was good for their general well-being, most could not perceive the relationship between weight control and cancer. Benefits were perceived in relation to other health issues, such as heart conditions, but not cancer. Virtually none of the members knew that reducing weight could help prevent bowel and breast cancer among others. This clearly gives an indication for individually tailored messages on the role of weight control in cancer prevention, especially for older people. On the other hand, educational messages that are sensitive and appropriate to the needs of older people could also help.

Social isolation and cancer prevention

Studies have recognised that socialization and social support are central to participation in programs, and interpersonal engagement is particularly important for encouragement of preventive behaviours (Miller and Iris 2002). More isolated people are likely to develop cancer as they have less interaction with others who may encourage them to undertake screening for a specific cancer, or to make a lifestyle change, e.g. giving up smoking. People living alone or lacking social support are less likely to exercise regularly or to adhere to a healthy diet (Tucker 2002, Vogot, Mullooly et al. 1992).

The results of this study clearly indicate that the participants do not recognise the value of social networks in relation to cancer preventive behaviours. They felt that, whether alone or with people, it had nothing to do with taking preventive actions. Lack of perception of direct benefits of social support in cancer prevention among these participants might have been the reason as to why they viewed it as unnecessary. For those who shared this idea, past experience of witnessing lonely people who had no cancer influenced their perception. However, most acknowledged that social support would be beneficial for survival if one already had cancer.

Changing lifestyle and Survival

Lifestyle risk factors have been documented to affect cancer survival (Skuladottir, Tjoenneland et al. 2006). Factors such as tobacco have been shown to cause recurrent secondary tumours of the upper respiratory tract among lung cancer survivors (Hirdes and Maxwell 1994; Rock and Demark-Wahnefried 2002). For alcohol, though with equivocal findings, there are linkages between alcohol intake and an increased risk for recurrent primary tumours among upper aero-digestive tract cancer survivors and reduced survival time among breast cancer survivors (Hamajima 2002). Obesity has been linked with an increased incidence of breast cancer recurrence and reduced survival time (Rock and Demark-Wahnefried 2002). Additionally, there is suggestive evidence for a positive association between intake of fruit and vegetables (and their nutrients) and survival (Rock & Demark-Wahnefried 2002; Skuladottir, Tjoenneland et al. 2006). Literature has also

demonstrated the positive effects of physical activity on multiple quality of life domains among cancer survivors (Basen-Engquist, Taylor et al. 2006).

The results of this study indicate that participants held positive attitudes about continuing healthy lifestyles later in life. However, past experiences were seen to influence the perceptions of how one viewed change of lifestyle and cancer survival. For those with a history of a family member surviving cancer due to change of lifestyle, they viewed it positively and vice versa for those with a different experience. For this group, survival benefits were also perceived if cancer was known to be related to the respective lifestyle change.

Barriers to preventive health actions

Whereas health professional advice was viewed as a strong motivator to behaviour change, most of the older people still felt that they lacked confidence to change their lifestyle to adopt healthy behaviours. More than 50 % of the participants indicated they lacked confidence to engage in preventive behaviours. The lack of confidence was mainly attributed to fear of being diagnosed with cancer and especially where it involved going for screening. For others, social control was mentioned as an inhibitor to behaviour change. Interaction with friends who smoke made those who had quit smoking start again. This negative social control has been indicated in other studies that stress the importance of understanding the conditions under which social relationships have beneficial versus detrimental effects on the well-being of older adults (Tucker 2002). Barriers to making healthy choices create serious impediments for improving health for people of all ages, including older adults (Tucker 2002). These barriers exist at a variety of levels including the individual's lack of knowledge and motivation, lack of support from family and peers, poor access to effective programs that promote healthy behaviours, musculo-skeletal discomfort, and various public and corporate policies that seem to foster unhealthy habits (Lewis & Asch 1999). Although these barriers have been indicated to affect older people, not all of these barriers were mentioned as important in taking preventive actions, in this study. The most commonly mentioned barriers apart from confidence and social control were poor health, time and loneliness.

Comparison of the results of the two data sets

When the separate analyses of the quantitative and qualitative datasets were completed, the discrepancy in the findings became apparent. The quantitative results generally showed that the participants were knowledgeable on cancer prevention and a majority believed that it is worthwhile to begin a positive lifestyle after the age of 60, suggesting that the participants perceived the benefits. The qualitative results found wide-ranging perceptions, indicating that the perceptions were due to a varied degree of understanding of the amount of benefit that can be derived after the age of 60. In this case, various risk factors for cancer were viewed differently. This is evidenced by mainly two risk factors (smoking and physical exercise) where the results showed a discrepancy.

The presence of such inter-method discrepancy led to a great deal of discussion and debate. As a result, the researchers adopted one way of further exploring these data as advocated by (Moffatt, White et al. 2006): ‘Exploring whether the outcomes of the quantitative and qualitative components match.’

Probing certain issues in greater depth focused the researchers’ attention on the outcome measures used in the quantitative part of the study and revealed several challenges. Firstly, the qualitative results revealed a number of dimensions not measured by the quantitative study, such as the various reasons as to why people make lifestyle changes, which included past experiences, lack of knowledge, fatalist attitudes and age-related beliefs (for example, a situation where cancer was viewed as inevitable after the age of 60). Secondly, the measures used in the questionnaire with the intention of capturing various dimensions of perceptions did not adequately encapsulate participants' accounts of uncertainties of how much benefit they would get by adopting the specific lifestyles. However, probing both datasets also revealed congruence along the dimension of alcohol consumption and risk of cancer, diet and cancer risk, importance of screening after the age of 60 and the role of a health professional in behaviour change. Only 6% of the participants strongly agreed that alcohol consumption could prevent cancer and this was similar to the qualitative results, which showed that most of the participants believed there is no link between alcohol and cancer. Also, both results revealed the belief that a

healthy diet was important for cancer prevention, with over 70% agreeing the same in the questionnaire.

The role of the general practitioner was also cited as a very important influence upon behaviour change.

“I would trust my GP more on matters concerning cancer prevention.”

This is congruent to the results of the questionnaire, where more than 60% agreed that health professional advice would influence their behaviour.

As such, the data presented in this study demonstrates the difficulties of trying to capture complex phenomena quantitatively.

Also, it demonstrates the usefulness of having alternative data forms on which to draw, whether complementary (where they differ but together generate insights) or synergistic (where they together strengthen a point). In this study, the complementary and synergistic findings of the two datasets proved useful in making recommendations for the design of a definitive study.

In conclusion, the findings of this study advocate for treating qualitative and quantitative datasets as complementary rather than in competition for identifying the true version of events.

CHAPTER SIX: SUMMATION AND CONCLUSION

Introduction

This chapter gives a summary of the study findings and the extent to which the research question and the objectives were answered. Also, it outlines the recommendations for future research and recommendations for future interventions that would target people aged 60 years and over.

Research objectives

To assess the knowledge, perceptions and beliefs of cancer prevention, including screening, among Western Australians aged 60 years and above

Both qualitative (focus groups and interviews) and quantitative (questionnaire) methods were used to explore this issue. Questions assessing knowledge, perceptions and beliefs of the various risk factors for cancer were asked. A combination of both Likert scales and closed-ended questions were used in the questionnaire in order to capture these issues. Further, the same questions were used for open discussion during focus groups.

After utilizing the above approach, the findings of this study indicated that the participants were knowledgeable of screening and some of the ways to prevent cancer after the age of 60, but their knowledge on the relationship of some of the risk factors and cancer was inadequate. Such factors were alcohol and obesity/overweight. Also, the relation between social isolation and cancer was not well understood. For those factors that were well understood such as smoking and diet, they could only relate them to single forms of cancer, such as lung cancer and bowel cancer respectively. Their knowledge of these risk factors causing multiple or different types of cancer was lacking.

Further, their perceptions of the benefits they would get by adopting preventive actions after the age of 60 showed that it was not clear to them. The general perception for most of them was that it was too late to adopt preventive actions or some of the preventive actions were not relevant for cancer but only for other conditions such as diabetes and heart conditions.

To identify the motivators and barriers to cancer prevention in this age group

The extent to which this objective was assessed in this study was by use of both the questionnaire and the focus groups. After an in-depth exploration of this issue, the participants mentioned that health professionals were the most important influence for positive behaviour change. Lack of confidence was mentioned as an important impediment to screening due to the fear of being diagnosed with cancer. Other factors mentioned, that were stated as barriers, were negative social control, time and poor health.

To assess specific health actions taken by older people to prevent cancer

When the two methods of data collection (qualitative and quantitative) were used, a discrepancy between the knowledge and practice emerged. While, some of the participants still maintained healthy lifestyles such as physical activity and healthy diet and many were knowledgeable many were unable to adopt or continue with preventive health actions because of various barriers such as lack of confidence, poor perceptions of the benefits, negative social control, time, work and poor health. As mentioned previously given that 42% had a cancer diagnosis this finding seems to indicate there are gaps in the current information and education of those accessing oncology services.

To examine preventive actions taken by older people in relation to cancer

Generally, the preventive health actions taken by older people were limited by insufficient knowledge of the benefits they would gain by adhering to these preventive health behaviours. However, some indicated that they still adhered to the preventive health actions such as healthy diet and physical activity. Also, others indicated they quit some risky behaviour, such as smoking, due to poor health.

Recommendations for future research

This pilot study has established beliefs and perceptions of cancer prevention among older people aged 60 years and above. Although this was done generally for all types of cancer, more emphasis was laid on the most prevalent cancers in Australia (bowel, reproductive, lung and skin cancers). Other studies need to look at the beliefs of this group regarding

less prevalent cancers. This study also used two methods of data collection on the same sample and noted differences in the responses. Use of two methods of data collection on a larger sample needs to be done to establish whether the differences noted were due to chance.

Recommendations for future interventions

The results highlight the crucial role of information about primary prevention of cancer after the age of 60. It clearly suggests the need for consistent information for seniors: of their role in cancer prevention; the benefits of giving up smoking at whatever age; the role of regular physical exercise in cancer prevention. In addition, interventions to improve cancer screening in this age group should be tailored to the specific predisposing, enabling and reinforcing factors including age-related beliefs on prevention and doctor-patient communication.

To be effective, promotional messages for cancer prevention in this age group must not assume that the target audience already knows the health benefits of the various preventive actions and should target the various reasons as to why they have not taken any action. Consequently, messages must move beyond conveying basic health benefits to focus on encouraging and inspiring audience members to get moving, all the while being careful not to alienate or turn them off (Ory, Kinney et al. 2003). Physicians and health care professionals can play a critical role in an older adult's decision to adopt a healthy lifestyle. As such, most of the cancer health messages tailored to people aged 60 years and above can be effectively delivered through health professionals.

Conclusion

This study has highlighted that older people above the age of 60 are knowledgeable of some of the ways to prevent cancer after the age of 60. However, their knowledge on the relationship between some of the risk factors and cancer was lacking. These factors were alcohol and obesity/overweight. Social network and cancer prevention was not well understood as well. Even for those factors that were well understood, such as smoking and diet, they could only relate them to single forms of cancer such as lung cancer and

bowel cancer respectively. Their knowledge of one risk factor causing multiple or different types of cancer was not evident.

In addition, their perceptions of the benefits they would gain by adopting preventive actions, such as physical exercise, after the age of 60 was not clear to them. Their general perception for most of the preventive factors was that after of 60, it is probably too late to start any preventive action. Contrary to this, they still believed that health benefits would be realised by adopting preventive health action after the age of 60 for other health conditions such as heart disease.

Use of both qualitative and quantitative methods helped to better understand the knowledge, attitudes and beliefs of older people, associated with cancer prevention. The information gleaned from the focus groups can be used to better inform and tailor cancer prevention interventions, especially in making those interventions more relevant to older people above 60 years of age.

Moreover, at age 60, on average, men can be expected to live almost another 18 years and women, another 19 years. Therefore, preventive efforts focused on modifiable risky health behaviour and early diagnosis, matched to the leading problems by age, such as cancer, are critical.

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APPENDICES

Appendix 1: Focus group discussion protocol

My name is _____ (facilitator) and this is _____ (observer). We are both from the WA Centre for Health Promotion Research here at Curtin. We are here today to discuss Cancer prevention among seniors.

Before we start our discussion, I would like to go over a few formalities of this session. You will notice an information sheet and consent form in front of you. Please read through the details on these forms. If you are happy to be involved in the discussion please sign the consent form and return it to the group facilitator.

You have been supplied with a nametag to make it easy to identify everyone in today's discussion group. Do you have any questions or comments before we start?

Just before we get started, I would like to go through some information about the procedure of the focus group.

Group rules:

Confidentiality - In the middle of the table is a small tape recorder. We are recording today's discussion because we consider all the information you provide us is important and don't want to miss any of it. The information will be typed up and you will not be identified in any reports from the study.

Honesty – Please answer the questions honestly. There are no right or wrong answers and we are interested in hearing your opinion. Tell us what you really think and feel, not what you think you should feel, or what you think we want to hear.

Speaking – To ensure that everyone gets a chance to speak, we ask that only one of you speaks at a time. If someone is speaking wait until they are finished and then speak. You may not always agree with what another person has said. We want to hear that, but remember that we all have the right to express our own thoughts and feelings.

Freedom to Leave – If anyone is uncomfortable with anything that we talk about at any time, please feel free to leave the room or sit quietly and not comment.

Discussion questions

We're going to start off with a general discussion on knowledge and beliefs on cancer prevention:

What would one do after age of 60 to prevent cancer?

How do you think changing one's lifestyle would improve survival if one had cancer?

Tell me about tobacco smoking and lung cancer.

Regular physical exercise can help prevent cancer. What is your feeling about this statement?

What type of diet do you think can help prevent cancer?

What are some of the ways that you think bowel cancer can be prevented?

How do you think skin cancer is caused?

What are some of the ways you think we can prevent skin cancer?

How do you think obesity is associated with cancer?

What are some of the ways you think we can prevent obesity-related cancer?

Alcohol can cause cancer. What is your feeling about this statement?

How do you think social isolation can be associated with cancer?

What are some of the ways that you think can help prevent social isolation?

Please tell me how worthwhile it is, after age 60, to check for the following cancers:

Skin cancer

Testicular cancer

Breast cancer

Cervical cancer

Bowel cancer

Prostate cancer

This has been really useful for us and I'd like to thank you all for participating. If you would like any more information about what we've covered, my contact details are on the information sheet.

Appendix 2: Consent Form

I _____ (print your full name) have read the summary of this research project and any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising that I may withdraw at any time or withdraw my consent without reason and without prejudice.

I understand that the focus group discussion will be recorded in written notes and on audio-tape, and all information provided is treated as strictly confidential and will not be released by the investigator unless required by law.

I agree that data gathered for this project may be published provided my name or other identifying information is not used.

The data collected will be stored and will be destroyed within the specified period (5 years) according to Curtin University's Human Research Ethics Committee Guidelines. All data collected in this research will be identified via code only.

All the information collected will be stored in a locked cupboard in the supervisor's office and accessible only to the investigator and the supervisor. Data on computers will be password protected and only accessible to the investigator and the supervisor.

Participants' identities will be kept anonymous in all documents (reports and articles) written as part of the project.

Participant's Signature

Date _____

The Human Research Ethics Committee at Curtin University of Technology requires that all participants are informed that, if they have any complaint regarding the manner in which a research project is conducted, it may be given to the supervisor (Telephone 9266 7997) or, alternatively, to the Secretary, Human Research Ethics Committee, Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, WA 6845 (Telephone 9266 2784). All study participants will be provided with a copy of the Information Sheet and Consent Form for their personal records on request.

Appendix 3: Questionnaire

Beliefs and Perceptions of Cancer Prevention among the Older People

SECTION A: Socio-demographic factors

Please circle the number opposite your appropriate response.

1. In which suburb /postcode do you live? _____
2. What is your age? _____
3. What is your gender?
 - a. Male
 - b. Female
4. Do you live?
 - a. Alone.
 - b. With a partner/spouse
 - c. Other (specify)
5. Have you ever been diagnosed with cancer?
 - a. No
 - b. Yes
6. If Yes, what sort of cancer (if No, proceed to section B)
 - Skin.
 - Breast
 - Prostate
 - Lung
 - Bowel
 - Melanoma
 - Lymphoma
 - Ovarian
 - Other
7. If yes, at what age was your first diagnosis? _____

SECTION B: Cancer Beliefs

Please indicate how much you agree or disagree with the following statements.
(Circle one number for each question)

	Statement	SA						SD	Unsure
1	After the age of 60 there is nothing I can do to prevent cancer.	7	6	5	4	3	2	1	0
2	Giving up smoking after the age of 60 can help prevent lung cancer.	7	6	5	4	3	2	1	0
4	Regular physical exercise for people over 60 can help prevent cancer.	7	6	5	4	3	2	1	0
5	Adopting a healthy diet after the age of 60 can help prevent cancer.	7	6	5	4	3	2	1	0
6	Protecting the skin from sun after the age of 60 can help prevent cancer.	7	6	5	4	3	2	1	0
7	Reducing weight for obese or overweight people over 60 can help prevent cancer.	7	6	5	4	3	2	1	0
8	Going for screening (or check-up) after the age of 60 can help prevent cancer.	7	6	5	4	3	2	1	0
9	Reducing social isolation or loneliness after age of 60 can help prevent cancer.	7	6	5	4	3	2	1	0
10	Adopting a low (or zero) alcohol intake after the age of 60 can help prevent cancer	7	6	5	4	3	2	1	0
11	If I get cancer, after the age of 60, adopting a healthy lifestyle will improve my survival.	7	6	5	4	3	2	1	0
12	Reducing exposure to very loud music after the age of 60 can help prevent cancer.	7	6	5	4	3	2	1	0
13	Reducing exposure to air pollution after the age of 60 can help prevent cancer.	7	6	5	4	3	2	1	0

(SA- Strongly agree, SD- Strongly disagree)

SECTION C: Motivators and barriers to cancer prevention

Please circle the number that represents your response and gender

	Statement	SA						SD	Unsure
1	An invitation letter from a health professional would make me attend screening/check up for: a. Breast cancer (if female) b. Bowel cancer (for both male and female) c. Cervical cancer (if female) d. Skin cancer (for both male and female) e. Prostate cancer (if male)	7	6	5	4	3	2	1	0
2	The following would make it difficult for me to attend screening for cancer: a. Lack of transport b. Cost of screening c. Fear of having cancer diagnosed d. Lack of time	7	6	5	4	3	2	1	0
3	I am confident I can change my health behaviours such as diet, physical activity and smoking.	7	6	5	4	3	2	1	0
4	Attending cancer screening would be a waste of my time.	7	6	5	4	3	2	1	0
5	Receiving advice from a health professional on healthy lifestyle changes would encourage me to adopt those behaviours.	7	6	5	4	3	2	1	0

(SA – strongly agree, SD – Strongly disagree)

Thank you for your contribution

Appendix 4: Participant Invitation letter

Curtin

UNIVERSITY OF TECHNOLOGY

CENTRE FOR RESEARCH ON AGEING

Dear _____

The Positive Ageing Foundation of Australia and the Cancer Council has joined with the Curtin University of Technology's Centre for Research into Aged Care Services and we are now the Centre for Research on Ageing. Through the new Centre we will continue to be involved in research that improves the quality of life for older people.

Researchers from Curtin University (School of Public Health and the Centre for Behavioural Research in Cancer Control) are currently conducting research into perceptions and beliefs about cancer prevention among older people. They are investigating what motivates and/or stops older people from participating in cancer prevention. This study will provide information to help improve cancer prevention practices among older people.

The researchers need men and women aged 60 or more who would be interested in participating in a focus group to be held in June/July. Focus groups will take approximately 1 hour at a venue near you and light refreshments will be provided. Your involvement is voluntary and any information provided by you will remain confidential. If you would like to be involved in this important research project or would like some more information, please contact **Irene Ngune** on phone number 0423059109 or email irene.ngune@postgrad.curtin.edu.au as soon as possible.

Thank you for continuing to support research related to improving the quality of life for older Australians.

Yours sincerely,

Irene Ngune
Project co-ordinator
Centre for Research on Ageing
Curtin University of Technology

The brochure features a dark blue header with the text 'CANCER HELPLINE' in large, bold, white capital letters. Below this is a yellow background with a large, stylized white telephone handset icon. The text 'Information, facts and support...' is written in bold dark blue font. Below that, 'Just call' is in bold dark blue, followed by the number '13 11 20' in very large, bold dark blue digits. Further down, the operating hours are listed: 'cost of a local call statewide', 'weekdays 8 am – 8 pm', and 'Saturdays 9 am – 3 pm'. The TTY number '(08) 9381 6562' and the email address 'inquiries@cancerwa.asn.au' are also provided. At the bottom, there is a dark blue footer containing the logo for 'The Cancer Council Western Australia', which consists of a stylized yellow flower icon and the text 'The Cancer Council Western Australia' in white.