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Efficacy of Strategies to Increase Enrolment Rates in Disease Management Programs

A thesis submitted in fulfillment of the requirements for
the award of the degree

Doctor of Philosophy

From

UNIVERSITY OF WOLLONGONG

By

CHRISTINA HOANG

B.Com (Hons)

Faculty of Health and Behavioural Sciences

2008

DECLARATION

I, Christina Hoang, declare that this thesis, submitted in partial fulfillment of the requirements for the award of Doctor of Philosophy, in the Department of Health and Behavioural Sciences and the Faculty of Commerce, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualification at any other academic institution.

Christina Hoang

March 2008

ABSTRACT

Chronic diseases have been growing in prevalence in the twentieth century and several factors have contributed to the emergence of what is now described as an “epidemic” (Crews and Gerber, 1994). These factors include complex social, cultural and technological changes, which have exerted a significant impact on the health of the population and have become large contributors of illness, disability and premature mortality (Swinburn, Egger and Raza, 1999). Currently in Australia, an estimated three million people suffer from one or more chronic conditions with the most common being cardiovascular disease, some forms of cancers, diabetes, asthma and mental illnesses such as depression (Australian Institute of Health and Welfare, 2004).

Disease management programs were developed as a means of overcoming many of the burdens associated with the mounting chronic disease rate and this is primarily achieved by reducing the incidence of chronic diseases through prevention strategies, delaying the onset of disability, alleviating the severity of disease and prolonging the individual’s life (Brownson, Remington and Davis, 1998). However, participation rates in such programs are well below their desired level and often reported as being a particularly problematic and complex issue (for example: Foster, Kendall, Dickson, Chaboyer, Hunter and Gee, 2003).

This study aimed to determine the most effective strategies for increasing participation rates in disease management programs using prospect theory (via message framing) and incentives.

Members of a private health insurance company received, on a random basis, either a letter or phone call inviting them to join a health program. The letter or phone call contained a framed message: positive, negative or neutral. In addition, half the sample population was also offered a small incentive upon enrolment in the Total Health program, that is, a post-action incentive.

The results of the study found no framing effects. Given the results, the use of tailoring should be examined as an alternative, and potentially more persuasive, means of communication. In relation to incentives, the use of a small gift or chance to enter a competition prize draw was found to be effective in influencing re-enrolment rates in two health programs. However, these same effects were not seen in relation to the use of a small monetary incentive. As a result, it is recommended that future studies test different types of incentives, both momentary and non-monetary, to determine the most optimum.

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Christina

CONFERENCE PAPERS ARISING FROM THIS THESIS

Hoang, C and Jones, S.C. (2006). Message framing and the use of incentives – Are they effective in increasing participation rates in disease management programs? Proceeding from the Australian and New Zealand Marketing Academy Conference (ANZMAC) 2006, Queensland University of Technology, Brisbane.

Hoang, C and Jones, S.C. (2006). The efficacy of message framing and incentives to increase recruitment to disease management programs. Proceedings from the Australian Society of Behavioural Health Medicine Conference (ASBHM) 2006, Auckland, New Zealand.

Hoang, C and Jones, S.C. (2004). The Impact of Different Types of Incentives on Re-enrolment in Health Management Programs. Proceeding from the Australian and New Zealand Marketing Academy Conference (ANZMAC) 2004, University of Victoria, Wellington*

* Note: Chapter 6 is based on Hoang and Jones (2004).

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LIST OF ABBREVIATIONS

ahm	Australian Health Management
BMI	Body Mass Index
COPD	Chronic Obstructive Pulmonary Disease
HC	HealthCheck program
HRA	Health Risk Assessment
LWA	Living with Arthritis program
OECD	Organization for Economic Co-operation and Development

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1.

INTRODUCTION AND OVERVIEW

Chronic diseases are beginning to dominate the cause of death in the twenty-first century. Disease and risk management programs were established to address the increasing chronic disease rate; however, participation rates are typically low in Australia despite the known benefits. This research aims to investigate the efficacy of two strategies to increase participation rates in disease management programs; message framing and the use of incentives.

This chapter introduces the research – its objectives, significance and rationale. This is followed by a synopsis of each subsequent chapter to provide the reader with an overview of the research.

1.1 JUSTIFICATION FOR RESEARCH

1.1.1 Objectives

The main objective of this research was to systematically investigate, via a series of randomised controlled studies, the effectiveness of positively and negatively framed messages and the provision of an incentive on participation rates in disease and risk management programs.

1.1.2 Significance

The research is of significance because an estimated three million Australians currently suffer from one or more chronic diseases (Australian Institute of Health and Welfare, 2004). The prevalence of chronic diseases has steadily increased into the twenty-first century, with several factors – including high cholesterol, high blood pressure, smoking and sedentary lifestyles – contributing to the emergence of what is now described as an “epidemic” (Crews and Gerber, 1994). As a result, chronic diseases have become large contributors of illness, disability and premature mortality, both in Australia and other developed nations (Matters, Vos and Stevenson, 1999:5). This in turn places a huge strain, both financial and non-financial, on individuals, their families and the Australian health care system.

1.1.3 Rationale

There is evidence to show that the incidence of chronic diseases and their associated risk factors can be reduced through the implementation of disease management programs, and that without intervention, risk factors tend to worsen over time (Block and Keller, 1995). Despite this, disease management programs are commonly faced with the problem of low participation rates. This research was undertaken to investigate two potential strategies to increase uptake rates in disease management programs in an effort to help curb the escalating chronic disease rate and their associated risk factors. This is based on the rationale that if a greater number of at-risk adults enrol in a disease management program, then a greater number of benefits can be achieved – most notably, improved personal health via a reduction in the number of risk factors present and/or more effective management of chronic conditions, leading to a reduction in health care costs.

The two strategies examined are message framing and the use of incentives.

Currently to date, much of the research available utilising message framing and incentives largely come from a marketing context, with those applied in a health context finding inconsistent results. Hence, there is a large body of conflicting literature available. Furthermore, the majority of studies utilising message framing are conducted in an experimental setting; namely via convenience sampling on student populations.

This study addresses these shortfalls by reviewing the available literature on message framing and incentives and then applying them to a health context in an effort to determine the most effective way(s) to increase participation rates in disease management programs. In addition, this study was conducted in a real-world setting among member of an actual private health insurance company, Australian Health Management (ahm).

1.2 CHAPTER OVERVIEWS

Chapter 1: Introduction and overview

Aim of this chapter: To identify the research problem and justify the research.

Chapter one is an introductory chapter whereby the research problem is identified and the purpose of the research is posed. This sets the scene for the subsequent chapters and ultimately, the studies and experiments that follow. A brief overview of each chapter is also provided to give the reader an overview of this research.

Chapter 2: Australia's health: A snapshot

Aim of this chapter: To examine the health of Australians.

This chapter solely concentrates on Australia in an attempt to provide the reader with an understanding of the overall health of Australians. The main chronic conditions in

Australia were examined, with cardiovascular disease identified as the most prevalent – making it the leading cause of death among Australians. The main risk factors for cardiovascular disease, like those of many other chronic conditions, are largely modifiable.

Chapter 3: Disease management

Aim of this chapter: Introduce disease and risk management programs as an effective tool for addressing the burden associated with chronic diseases.

There has been a significant shift over the past century away from acute infectious diseases towards non-communicable chronic conditions as the leading cause of death and mortality (Australian Institute of Health and Welfare, 2004). This has led to the development of disease and risk management programs, which has grown in popularity since the 1990's as a means of addressing the increasing chronic disease rate. This chapter examines disease and risk management in relation to their expected and actual outcomes. Prospect theory and incentives were proposed as two possible means of increasing participation rates in beneficial disease and risk management programs, each of which are examined in-depth in chapters 4 and 5 respectively.

Chapter 4: Prospect theory

Aim of this chapter: To introduce prospect theory and examine its various applications and efficacy.

Prospect theory was developed by Kahneman and Tversky (1979) as a means of explaining how people make decisions. The theory posits that people have inconsistent preferences when the same choice is presented in different ways, generally through changes in wording and this is known as message framing (Kahneman and Tversky, 1979). Messages can be framed either positively (emphasising gains) or negatively (emphasising loss) and according to prospect theory, people tend to be risk averse when information is framed positively and risk-taking when information is framed negatively (O'Connor, Pennie and Dales, 1996).

Chapter 5: Incentives

Aim of this chapter: To understand the main principles underlying the use of incentives, examine the various applications of incentives and ascertain their effectiveness in a health context.

Incentives are often used to induce the desired response or bring about a desired behaviour. This makes them popular across a variety of different industries and contexts. However, there is no unifying theoretical framework directly relating to incentives and this chapter draws together a series of psychological principles that can be used to explain how incentives work in motivating human behaviour – Operant Conditioning, the Norm of Reciprocity and Social Exchange Theory. The various applications of incentives, both in a health and non-health context, were also examined and this revealed that the literature on incentives to date has shown relatively disparate results, especially in relation to long-term behaviour change. In relation to health, this can be largely attributed to the complexity of the behaviours targeted.

Chapter 6: Pilot studies

Aim of this chapter: To examine two different pilot studies to determine the effectiveness of 1) positively and negatively framed messages and 2) the offer of an incentive on participation rates in a disease management program.

Pilot Study One: Australian Health Management (ahm)

Aim of this pilot study: To determine the effectiveness of two different types of incentives upon re-enrolment rates in either the ‘Living with Arthritis’ or ‘HealthCheck’ program.

Members of a private health insurance company who were due for re-enrolment in either the ‘Living with Arthritis’ or ‘HealthCheck’ programs were offered a small incentive upon re-enrolment. The pilot study tested two types of incentives; a small non-monetary gift and the chance to enter a competition prize draw to win a large

monetary prize. This aimed to determine the effectiveness of different types of incentives on re-enrolment rates. The pilot study found that the provision of an incentive increased re-enrolment rates, however, little difference was found between the gift and competition conditions. Thus, the probability of winning a big prize was equally as attractive as the sure option of gaining a small gift.

Pilot Study Two: University of Wollongong

Aim of this pilot study: To determine the effectiveness of message framing and incentives in persuading students to join a hypothetical disease and risk management program, Total Wellbeing.

The second pilot study was conducted with first and second year undergraduate students to determine the effectiveness of message framing and incentives on intentions to participate in a hypothetical health program, Total Wellbeing. Students were asked to read a letter inviting them to join the Total Wellbeing program from one of three sources; their private health insurance company, employer or local area health service, and then complete a questionnaire. The results of the study found that both the use of positively and negatively framed messages and the offer of an incentive were ineffective in persuading students to join Total Wellbeing. However, the source of the letter was found to be an influencing factor with students invited by their private health insurance company less likely to join compared to those students invited by their employer or local area health service.

Chapter 7: Stage One

Aim of this chapter: To determine the effectiveness of positively and negatively framed health messages, coupled with an incentive, on enrolment rates in Total Health for members who have completed their Health Risk Assessment.

The main study was conducted with members of a private health insurer, Australian Health Management. Currently at ahm, members need to first complete a health risk assessment before they are offered enrolment in the company's disease and risk

management program, Total Health. Stage One of the study tested the effectiveness of positively and negatively framed messages, coupled with an incentive, on enrolment rates in the Total Health program among members who have completed their health risk assessment. In addition, these members were invited to join the Total Health program by either an invitation letter or an invitation phone call to determine the most effective mode of communication. The results of the study found that both the use of positively and negatively framed messages and the offer of an incentive were ineffective in increasing enrolment rates in the Total Health program. However, analysis of the health risk assessment results revealed that gender, age, body mass index and regular screening for cervical or breast cancer did significantly influence uptake rates.

Chapter 8: Stage Two

Aim of this chapter: To determine the effectiveness of positively and negatively framed health messages, coupled with an incentive, on enrolment rates in Total Health for members who have not completed their Health Risk Assessment.

The methodology for Stage Two of the study mirrors that of Stage One with the only difference being the make-up of the sample population. Members in Stage Two of the study have not completed their health risk assessment and this aimed to determine whether or not the health risk assessment acts as an impediment to enrolment. Similar to Stage One, the results for Stage Two found that both the use of positively and negatively framed messages and the offer of an incentive were ineffective in increasing uptake rates in the Total Health program. However, mode of communication was found to significantly influence enrolment rates with more members who received the invitation letter joining the Total Health program than those who received the invitation phone call.

Chapter 9: Discussion

Aim: To draw upon the two pilot studies and stage one and stage two of the main study and reflect upon the effectiveness of message framing and incentives in increasing uptake rates in disease and risk management programs.

This chapter draws together all the stages of the study and examines and reflects upon them collectively. From this, it is recommended that:

1. A greater emphasis be placed on the use of tailored messages, as opposed to message framing.
2. Different monetary values of incentives should be tested to determine the most optimum level. In addition, pre-paid incentives and non-monetary incentives that reinforce the promoted behaviour should also be further examined.
3. Members should be provided with written information and given the time to absorb this information before being invited to join a disease or risk management program.

2.

AUSTRALIA'S HEALTH: A SNAPSHOT

Australians generally enjoy good health with life expectancy at birth approximating 80.6 years (OECD, 2006). However, the nature of illness and disability has changed considerably over the previous century with a shift away from acute infectious diseases towards chronic non-communicable diseases (Australian Institute of Health and Welfare, 2004; Mascie-Taylor and Karim, 2003). This is largely influenced by lifestyle and behavioural factors – most notably sedentary habits, poor diet and smoking, which are increasingly taking a toll on the health of the nation.

This chapter examines the health of Australians. Specifically, it provides an overview of the main chronic diseases in Australia, their causes and how they impact on Australians and the healthcare system. Furthermore, the health of Australians will be compared to other OECD nations to enable a complete health profile of Australians to be ascertained.

2.1 HEALTH OF AUSTRALIANS

According to the Australian Institute of Health and Welfare, Australians can expect to enjoy good health for about 90 percent of their life-span, with the remaining 10 percent of their time spent with illness or disability (Australian Institute of Health and Welfare, 2004).

The majority of Australians consider themselves to be in good health. The 2004 National Health Survey revealed that 56 percent of people aged 15 years and over rated their health as very good or excellent compared to 52 percent in 2001 (Australian Bureau of Statistics, 2006). However, despite the high quality of life, health inequalities still exist.

2.1.1 Health Inequalities

Health inequalities can be defined as “systematic differences in health status between different groups in the population” and this usually occurs as a result of socioeconomic position, ethnicity or sex (Wilson, Oldenburg and Lopez, 2003: 231). These inequalities can exist even in the richest countries where the better-off can live several years longer and have fewer illnesses than the poor. Hence, lifestyle and the conditions in which people live and work can strongly influence their health and longevity (Wilkinson and Marmot, 1998).

In Australia, people from lower socio-economic groups and indigenous Australians, on average, experience significantly poorer health as outlined below.

2.1.1.1 Socio-economics

The relationship between health inequalities and socio-economic status is well-documented (Najman, 1993; Walker and Peterson, 2003) with research finding that “people who are poorer, or socially disadvantaged in other ways, live shorter lives and suffer more illness than those who are well off” (Australian Institute of Health and Welfare, 2004: 206). This is largely due to differences in risk behaviour. Those in lower socio-economic groups are more likely to be physically inactive and obese and more likely to smoke and consume inadequate quantities of fruit and vegetables (Australian Institute of Health and Welfare, 2004).

In Australia, the mortality burden for people living in the most disadvantaged quintile is 41 percent higher for males and 26 percent higher for females than those in the least disadvantaged quintile (Australian Institute of Health and Welfare, 2002₁).

2.1.1.2 Indigenous Australians

There is a significant gap between the health status of indigenous and non-indigenous Australians, with the former suffering from significantly worse health (Booth and Carroll, 2005). Indigenous Australians are more likely to experience disability and reduced quality of life associated with poor health, as well as die at a younger age with mortality rates for

35 to 54-year-old indigenous Australians five to six times higher than those of non-indigenous Australians (Australian Institute of Health and Welfare, 2002₁). Furthermore, overall life expectancy rates for indigenous Australians are roughly 20 years less than that of non-indigenous Australians. The average life expectancy for indigenous males is 56 years and 63 years for females (Australian Bureau of Statistics, 2004).

2.1.1.3 Structural influences

In addition, structural influences such as poverty, unemployment and education also have the potential to adversely impact on the health of Australians.

Poverty: “Poverty and ill-health are intertwined” (Wagstaff, 2002). Hence, health is largely influenced by the environment in which one lives and those living in poverty often lack the resources needed to make healthy decisions, especially in relation to smoking, drugs, alcohol, diet and exercise (Schrader, 2004; World Health Organization, 2006).

Unemployment: Research shows there is a causal relationship between health and unemployment, that is, poor health causes unemployment and vice versa (Mosser, Goldblatt, Fox and Jones, 1987; Ross and Mirowsky, 1995 and Mathers and Schofield, 1998). In Australia, unemployed men and women aged 25-64 years were twice as likely to rate their health as poor or fair (as opposed to good or excellent) and 30-40 percent more likely to suffer from serious chronic conditions than their employed counterparts (Mathers and Schofield, 1998).

Education: International research shows there is a positive correlation between education and health (Ross and Wu, 1996). Low levels of educational attainment are therefore associated with poorer psychological functioning, including less mastery, efficacy and happiness, as well as less optimal health behaviours (for example, increased tobacco consumption) and greater symptoms of illness (Kubzansky, Berkman, Glass and Seeman, 1998 and Ross and Wu, 1996).

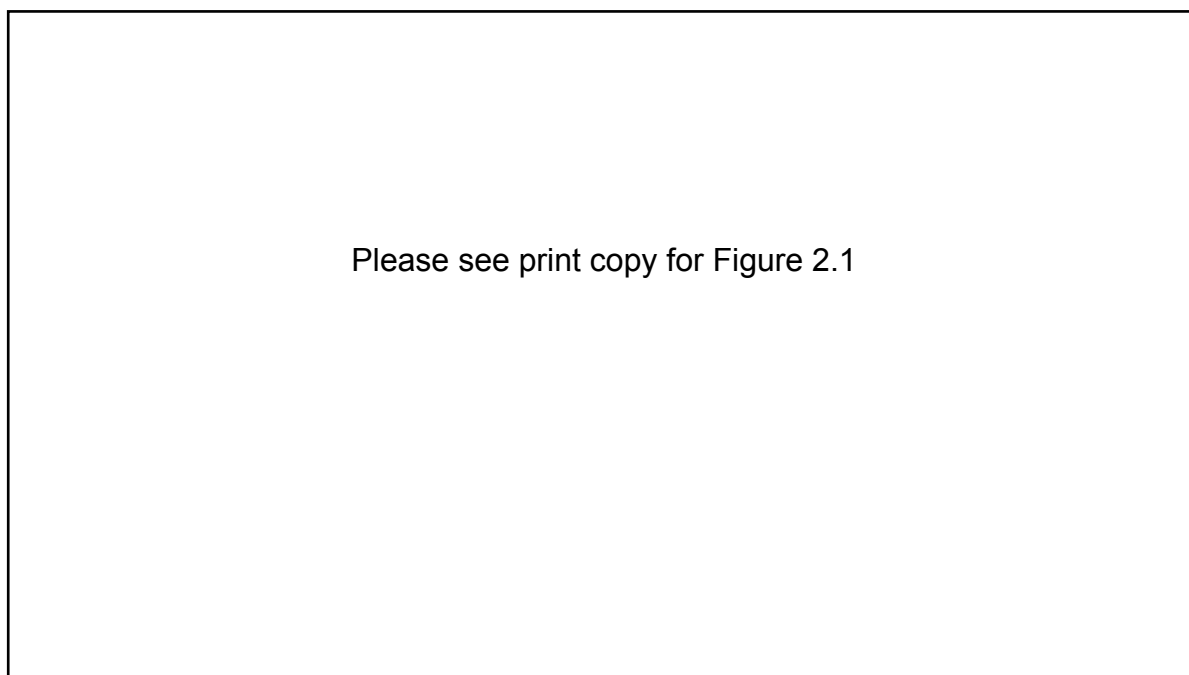
2.1.2 The Health of Australians Compared to Other OECD Nations

On an international comparison, Australians are generally healthy. They have the fourth highest life expectancy rate among nations in the Organisation for Economic Co-operation and Development (OECD), following only Japan, Switzerland and Iceland. At 80.6 years, the life expectancy of Australians is some two years above the OECD average (OECD, 2006). Australia is also marginally above the OECD average for healthcare spending, both as a percentage of GDP and on a per capita basis. Currently, healthcare spending in Australia is 9.2 percent of GDP while the OECD average is 8.9 percent (Figure 2.1) (OECD, 2006). Australia's healthcare spending is lower than that of the United States (16.3 percent) but higher than that of New Zealand (8.4 percent) and the United Kingdom (8.3 percent) (OECD, 2006).

One significant health improvement among Australian adults has been the reduction in daily smokers over the past 25 years. Today Australia has one of the lowest tobacco consumption rates among OECD nations (OECD, 2006). Tobacco smoking rates halved in Australia over the two decades from 35.4 percent in 1983 to 17.7 percent in 2004 (OECD, 2006). Unfortunately this is offset by an increase in overweight and obesity, which has more than doubled in that time and is currently 60 percent and 21.7 percent respectively (Bradley and Pollard, 2003; OECD, 2006; Australian Institute of Health and Welfare, 2004).

The lag between the onset of obesity and related health problems, most notably type 2 diabetes, cardiovascular disease and asthma, will inevitably increase healthcare costs (OECD, 2006). Compared to other OECD nations, Australia's obesity rate remains lower than that of the United States (30.6 percent) but roughly equal to that of New Zealand (20.9 percent) and Canada (22.4 percent) (OECD, 2006).

Figure 2.1: Healthcare expenditure among OECD nations (as a percentage of GDP)



(Source: OECD, 2006)

2.2 MAIN CHRONIC DISEASES IN AUSTRALIA

Currently in Australia, three million people suffer from one or more chronic diseases and this is expected to increase to three and a half million by 2016 (Department of Health and Ageing, 2007), with the most common being cardiovascular disease, some forms of cancers, diabetes, asthma and mental illnesses such as depression (Australian Institute of Health and Welfare, 2004).

Table 2.1 examines the top 10 chronic diseases affecting Australians – their prevalence, risk factors and estimated impact on the healthcare system. From this table, it can be seen that chronic diseases affect a large proportion of Australians with the vast majority caused by modifiable risk factors. For example, 60 percent of Australians carry excess weight, the impact of which is partially reflected in the diabetes rate with over one million sufferers in Australia (Australian Institute of Health and Welfare, 2005). There is a positive correlation between obesity and diabetes in Australia with the number of diabetes cases predicted to

significantly increase over the next two decades (Health Institute of Australia, 2005). It is estimated that by 2010, 1.23 million Australians will suffer from diabetes and this is forecasted to escalate to 2.8 million by 2025 (Health Institute of Australia, 2005).

It should also be noted that risk factors are often the precursor to many different chronic conditions. For example, obesity is a risk factor not only for diabetes but also for cardiovascular disease, osteoarthritis, some cancers and many other conditions. Hence it is common for individuals to suffer from multiple chronic conditions; in fact, approximately two-thirds of Australians suffer from two or more chronic conditions, the prevalence of which increases with age (Australian Institute of Health and Welfare, 2006₁). This highlights the importance of programs designed to promote healthy lifestyles, especially for middle-aged people given research showing that much of the disease burden in Australia is caused by chronic illnesses increasing in people aged 45 years and older (Commonwealth of Australia, 2001).

Condition	Description	Prevalence and/or Mortality Rate	Risk Factors	Cost
Cardiovascular disease (Coronary Heart Disease and Stroke)	Cardiovascular disease is a collective term referring to all diseases of the heart and blood vessels, such as coronary heart disease, stroke and vascular disease (O'Brien, 2005).	<p>Prevalence: Affects around 3.67 million Australians. (Australian Heart Foundation, 2004).</p> <p>Mortality: In 2002, cardiovascular disease was the leading cause of death in Australia and accounted for 36.7% of all deaths. One Australian dies approximately every 10 minutes from some form of cardiovascular disease. (Australian Heart Foundation, 2004).</p>	<p>90% of Australians have at least one modifiable risk factor for heart, stroke and vascular disease and 25% have three or more risk factors (Australian Heart Foundation, 2004).</p> <p>These risk factors include:</p> <ul style="list-style-type: none"> • Obesity • Sedentary lifestyle • Cigarette smoking • High blood pressure • High cholesterol • Diabetes <p>(Australian Heart Foundation, 2004).</p>	<p>Cardiovascular disease costs the Australian Government \$3.9 billion annually. (Department of Health and Ageing, 2002).</p>

Condition	Description	Prevalence and/or Mortality Rate	Risk Factors	Cost
Osteoarthritis	Osteoarthritis (commonly referred to as degenerative joint disease) is characterised by the breakdown of joint cartilage causing the ends of the bones to become damaged resulting in pain between the joints (MayoClinic.com, 2005).	Prevalence: In Australia, osteoarthritis affects 3.4 million (16.7%) and this is expected to rise to 20% by 2020 (Karvelas, 2005).	The most significant risk factor is age with the condition significantly increasing in prevalence after the age of 40 in women and 50 in men. Additional risk factors include: <ul style="list-style-type: none"> • Gender, • Genetics • Obesity • Poor nutrition (Sarzi-Puttini et al, 2005). 	In 2000-01, the direct cost of osteoarthritis in Australia was \$1.88 billion or 2.42% of healthcare expenditure (Australian Institute of Health and Welfare, 2004).
Asthma	Asthma is caused when the airways in the lungs narrow, making it difficult to breathe. This often leads to coughing, shortness of breath, tightness in the chest and wheezing (Asthma Australia, 2002).	Prevalence: Australia has one of the highest rates of asthma in the world, with an estimated two million sufferers (Asthma Australia, 2002).	Asthma can be triggered by a variety of different risk factors, including: <ul style="list-style-type: none"> • Colds/flu, physical activity and inhaled allergens (e.g. pollens, mould and dust mites) • Environmental factors (e.g. dust and air pollution) • Some foods • Exposure to cigarette smoke (Asthma Australia, 2002). 	The total cost of asthma in Australia is between \$585 to \$720 million. Depending on the cost estimate, between 45% and 55% of the total cost is due to lost productivity. The remainder is due to medical related costs (National Asthma Council Australia, 2006).

Condition	Description	Prevalence and/or Mortality Rate	Risk Factors	Cost
Diabetes Mellitus (Type 2 Diabetes)	Diabetes is characterised by the pancreas' inability to effectively produce insulin, thereby increasing the concentration of glucose in the blood (American Diabetes Association, 2005).	<p>Prevalence: The number of Australians living with diabetes has doubled since 1980 and today there are over one million sufferers. One Australian is diagnosed with diabetes every 10 minutes</p> <p>Mortality: Diabetes mellitus is the sixth leading cause of death in Australia (Diabetes Australia, 2004).</p>	<p>There are a number of risk factors that predispose people to developing type 2 diabetes, including:</p> <ul style="list-style-type: none"> • Age • Weight • Impaired glucose tolerance • Family history of the disease <p>(International Diabetes Institute, 2006).</p>	The direct annual health care cost for diabetes in Australia is now \$1 billion and this is forecasted to escalate to \$2.3 billion by 2010 (Diabetes Australia, 2004).

Condition	Description	Prevalence and/or Mortality Rate	Risk Factors	Cost
Depression	Depression is an illness that affects one's body, mind and thoughts. There are many types of depression depending on the symptoms, severity and persistence, with the most common being major depression, dysthymia and bipolar disorder (National Institute of Mental Health, 2005).	<p>Prevalence: On average, one in four females and one in six males will experience depression at some point in their life (Beyond Blue, 2005).</p> <p>Currently in Australia depression affects around one million adults each year (Beyond Blue, 2005).</p>	<p>Biological and psychological risk factors include:</p> <ul style="list-style-type: none"> • Family history • Being an adolescent or adult female • High trait anxiety • Negative thought patterns • Avoidant coping styles <p>Environmental and social risk factors include:</p> <ul style="list-style-type: none"> • Poverty and unemployment • Child abuse • Exposure to adverse life events (e.g. bereavement) • Caring for someone with a chronic physical or mental disorder <p>(Australian Institute of Health and Welfare, 2004)</p>	Depression costs around \$3 billion annually in direct and indirect health costs (Hickie, 2004).

Condition	Description	Prevalence and/or Mortality Rate	Risk Factors	Cost
Dementia	Dementia refers to a large group of illnesses that cause a progressive decline in a person's functioning – most notably memory loss, intellect, rationality and social skills that would otherwise be considered normal emotional reactions (Alzheimer's Australia, 2005).	Prevalence: In Australia there are over 170,000 people diagnosed with dementia and this is estimated to rise to 500,000 by 2040 (Parnell, 2005).	Age is the leading risk factor. Dementia affects one in 20 people over the age of 65. People with a family history of dementia are also at greater risk (Alzheimer's Society UK, 2003).	The direct and indirect health cost associated with dementia in Australia is more than \$6 billion (Parnell, 2005).
Colorectal Cancer	Colorectal cancer (also known as bowel cancer) occurs when a malignant growth develops on the inside of the colon or rectum (The Cancer Council NSW, 2005 ₁).	Prevalence: One in 17 men and one in 26 women contract the disease by the age of 75 Mortality: Roughly 90 Australians die from bowel cancer each week (The Cancer Council Australia, 2004)	Age is the leading risk factor as the majority of people who develop colorectal cancer are aged 50 years and over. Additional risk factors include family history of the disease, a diet low in fibre and high in animal fat, and physical inactivity (The Cancer Council NSW, 2005 ₁).	In Australia, colorectal cancer costs roughly \$205 million in healthcare expenditure each year, making it the second most costly cancer (Australian Institute of Health and Welfare, 1998).

		and/or Mortality Rate		
Chronic Obstructive Pulmonary Disease (COPD)	COPD collectively refers to emphysema and chronic bronchitis. It is a slowly progressive disease of the airways that is characterised by a gradual loss of air function (National Heart, Lung and Blood Institute, 2003).	<p>Prevalence: In 2000, almost 300,000 Australians had COPD.</p> <p>Mortality: COPD is the fourth and sixth most common cause of death among Australian men and women respectively (The Australian Lung Foundation, 2004).</p>	<p>The most significant risk factor for COPD is cigarette smoking, which is the primary cause of an estimated 80% - 90% of all COPD cases (Parmet, Lynm and Glass, 2006).</p> <p>A smoker is 10 times more likely than a non-smoker to die of COPD (Parmet, Lynm and Glass, 2003).</p>	<p>The estimated direct and indirect health cost associated with COPD is \$800 million per annum (The Australian Lung Foundation, 2004).</p> <p>Indirect costs include absenteeism, productivity loss, early retirement and increased burden on carers (The Australian Lung Foundation, 2004).</p>
Lung Cancer	Lung cancer occurs when tumours develop on the lungs, disrupting the normal functioning of the lungs. This causes symptoms such as shortness of breath, fatigue, weight loss and neck swelling to occur (The Lung Cancer Organization, 2004).	<p>Prevalence: 1 in 26 males and 1 in 49 females will develop lung cancer by the age of 75 (The Cancer Council NSW, 2005₂).</p> <p>Mortality: 6900 Australians die from lung cancer each year (Australian Institute of Health and Welfare, 2002₂).</p>	Lung cancer is mainly caused by cigarette smoking, which accounts for roughly 90% of all cases. Additional risk factors include passive smoking and exposure to environmental agents (The Cancer Council Australia, 2004).	Lung cancer costs the Australian Government roughly \$107 million per annum in healthcare expenditure (Australian Institute of Health and Welfare, 1998).

2.3 CONTRIBUTING FACTORS

The chronic disease rate in Australia is largely attributed to an ageing population due mainly to an increase in life expectancy and a declining birth rate since World War II (Commonwealth of Australia, 2001).

2.3.1 Ageing Population

Research shows “chronic illnesses increase in prevalence and severity in old age” (Rothman and Wagner, 2003:256) and this is evident in Australia where 80 percent of older Australians (people aged 65 and over) have at least one chronic condition and 50 percent have two or more (Mathers, Vos and Stevenson, 1999). The majority of these chronic conditions can be prevented or postponed primarily through lifestyle changes, with tobacco smoking being responsible for the greatest burden of disease followed by high blood pressure, physical inactivity, high cholesterol and insufficient fruit and vegetable consumption (Australian Institute of Health and Welfare, 2002₂). A study conducted by Gallant and Dorn (2001) found that older adults who engage in poor health behaviours, such as those mentioned earlier, experience 50 percent greater disability and mortality over a 10-year period than those who engage in healthy behaviours.

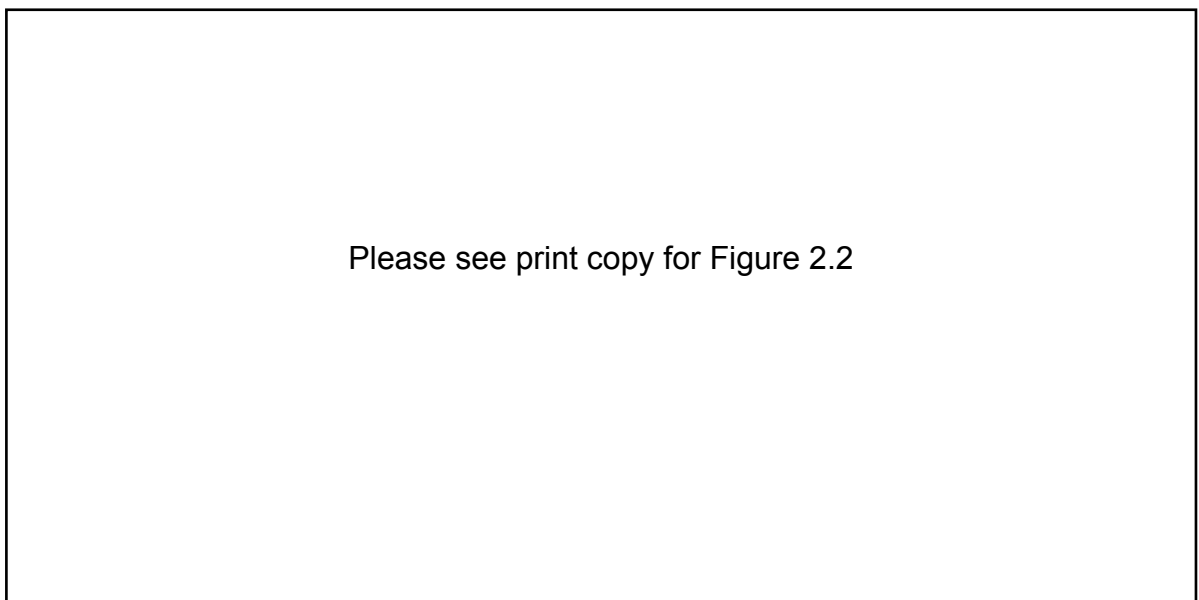
Australia’s ageing population will inevitably have an impact on healthcare; at present 12 percent of Australians are aged over 65 years but this is expected to increase to approximately 16 percent by 2016 (Tongue and Ballenden, 1999). However, the impact of Australia’s ageing population on morbidity rates can be minimised through disease and risk management programs, with evidence suggesting that these programs can help older adults successfully modify their health behaviours, which in turn will have a beneficial impact on their subsequent health status (Newsome, Kaplan, Huguet and McFarland, 2004).

2.3.2 Increasing Life Expectancy

Life expectancy for males increased by 65 percent and females by 63 percent in the 120-year period from 1880 to 2000; currently, the average life expectancy for non-indigenous Australian men is 77 years and 83 years for women (Australian Institute of Health and Welfare, 2006¹, Coory, 2004 and Financial Demographics, 2004). Figure 2.2 depicts the increase in life expectancy from 1901-2000. An increase in life expectancy has the potential to increase the chronic disease rate because it leads to a higher proportion of older Australians who are more susceptible to chronic diseases and this inevitably will have an impact on healthcare expenditure.

In 2002-03, the Australian Government spent 9.7 percent of GDP on health, with healthcare expenditure for people aged 65 years and over accounting for 24 percent of all medical services, 31 percent of pharmaceutical services and 35 percent of acute hospital services (Commonwealth of Australia, 2001). The Productivity Commission (2005) predicts Government expenditure on health will rise to 10.3 percent of GDP in 2044-45 unless action is taken to manage the chronic disease rate among older adults.

Figure 2.2: Australian life expectancy, 1901-2000



(Source: Australian Institute of Health and Welfare, 2007)

2.3.3 Declining Birth Rate

In 1961, when the fertility rate in Australia was at its peak, the average number of children per woman was 3.5 (Weston and Parker, 2002). Since then, factors such as the oral contraceptive pill, delayed first births and changing family structures have resulted in a decline in the birth rate (Weston and Parker, 2002). Today, the fertility rate has fallen to 1.7 babies per woman and this is projected to drop below 1.6 babies per woman (Weston and Parker, 2002). A decline in the birth rate has the potential to increase the chronic disease rate by increasing the proportion of older Australians in the population.

2.4 IMPACT OF CHRONIC DISEASES ON AUSTRALIANS

“The top 10 causes of disease burden in Australia are chronic diseases. These diseases alone account for nearly 43 percent of the total burden of disease in Australia.”

(Australian Institute of Health and Welfare, 2006₂)

2.4.1 Non-Economic Burden

The main non-economic burden associated with chronic diseases is premature disability and mortality.

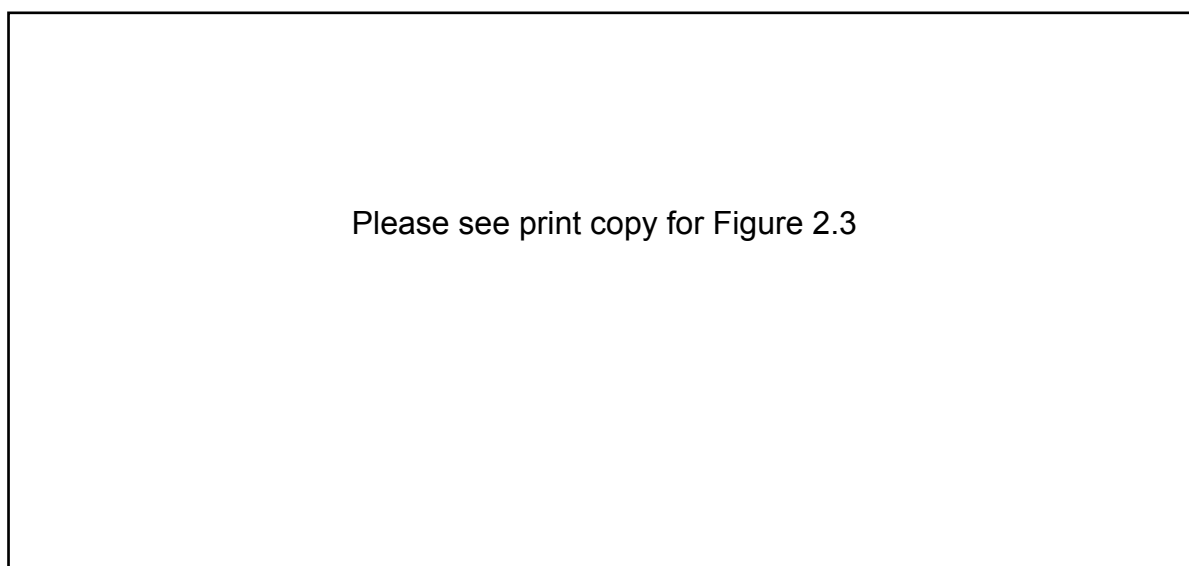
2.4.1.1 Premature disability

In Australia, premature disability (as indicated by years of healthy life lost due to disability – YLD) is responsible for 43 percent of the disability burden in males and 49 percent of the disability burden in females (Van der Weyden, 1999). The main cause of premature disability is mental disorders, such as depression, which accounts for 30 percent of YLD (Van der Weyden, 1999).

2.4.1.2 Premature mortality

In Australia, premature mortality (as indicated by years of life lost – YLL) is responsible for 57 percent of the total burden of disease in males and 51 percent in females (Harper and Kennedy, 2001). The leading cause of premature mortality is ischaemic heart disease, followed by stroke and lung cancer (Figure 2.3) (Van der Weyden, 1999).

Figure 2.3: Top 10 causes of years of life lost in Australia, 1996



(Source: Australian Institute of Health and Welfare, 2004)

2.4.2 Economic Burden

Chronic diseases often cause financial difficulties for individuals, their families and the healthcare system.

2.4.2.1 Impact on individuals and their families

Chronic illnesses often impose a huge financial strain on individuals and their families. For example, a study conducted by Arthritis Australia (2004) found that 69 percent of arthritis sufferers felt that their chronic condition had a negative impact on their income, with roughly a quarter of respondents stating they had to reduce work or stop working altogether due to their arthritis. A survey conducted by the *Chronic Illness Alliance* found a person

living with multiple sclerosis in Australia who earns an average of \$250 a week after tax, spent \$53 – or 21 percent of their income – on health care (Wroe, 2003).

2.4.2.2 Impact on the Australian healthcare system

Australia's healthcare expenditure has been steadily increasing over the past decade and this is largely attributed to chronic diseases and their associated risk factors (Gross, Leeder and Lewis, 2003). Chronic diseases account for approximately 80 percent of the total burden of disease (Weeks et al, 2003) in Australia with ischaemic heart disease the biggest contributor (11 percent), followed by stroke (6.4 percent), chronic obstructive pulmonary disease (5.3 percent), depression (4 percent) and asthma (3.1 percent) (Mathers et al, 1999).

Table 2.2 highlights the six disease groups that accounted for the most health expenditure in Australia in 2001-02 (Australian Institute of Health and Welfare, 2003). During this period, the Australian Government spent \$66 billion (9.2 percent of GDP) on health care – that is, a six percent increase on the previous year (Pirani, 2003).

Table 2.2: Six costliest disease groups in Australia (2001-02)

Please see print copy for Table 2.2

(Source: Australian Institute of Health and Welfare, 2003)

2.4.2.3 Impact on employers

Absenteeism has long been associated with productivity loss in the workplace. However, in recent years, presenteeism has emerged as the new cause of productivity loss. The following section highlights the estimated cost of chronic illnesses to employers from both an absenteeism and presenteeism perspective.

Absenteeism: This refers to productivity loss that occurs when employees do not show up at work, generally due to illness. For example, smoking related absenteeism is estimated to be costing Australian businesses more than \$1.5 billion per annum (Queensland Health, 2005). However, absenteeism not only affects the company, but also other employees due to the increased workload and stress related to compensating for an absent colleague (Health Services Australia, 2002).

Presenteeism: Presenteeism is defined as “the feeling that one must show up for work even if one is too sick, stressed, or distracted to be productive” (Edington, 2004). This has the potential to lead to lost productivity; in the United States presenteeism is estimated to cost organisations \$150 billion annually in both direct and indirect costs (Dixon, 2005). Lost productivity due to presenteeism is, on average, 7 ½ times greater than that lost due to absenteeism (Dixon, 2005). Presenteeism is taxing both on the individual’s health and employer’s bottom line. A study conducted to determine on-the-job productivity losses as a result of disease and chronic illnesses found that hypertension caused the highest overall economic burden (\$392 per employee per year), followed by heart disease (\$368), depression/other mental illnesses (\$348) and arthritis (\$327) (Goetzel et al., 2004).

2.5 SUMMARY

This chapter has provided a snapshot of the health of Australians, which although generally good, is increasingly marred by chronic diseases. This, in turn, is placing a significant strain on both individuals and the healthcare system. For example, cardiovascular disease is considered Australia's greatest health problem contributing to disability and poor quality of life, and killing more people than any other disease (Australian Institute of Health and Welfare, 2006₂). Even more alarming is the increasing prevalence of multiple chronic conditions. One initiative that has been developed to address chronic diseases and their subsequent impact is disease and risk management programs and this will be examined in detail in the subsequent chapter.

3.

DISEASE MANAGEMENT

The World Health Organization (2006) recognises that the disease profile of the world is changing at an astonishingly fast rate with heart disease, stroke and cancer taking the greatest toll on deaths and disability worldwide. Action is needed to address chronic diseases because without action, it is estimated that deaths from chronic diseases will increase by 17 percent between 2005 and 2015 (World Health Organization, 2006). One initiative has been the development of disease and risk management programs, however, despite the known benefits associated with participation in such programs (Lorig and Holman, 2003; Bodenheimer, Lorig, Holman and Grumbach, 2002 and; Musich, Burton and Edington, 1999), participation rates remain relatively low.

This chapter will review two important notions underpinning this thesis: disease management and risk management, and examine why participation rates in disease and risk management programs are below their optimal level. Finally, this chapter will include a brief discussion of a private health insurer, Australian Health Management (ahm), and its disease and risk management program, Total Health.

3.1 CHRONIC DISEASE

Chronic diseases are defined as long-term conditions – generally lasting more than six months – that are non-communicable, involve some functional impairment or disability and are often incurable (Australian Division of General Practice, 2004).

These diseases, while not new, are becoming more prevalent in the 21st century as they begin to dominate the causes of low health status (Australian Institute of Health and

Welfare, 2006₂) and have the potential to significantly impact on a person's life. However, it is believed that many chronic conditions can be managed to minimise the severity of the symptoms and their subsequent impact on individuals and the healthcare system through the implementation and use of disease management programs (Lorig and Holman, 2003).

3.2 DISEASE MANAGEMENT

Disease-management is defined as a “system of coordinated healthcare interventions and communications for populations with conditions in which patient self-care efforts are significant” (Disease Management Association of America, 2004). There are two main approaches to disease-management: risk management (also known as prevention) and long-term disease management (Musich, Burton and Edington, 1999).

Prevention aims to “maintain a symptom and disease free population” (Musich, Burton and Edington, 1999) and this generally involves lifestyle interventions which focus on the behavioural precursors to disease – that is, risk factors such as tobacco smoking, poor nutrition and diet, sedentary lifestyles, binge drinking, unsafe sex and illicit drug use. In addition, prevention also includes medical preventative services and screening tests such as mammograms, cholesterol tests, pap smears and faecal occult blood tests (Musich, Burton and Edington, 1999).

The primary goal of disease-management is to prevent, delay or reduce the severity of the consequences associated with chronic conditions via long-term management of the condition. This generally involves lifestyle and/or behavioural intervention (Musich, Burton and Edington, 1999). Common aspects of disease management programs include: providing individuals and/or helping them acquire disease information, cognitive pain management skills, exercise, training in activities of daily living, social skills training, different forms of counseling and therapy, biofeedback and social support (Newman, Mulligan and Steed, 2001).

3.2.1 Leading Disease Management Models

Two models have emerged for managing chronic diseases: the Chronic Care Model (CCM) and the Chronic Disease Self-Management Program (CDSMP). The majority of disease-management programs developed and implemented generally incorporate elements of these two models.

3.2.1.1 The Chronic Care Model

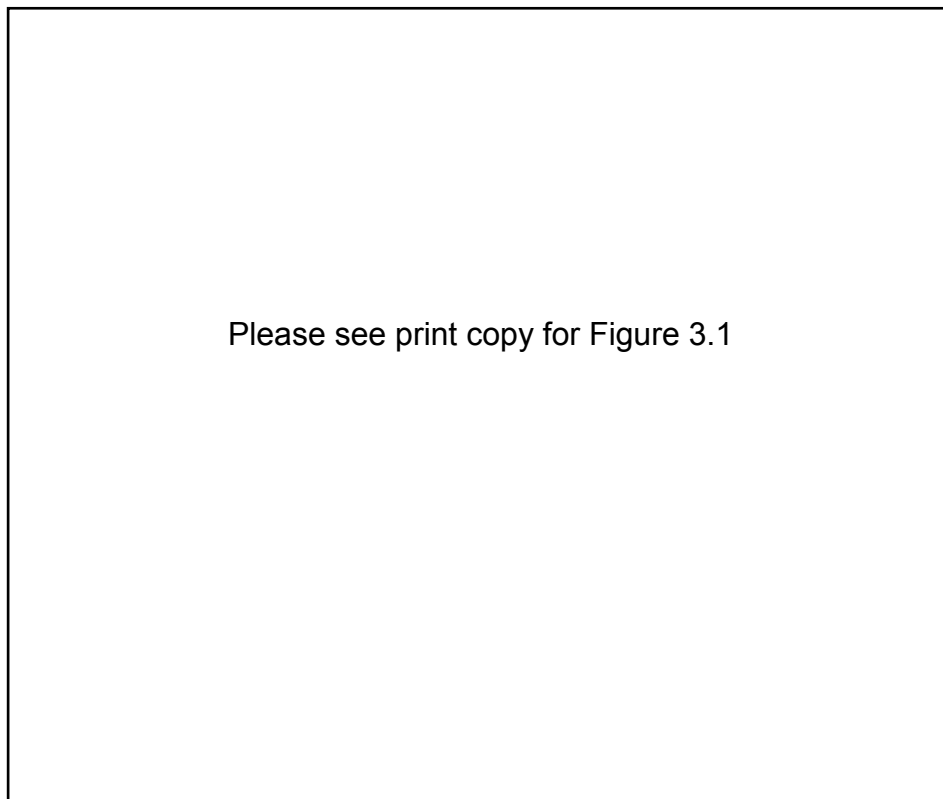
The Chronic Care Model (CCM) was developed by Wagner and associates to help health organisations better improve the care of their members with a chronic illness (Wagner, Austin, Davis, Hindmarsh, Schaefer and Banomi, 2001). The model assumes the locus of care remains with physicians, supported by an integrated practice team (American College of Physicians, 2006) and identifies six essential elements that can be improved to facilitate the delivery of high-quality chronic disease care: the community; the health system; self-management support; delivery system design; decision support; and clinical information systems (ICIC, 2006). These elements (each of which are outlined below) work together to achieve the goal of improved outcomes for patients living with a chronic disease (Figure 3.1).

- 1 *The community* – This element posits that health systems should utilise and take advantage of community-based programs and resources (ICIC, 2006).
- 2 *The health system* – This element examines the organisation of healthcare and is concerned with identifying best practice and with creating the policies and organisations that allow best practices to thrive (ICIC, 2006).
- 3 *Self-management support* – This element views the patient as the principal care-giver (Bodenheimer, Wagner and Grumbach, 2002); hence, successful self-management requires active collaboration between patients and health-care providers (ICIC, 2006).
- 4 *Delivery system design* – This element posits that effective chronic illness management requires more than just adding interventions to the current system; thus changes in delivery system are often needed to ensure effective

care management (ICIC, 2006).

- 5 *Decision support* – This element posits that evidence-based protocols are needed to guide decisions about patient care (ICIC, 2006).
- 6 *Clinical information systems* – This element posits that effective information systems can measure the success of treatments across populations and deliver reminders about care for individuals (ICIC, 2006).

Figure 3.1: The chronic care model



Source: Wagner, 1998

The underlying foundation of the CCM is successful patient and health-care provider interaction which is best achieved when patients are empowered with the information, skills and confidence needed to encourage and enhance their involvement with their practice team (Wagner, Austin, Davis, Hindmarsh, Schaefer and Banomi, 2001).

A systematic review of 39 diabetes programs utilising elements of the CCM was conducted to determine the extent to which the model can help diabetes sufferers manage their chronic condition (Bodenheimer, Wagner and Grumbach, 2002). Overall, the review examined four of the six main components of CCM (self-management, decision support, delivery system design and clinical information systems); health care organisations and community resources were not assessed (Bodenheimer, Wagner and Grumbach, 2002). The study found that 32 of the interventions improved at least one process or outcome measure for patients with diabetes such as periodic measurement of hemoglobin (Bodenheimer, Wagner and Grumbach, 2002). The study did not establish which component or combination of components was most effective (Bodenheimer, Wagner and Grumbach, 2002).

3.2.1.2 Chronic Disease Self Management Program

Developed in 1990 by Kate Lorig and her team at Stanford University's School of Medicine, the Chronic Disease Self-Management Program (CDSMP) aims to increase the patient's self-efficacy and confidence in managing his/her chronic condition(s) by addressing the core challenges and coping issues encountered by patients with specific chronic conditions. The core challenge and coping issues include management of pain, fatigue, sleeping problems, anger and depression (Sobel, Lorig and Hobbs, 2002). The program is delivered by trained and/or lay leaders over a six week period, 2 ½ hours each week, in community settings such as senior centres, libraries and hospitals with people afflicted by different chronic conditions attending together (Stanford Education Research Center, 2006).

Evaluation of the CDSMP was carried out at six-months and two years. The six-month randomised clinical trial involved 952 patients diagnosed with one or more of the following conditions: heart disease, lung disease, stroke and/or arthritis. The results demonstrated that participants in the CDSMP program had several improvements compared to the control group including fewer hospitalisations ($p < 0.01$), less fatigue ($p < 0.03$), less disability ($p < 0.02$) and improved self-reported health status ($p < 0.02$) (Sobel, Lorig and Hobbs, 2002). Results of the two-year longitudinal study revealed that

participants showed a significant reduction in health distress ($p < 0.001$) compared to their baseline status, increased perceived self-efficacy and had fewer physician and hospital visits ($p < 0.36$) (Sobel, Lorig and Hobbs, 2002).

In addition, the CDSMP was delivered to patients from various Kaiser Permanente hospitals and clinics ($n=613$) with an evaluation being conducted at the end of the first year (Lorig, Sobel, Ritter, Laurent and Hobbs, 2001). Overall, 80 percent of program participants completed the evaluation questionnaire ($n=489$, mean age 62.2 years, 27 percent male) with results showing statistically significant improvements in seven of the nine health status measures: fatigue, shortness of breath, pain, social activity limitation, illness intrusiveness, depression and health distress (Lorig, Sobel, Ritter, Laurent and Hobbs, 2001). Furthermore, participants experienced improvements in health behaviours including exercise, cognitive symptom management and better communications with physicians as well as self-efficacy (Lorig, Sobel, Ritter, Laurent and Hobbs, 2001). Evidence also suggests that participation in CDSMP can lead to a reduction in healthcare costs – estimated to be \$990 per program participant in the first year as a result of a reduction in emergency room visits (average fewer 0.2 visits, $P=0.01$) and fewer hospitalisations (mean reduction of 0.97 days, $P=0.08$) (Lorig, Sobel, Ritter, Laurent and Hobbs, 2001).

3.2.2 Theoretical Foundations of Disease-Management Programs

Disease management programs, such as CCM and CDSMP, are largely based on the notion of self-management which is successfully achieved through enhanced self-efficacy; hence, these two concepts often form the underlying foundation of disease-management programs. Self-management refers to the actual act of taking action and assuming responsibility for one's chronic disease, while self-efficacy refers to an individual's level of confidence to effectively do so. These constructs enable individuals living with a chronic condition to actively manage their disease and disease related problems.

3.2.2.1 Self-management

Self-management is concerned with getting patients to take responsibility for their own chronic conditions by making them active participants in their treatment (Lorig and Holman, 2003). This is achieved by providing patients with the skills needed to “manage the symptoms, treatment, physical and psychosocial consequences and life-style changes inherent in living with a chronic condition” (Newman, Steed and Mulligan, 2004:1523). Overall, there are five core self-management skills: problem-solving; decision making; resource utilisation; forming a patient/health care provider relationship and taking action (Lorig and Holman, 2003). Acquisition of these skills enable individuals living with a chronic condition to be actively involved in the management, control and treatment of their condition and its subsequent effect on their lives (Edworthy, 2000 and Newman, Steed and Mulligan, 2004). These skills allow individuals to be better equipped to confidently carry out the three main tasks commonly associated with self-management:

1. *Medical management of the condition:* This involves adhering to medical advice and medical regimens, such as taking medication or following a special diet (Lorig and Holman, 2003)
2. *Maintaining, changing or creating new meaningful behaviours or life roles:* For example, people with back pain may need to adjust the way they perform certain activities, such as gardening (Lorig and Holman, 2003).
3. *Dealing with the emotional sequeli of living with a chronic condition:* Since emotions such as anger, fear, frustration and depression are commonly experienced by persons with chronic diseases, learning to manage these emotions becomes part of the work required to manage the condition (Lorig and Holman, 2003).

3.2.2.2 Self-efficacy

The original definition of self-efficacy, as coined by Bandura, is “beliefs in one’s capabilities to organise and execute the courses of action required to produce given attainments” (Bandura, 1997:3). In relation to disease management, self efficacy refers to an individual’s confidence in his or her ability to take action and manage his or her own

chronic condition (Glanz, Rimer and Lewis, 2002). This in turn will result in better decision-making processes and stronger motivation and perseverance to carry out self-management initiatives (Agency for Healthcare Research and Quality, 2002). According to Clark and Dodge (1999), self-efficacy plays an important role in disease-management and “the greater the self-efficacy, the greater the likelihood that the behaviour will be repeated” (Clark and Dodge, 1999:74).

Self-efficacy is both context specific and behaviour specific. People can therefore judge themselves efficacious across a wide range of activities or only in certain domains of functioning (Bandura, 1997). For example, a person may consider themselves a confident swimmer at the pools but not at the beach.

Bandura (1997) has identified five ways of developing self-efficacy: enactive mastery experience; vicarious experience; verbal persuasion; psychological and affective states; and integration of efficiency information. The sources most relevant to successful self-management are enactive mastery experience, vicarious learning and verbal persuasion (Lorig and Holman, 2003). Interventions used to increase self-efficacy aim to target each of these sources and one of the most well known examples is the Chronic Disease Self-Management Program (CDSMP) (Jerant, von Friederichs-Fitzwater and Moore, 2005).

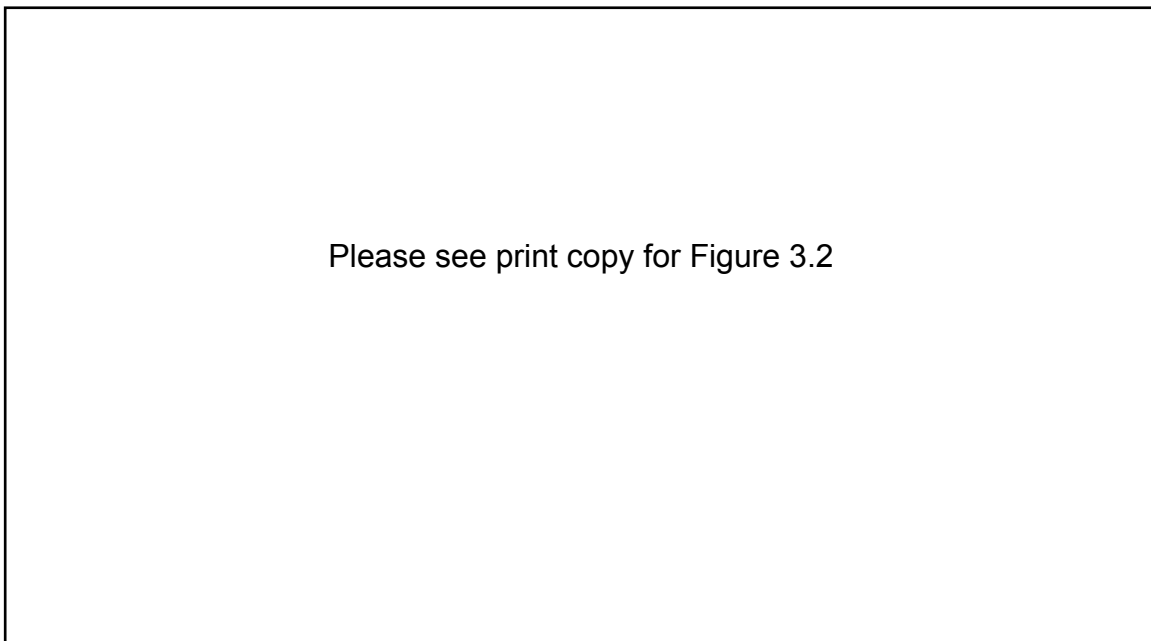
1. *Enactive mastery experience*: This is the most important factor in determining self-efficacy because it provides the “most authentic evidence of whether one can muster whatever it takes to succeed” (Bandura, 1997: 80). Hence, if a person engages in self-management behaviours and succeeds, his or her self-efficacy will increase and he or she is more likely to continue that behaviour compared to someone who has tried but failed.
2. *Vicarious experience*: This is also known as modeling and can promote a sense of self-efficacy by enabling people to assess their own capabilities in relation to others and/or learn by watching (Bandura, 1997). For example, a person may see his/her family members lose weight and as a result, have a stronger sense of belief that they can too.

3. *Verbal persuasion:* Encouragement from others increases self-efficacy because “it is easier to sustain a sense of efficacy, especially when struggling with difficulties, if significant others express faith in one’s capabilities” (Bandura, 1997: 101).

The importance of self-efficacy is illustrated in a study that was conducted to examine the role of self-efficacy among a sample of 570 older women (mean age 71.8 years) with heart disease (Clark and Dodge, 1999). The study found that self-efficacy acted as a predictor of disease-management behaviours ($p < 0.05$) such as taking medicine as prescribed, getting adequate exercise, managing stress and adhering to a special diet (Clark and Dodge, 1999). The study concluded that self-efficacy is important because it acts as a starting point for interventions aimed at enhancing disease-management behaviours (Clark and Dodge, 1999).

Figure 3.2 highlights the impact of disease-management programs on self-efficacy and its subsequent impact on people’s self-management behaviours.

Figure 3.2: Disease-management and self-efficacy



3.2.3 Expected Outcome of Disease-Management Programs

Disease management programs were developed to overcome many of the burdens associated with chronic diseases. Hence, disease-management programs were designed to provide many benefits for individuals, the healthcare system and employers (generally in the United States where health insurance is predominantly employer based) at a time when chronic diseases were escalating in prevalence.

3.2.3.1 Individuals

Disease management programs were developed to reduce the morbidity rate for those with chronic illness(es) by augmenting the traditional episodic medical care system with services and support between doctor visits (Linden and Roberts, 2004). Thus it is expected that disease management programs would “improve the quality and cost of care for patients with chronic diseases” (Ofman et al., 2004).

3.2.3.2 Healthcare system

Disease management programs were developed in an effort to reduce health service utilisation during an era of cost constraints and performance expectations (Linden and Roberts, 2004; Wagner et al., 2002). For example, The Boston Consulting Group estimates that disease management programs aimed at helping asthma sufferers better manage their condition could save approximately 25 percent in healthcare costs (Todd and Nash, 1997).

3.2.3.3 Employers

In the United States, employers are adopting disease management programs in an effort to slow down health care premium increases because it is estimated that anywhere between 60-70 percent of an employer’s health plan costs can be attributed to chronic conditions (Ham and Ferrera, 2006).

Table 3.1 identifies the expected outcomes of disease management programs for individuals and the healthcare system. Disease-management programs attempt to achieve

the outcomes outlined in Table 3.1 in three main ways: by accurately identifying those individuals living with a chronic disease or those at high risk of developing a disease; by encouraging high-risk individuals to participate in disease-management programs and; by providing physician and patient interventions to influence health behaviour change (Linden and Roberts, 2004).

Table 3.1: Expected outcomes associated with disease management programs

Expected Outcome	Rationale	Beneficiary
Improved life-expectancy	Self-management initiatives have the potential to reduce the severity of the condition and/or acute episodes from occurring. Furthermore, disease management programs also enable difficult conditions to be managed in an effort to avoid emergency room visits.	Individuals
Prevent deterioration of the chronic condition		
Reduce severity of the chronic condition		
Reduced hospitalisations		
Reduced emergency room visits		
Reduced healthcare costs	It is assumed that by providing individuals with support between doctors' visits, the cost of care can be reduced (Linden, Adams and Roberts, 2006). Cost reduction generally occurs as a result of reduced emergency room visits and hospitalisations associated with disease-management programs.	Healthcare system
Closing the care gap	Disease-management programs are believed to close the care gap by providing individuals living with a chronic disease with support and services between doctor visits – thus improving the quality and consistency of care (Linden, Adams and Roberts, 2006).	Individuals
Increased self-efficacy and confidence in an individual's ability to manage their chronic condition	Disease-management programs provide individuals with the skills and confidence needed to manage his/her own chronic condition effectively (Lorig and Holman, 2003).	Individuals

Expected Outcome	Rationale	Beneficiary
Improved knowledge about the chronic condition	This is achieved via patient education about their condition	Individuals
Improved adherence to medical advice	It is presumed that enhanced disease knowledge and a better relationship with healthcare providers as a result of disease-management will lead to improved adherence with medical advice.	Individuals

3.2.4 Impact of Disease Management Programs

There has been an ‘explosion’ of disease management programs over the past few years, largely in response to the increasing incidence of chronic diseases (Wagner, Davis, Schaefer, Von Korff and Austin, 2002). Chronic diseases represent a major burden to individuals and the community at large in terms of financial costs, usage of resources and quality of life factors (Lindler, Menzies and Kelly, 2003). Disease management programs aim to overcome many of these burdens via successful management of the chronic condition which, in turn, improves the individual’s quality of life and reduces the economic burden associated with chronic conditions.

Many positive outcomes have been reported in relation to disease-management programs. Despite this, Linden, Adams and Roberts (2006) believe there is “still much uncertainty as to (its) effectiveness in improving health status and reducing medical costs” (p.141) and this is largely related to the evaluation techniques used to assess disease-management programs. Currently, the majority of evaluations use observational study designs, making them susceptible to various biases such as lack of randomisation that threaten the validity of study findings (Linden and Adams, 2006). Linden and Adams suggest that future evaluations of disease-management programs should use instrumental variables (for example, one’s postcode). These variables are correlated with the disease-management program intervention, but not with the unobserved confounders of program outcome and as a result, provide an unbiased estimate of program effect (Linden and Adams, 2006).

Despite the uncertainty raised by Linden, Adams and Roberts (2006) and Linden and Adams (2006), there is strong evidence supporting the use of disease-management programs. This section examines the current evidence for their impact.

3.2.4.1 Successful management

Disease management programs assist individuals currently living with one or more chronic illnesses to better manage their condition and its associated risk factors by equipping them with the knowledge, skills and confidence needed to manage their

condition and associated problems (Freundin, 2003). By better managing their chronic condition people are better able to achieve a healthy life balance through lifestyle and behaviour changes that together promote confidence and contribute to positive health outcomes (Kelly, Menzies and Taylor, 2003; Wagner and Groves, 2002).

3.2.4.2 Reduce premature mortality

Chronic diseases, while not immediately life threatening, are the most common and leading cause of premature mortality in Australia (Australian Institute of Health and Welfare, 2002₃). McAlister et al. (2004) conducted a systematic review on the effectiveness of disease management programs for heart failure patients and found that these programs were associated with a 25 percent reduction in all-cause mortality when coupled with specialised follow-up by a multidisciplinary team or in a multidisciplinary heart failure clinic (Stewart, Pearson and Horowitz, 1998; Rich, Wittenberg, Leven, Freeland and Carney, 1995).

3.2.4.3 Improve quality of life

Individuals living with a chronic disease regularly find that the physical, psychological and social consequences of their condition have a profound and long-term impact on their quality of life (Australian Institute of Health and Welfare, 2004). Disease management programs are designed to maintain and/or improve the quality of life of individuals living with a chronic condition. This is achieved by reducing the number and severity of complications associated with the condition and thereby reducing premature disability.

Reduce complications: Disease management programs have been shown to reduce the severity of complications associated with living with a chronic disease by providing individuals with the tools needed to successfully manage their condition and minimise further deterioration. This is based on the belief that coordinated and planned intervention early in the life of a chronic condition can slow down its progression and reduce both the frequency and intensity of acute episodes from occurring in the future (Mansfield, 2003).

Reduce disability: Chronic diseases often lead to disability, defined as a condition that “in some ways hampers or hinders a person in terms of their ability to carry out day-to-day activities” (McIntosh and Phillips, 2002). The extent of the disability and its impact on the individual can vary from mild (such as the need to wear reading glasses) to severe (for example, brain injury) (McIntosh and Phillips, 2002). Functional disability and/or cognitive impairment are commonly associated with chronic conditions such as arthritis, stroke, diabetes, coronary artery disease and cancer (Agency for Healthcare Research and Quality, 2002). For example, among a group of 400 cancer patients, more than 90 percent were dependant on another person for assistance with personal care, shopping and transportation (Covinsky et al. 1994). Disease management programs can benefit individuals by reducing the likelihood of premature disability, with results of exercise programs and the Arthritis Self-Management Program showing reductions in pain and disability associated with osteoarthritis for participants compared to non-participants (Grainger and Cicuttini, 2004).

3.2.4.4 Reduce the economic burden

Disease management programs were developed in response to the mounting chronic disease rate and this was primarily fuelled by the need to find an effective means of controlling chronic diseases in an era characterised by cost constraints (Wagner, Davis, Schaefer, Von Korff and Austin, 2002). Hence, “most disease management initiatives are drawn up in the hope of improving care and reducing long-term costs” (Todd and Nash, 1997:6). A systematic review of 25 disease-management programs found that they contributed to reductions in healthcare costs (The American Association of Health Plans 2003); a systematic review of disease management programs for patients with heart failure found that seven out of the eight trials analysed reported cost savings (McAlister, Lawson, Teo and Armstrong, 2001). Furthermore, disease management programs are often deemed viable because they enable a relatively small number of the sickest patients in most populations to be identified and targeted for interventions that will have the greatest chance of affecting health and costs, and thereby have the highest likelihood of being cost-effective (Todd and Nash, 1997:6).

The majority of the cost savings associated with disease management programs generally stems from a reduced need for healthcare services as a result of better self-management and coping strategies, with many studies showing fewer hospital admissions; fewer emergency room visits and lower overall costs for enrollees in disease management programs compared to non-program participants (Rees, 2003; Lorig and Holman 2003; Lorig et al. 1999). For example, 96 patients suffering from Chronic Obstructive Pulmonary Disease (COPD) from seven hospitals in Quebec, Canada, were enrolled in a COPD disease management program. This involved a self-management program being delivered in the patient's home for two months, coupled with a customised action plan, an exercise plan and telephone support. The results of the program showed that compared to patients' usual care, those in the self-management program had fewer hospital admissions (32 percent compared to 51 percent) and fewer emergency room visits (41 percent compared to 63 percent) (Rees, 2003).

3.2.5 Impact of Disease-Management Programs on Specific Chronic Conditions

Disease-management programs have been applied across a broad spectrum of chronic conditions. This section examines their impact on persons with heart failure, arthritis, osteoarthritis, depression and diabetes.

3.2.5.1 Heart failure

A systematic review of disease management programs for congestive heart failure found eight of the nine trials reported lower hospitalisation rates (roughly 22 percent to 45 percent) which in turn reduces healthcare costs (McAllister et al, 2001).

3.2.5.2 Arthritis

Gibson, Ram and Powell (2003) conducted a systematic review of 36 randomised controlled trials to examine the effectiveness of asthma self-management programs on patient outcomes. The review included a total of 6090 participants and found that self-management programs reduced the number of asthma-related hospitalisations, emergency

room visits and unscheduled doctor visits; furthermore, “the effects were large enough to be of both clinical and statistical significance” (Gibson, Ram and Powell, 2003:1039).

3.2.5.3 Osteoarthritis

Self-management programs for osteoarthritis have been associated with physical, psychosocial and health system benefits and this often occurs as a result of increased self-efficacy – resulting in improved functional outcomes (Sharma et al, 2003), improved ability and increased motivation to perform daily-tasks independently (Allegrante and Marks, 2003) and increased perception of self-control (Lindroth et al, 1995).

3.2.5.4 Depression

A systematic review focusing on the effectiveness of disease management programs for depression sufferers found statistically significant improvements in relation to the impact of such programs on the symptoms of depression (effect size= 0.33, N= 24) (Badamgarav et al., 2003). In addition, improvements were also found for “physical functioning, satisfaction with treatment, and adherence to treatment regimens, as well as in the rate of detection of depression, adequacy of treatment with anti-depressants, and outcomes that are influenced by both providers’ and patients’ adherence (Badamgarav et al., 2003:2086). The systematic review concluded, “disease management appears to improve the detection and care of patients with depression” (Badamgarav et al., 2003:2080). No cost savings were reported in the review.

3.2.5.5 Diabetes

A systematic review examining the effectiveness of 72 self-management programs for type 2 diabetes sufferers found evidence supporting the effectiveness of such programs in the short term (Norris, Engelgau and Narayan, 2001). Positive effects were found for knowledge, frequency and accuracy of monitoring blood glucose, self-reported dietary habits and glycemic control in studies with short follow up (<6 months) (Norris, Engelgau and Narayan, 2001).

3.3 RISK MANAGEMENT

Risk management seeks to identify those individuals with one or more risk factors for a chronic disease and address them before they contribute to the development of such a condition. This is important for three main reasons: firstly, an increase in the number of risk factors increases the likelihood of developing a chronic disease; secondly, the societal burden from chronic diseases largely results from the high prevalence of multiple risk factors related to general lifestyle (World Health Organization, 2005); and lastly, without intervention, there is a tendency for the number of risk factors and their magnitude to increase over time. Research examining risk transitions among a sample of 2141 employees of the General Motors Corporation found that of the 69.3 percent (N= 1483) employees classified as low risk (0-2 risks), 22.6 percent (N= 483) became medium risk (3-4 risks) and 8.2 percent (N= 175) became high risk (5 or more risks) over a five year period from 1996-2001 (Musich et al., 2003).

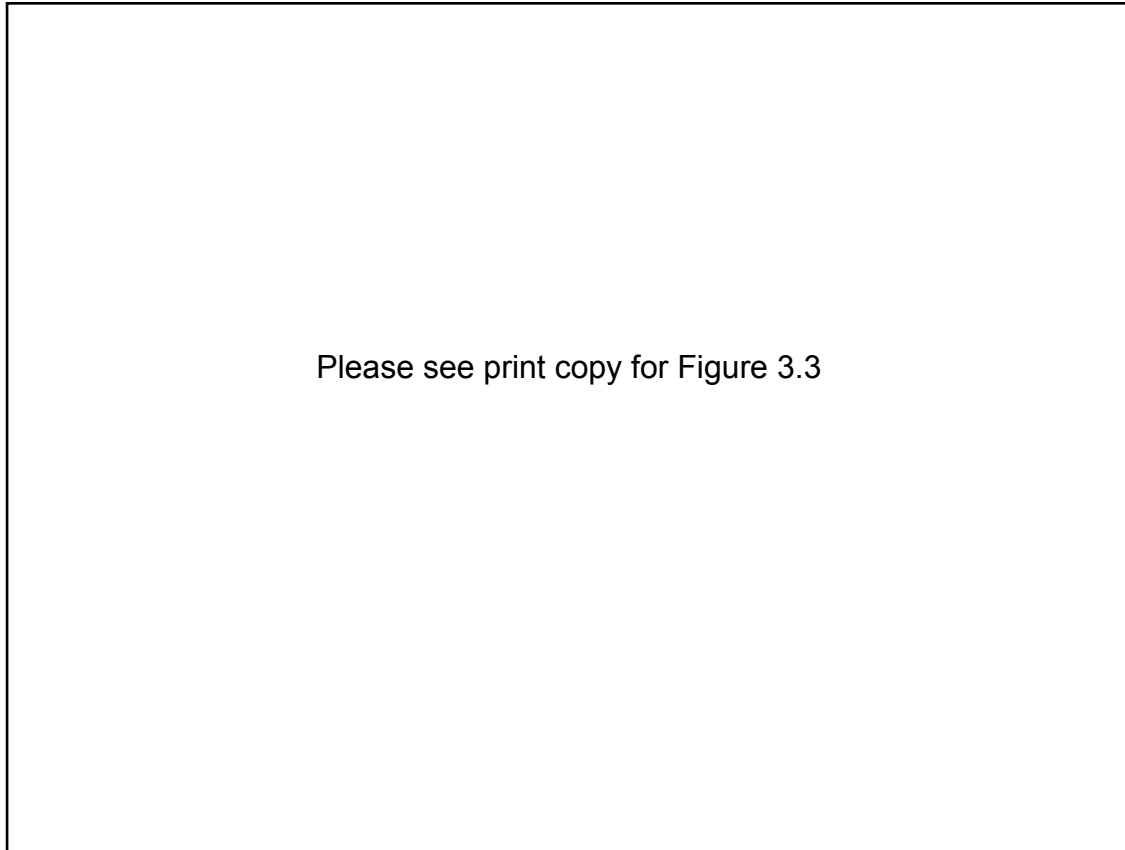
3.3.1 Risk Factors Targeted by Risk Management Programs

Risk factors are defined as “a range of health-related behaviours and conditions that can increase the risk of a health disorder or other unwanted condition or event” (O’Brien, 2005:2). The Australian Institute of Health and Welfare (AIHW) has categorised the risk factors associated with chronic diseases into three groups – behavioural, biomedical and broad influences (2001). Figure 3.3 highlights the relationship between risk factors and chronic diseases. These risk factors are not independent of each other and as a result, multiple factors are almost always a contributory cause in the development of a chronic disease (Australian Institute of Health and Welfare, 2002₃).

Risk-management programs generally focus on behavioural and biomedical risk factors because they are avoidable or modifiable and (for which) there is potential for health gain through early prevention or appropriate management (Australian Institute of Health and Welfare, 2002₃). The majority of risk-management programs therefore focus on lifestyle changes, such as diet and exercise. Broad influences are rarely targeted by risk

management programs because they are generally beyond the scope of the program.

Figure 3.3: Relationship of risk factors to chronic disease



(Source: Australian Institute of Health and Welfare, 2002₃)

The World Health Organization (WHO) has specifically identified seven key behavioural and biomedical risk factors associated with the development of chronic diseases: high blood pressure; high cholesterol; obesity; physical inactivity; insufficient consumption of fruits and vegetables; tobacco smoking and alcohol misuse (Pushka, Mendis and Porter, 2003). Hence, a significant proportion of chronic diseases are caused by preventable risk factors (Table 3.2) which are highly prevalent in Australia (Table 3.3). In 2002, three million Australians had one risk factor for a chronic condition and this is expected to increase to three and a half million by 2016 (Department of Health and Ageing, 2007).

Table 3.2: Relationship between various chronic diseases and risk factors

Please see print copy for Table 3.2

(Source: Australian Institute of Health and Welfare, 2002₃)

Table 3.3: Common risk factors associated with chronic diseases in Australia and their prevalence

Please see print copy for Table 3.3

Please see print copy for Table 3.3

Source: Australian Institute of Health and Welfare, 2004

3.3.2 Expected Outcomes of Risk-Management Programs

Risk-management programs generally focus on promoting healthy lifestyle changes in an effort to prevent the onset of chronic disease(s) and improve an individual's quality of life (Table 3.4).

Table 3.4: Expected outcomes of risk management programs

Expected Outcome	Rationale
Help an individual reduce the likelihood of developing a chronic disease	By identifying at-risk adults and addressing the risk factors before they result in the development of a chronic disease
Improve quality of life	Encouraging healthy lifestyle changes prevents, delays and reduces the severity of the onset of a chronic disease.
Improved life expectancy	

3.3.3 Impact of Risk-Management Programs

Risk-management programs are largely focused on addressing the behavioural risk factors associated with chronic disease. Such programs are commonly known as lifestyle interventions because they target everyday activities such as exercise, smoking and diet.

A study conducted to reduce the incidence of type 2 diabetes tested the effectiveness of three different risk-management interventions. These included intensive lifestyle modification (n=1079), standard lifestyle modification coupled with the use of metformin (n=1073) and standard lifestyle modification in conjunction with a placebo pill (n=1082) (Knowler et al., 2002). Intensive lifestyle modification aimed to help participants achieve and maintain a weight reduction of at least seven per cent of their initial weight and engage in at least 150 minutes of physical activity per week. Standard lifestyle modification referred to the provision of written information and an annual 20-30 minute individual session that emphasised the importance of a healthy lifestyle. Participants were

also encouraged to follow the Food Guide Pyramid, reduce their weight and increase their physical activity (Knowler et al., 2002). The study found that the standard lifestyle modification group was the most effective with the incidence of type 2 diabetes being reduced by 58 percent in the placebo group and by 31 percent in the metformin group (Knowler et al., 2002). Furthermore, these effects were similar across gender and all racial and ethnic groups (Knowler et al., 2002).

In the United States, risk-management programs are often implemented in the workplace. One example is the Johnson & Johnson Health and Wellness Program, which was introduced in 1979 with the aim of “improving employee health and productivity” (Ozminkowski et al., 2002). The program is focused on promoting health and preventing disease. Evaluations of the program carried out in the 1980’s and 1990’s showed improved employee health, reduced inpatient health care expenditures, decreased employee absenteeism, and better employee attitudes (Goetzel et al., 2002). In particular, participants in the program showed significant risk reductions in the eight out of 13 risk categories (including: blood pressure, cholesterol and diabetes) examined over an average 3 year period (Goetzel et al., 2002).

3.4 DISEASE AND RISK MANAGEMENT PROGRAMS IN AUSTRALIA

In Australia, disease and risk management programs are primarily offered by private health insurance providers and, as a result, are accessible to about 44 percent of the population (Colombo and Tapay, 2003).

Within the top 10 health insurance providers in Australia, six offer their members disease and/or risk management programs (Table 3.5):

1. *Medibank Private*: Provides private health insurance for over three million members, Medibank Private is considered Australia’s largest private health insurance provider (Medibank Private, 2006).

2. *MBF*: Provides private health insurance for over two million Australians (MBF, 2006)
3. *HCF*: Provides private health insurance for approximately 965,000 Australians (HCF 2006, 2006)
4. *NIB*: Provides private health insurance for approximately 600,000 Australians (NIB, 2006).
5. *Australian Health Management (ahm)*: Provides private health insurance for approximately 250,000 Australians (Australian Health Management, 2006)
6. *Manchester Unity*: Provides private health insurance for approximately 155,000 Australians (Manchester Unity, 2006).

The majority of the programs on offer provide their members with either support for an existing chronic condition (mainly asthma, arthritis and diabetes), that is disease management, or support needed to make the necessary lifestyle changes to prevent the onset of a chronic condition (for example, weight management), that is, risk management.

Table 3.5: Disease management programs offered in Australia

	Is a DM program offered?	Chronic conditions addressed by the disease management program						
		Heart disease	Diabetes	Arthritis	Asthma	Lifestyle	Risk m'ment	Other
Medibank Private	✓ Better Health	✓	✓	✓	✓	✓		COPD
MBF	✓ In2Life program and Protective access	✓	✓	✓	✓	✓		
British United Provident Association (BUPA)	×							

	Is a DM program offered?	Chronic conditions addressed by the disease management program						
		Heart disease	Diabetes	Arthritis	Asthma	Lifestyle	Risk m'ment	Other
HCF*	✓	✓	✓	✓	✓	✓	✓	Stress management, childbirth education and accident prevention (learn to swim and first aid)
HBF	×							
NIB*	✓	✓	✓	✓	✓	✓	✓	First aid program
Australian Unity	×							
ahm	✓ Total Health	✓	✓	✓	✓	✓		Men's health program; pregnancy program
Manchester Unity	✓ Fitness to Live	✓	✓	✓	✓	✓		Maternity and baby program; home recovery support program
Westfund	×							

* Only available under certain health covers/plans

3.5 PARTICIPATION RATES IN DISEASE AND RISK MANAGEMENT PROGRAMS

This section examines factors that affect participation rates in disease and risk management programs for at-risk adults as well as adherence to beneficial health behaviour change recommendations.

3.5.1 The Problem

One of the main problems associated with disease and risk management programs is encouraging at-risk adults and those individuals currently living with a chronic disease to take part. Many studies have identified the difficulties associated with recruiting participants in disease and risk management programs (Foster et al., 2003; Boyce, 2001). The authors of these studies suggest that “participation is reported as being a particularly problematic and complex issue” (Foster et al., 2003: 133).

In addition to low initial participation rates, there is also the problem of low retention and compliance, that is, getting individuals to complete disease and risk management programs and adhere to the recommended health behaviours. Research indicates that “non-adherence rates are often extremely high, particularly for discretionary preventative and diagnostic behaviours such as quit smoking, physical activity and regular breast self-examination” (Meyerowitz and Chaiken, 1987:500). This is because lifestyle behaviours related to health risk factors are often deeply ingrained, making them amongst the most challenging to modify. In order for long-term adherence to occur, individuals need to conduct an evaluation of his/her initial behaviour, weighing up costs and benefits, assessing barriers to change and setting goals (Burke et al, 2002).

3.5.2 Factors affecting initial participation rates in disease and risk management programs

Many factors affect participation rates in disease and risk management programs, ranging from social and demographic factors to personal factors, such as extrinsic motivation (Foster et al, 2003). An awareness and understanding of these factors is essential to enable effective strategies to be developed and implemented to reverse the low participation rates, particularly since it has been acknowledged that one of the main challenges associated with disease and risk management programs is engaging the target population (Foster et al, 2003).

This section examines the main factors affecting participation rates in beneficial disease and risk management programs.

3.5.2.1 Exposure to a chronic condition

Exposure to a chronic condition, either personally or through family and friends can motivate individuals to engage in positive health behaviour change (Jensen and Hietbrink, 1987; Lemon, Zapka and Clemow, 2004)

Personal exposure: This refers to an individual's first-hand experience with a chronic condition. Research has found that people in poor or fair health are more likely to take part in a disease and/or risk management program compared to their healthier counterparts who actively maintain their health (Jensen and Hietbrink, 1987). Participation is therefore related to an individual's health status and how recently he/she received care at a hospital, with individuals who have been hospitalised in the past three years more likely to participate (Jensen and Hietbrink, 1987).

Exposure through family and friends: This refers to an individual's second-hand experience with a chronic condition, generally through close family and friends. Lemon, Zapka and Clemow (2004) conducted a study to examine the impact of recent breast cancer diagnosis on first-degree female relatives (n= 600) and found that exposure

through a close relative can provide women with the motivation to improve their health behavior – especially when the behaviour is perceived as a risk factor for the disease. Forty-two per cent of participants reported improving one or more behaviours, with the most common being physical activity, fruit and vegetable consumption, fat consumption, alcohol and tobacco use (Lemon, Zapka and Clemow, 2004).

3.5.2.2 Health knowledge

Health knowledge can act as a predictor of behaviour, with people who have better understanding of chronic conditions more likely to enrol in a disease and/or risk management program. Research has found that “informed patients are more likely to actively participate in their care, make wiser decisions, come to a common understanding with their physicians, and adhere more fully to treatment” (Epstein, Alper and Quill, 2004: 2359).

Alm-Roijer, Stagmo, Uden and Erhardt (2004) conducted a study to examine the effects of better health knowledge in patients with coronary health disease and found a correlation between knowledge and patient behaviour (Alm-Roijer et al, 2004). Patients with a higher understanding of the risk factors associated with coronary heart disease displayed better compliance to lifestyle changes and treatment with prophylactic drugs after a cardiac event (Alm-Roijer et al., 2004). Specifically, the study found statistically significant correlations between general knowledge about risk factors for coronary heart disease and compliance to lifestyle changes, such as weight loss ($p<0.05$), increased physical activity ($p<0.01$), stress management ($p<0.01$) and dietary changes ($p<0.001$) (Alm-Roijer et al., 2004). However, this was not observed for all risk factors such as blood pressure and smoking for unknown reasons (Alm-Roijer et al., 2004).

Similarly, a study investigating people’s intentions to participate in an HIV/STD prevention program in China ($n=4208$) found that HIV/AIDS awareness and knowledge were significantly associated with willingness to participate ($p<0.01$) (Yang et al, 2004).

Conversely, a lack of knowledge has been associated with poor compliance, feelings of

disempowerment and lack of control (Wright et al., 2003). Better health knowledge can be achieved by improving communication with, and support from, healthcare providers including physicians. This is highly advocated in the Chronic Care Model (Wagner et al., 2001).

3.5.2.3 Socio-economic factors

Socio-economics can represent opportunities or constraints to active self-management and are considered a major situational influence on behaviour (Dean, 1989). The cost of living with a chronic illness can often make participation in disease and/or risk management programs non-feasible, especially when people are forced to give up working as a result of their chronic condition. Common costs associated with participation and active self-management include travel costs to and from the meetings; gym membership to access exercise facilities and equipment; cost of special foods to adhere to dietary changes; and health insurance costs (Jerant, von Friederichs-Fitzwater and Moore, 2005).

3.5.2.6 Pain and/or limited mobility

While individuals may be willing to actively participate in disease and/or risk management programs, physical symptoms such as pain, limited mobility and fatigue may prevent them from doing so (Jerant, von Friederichs-Fitzwater and Moore, 2005).

3.6 AUSTRALIAN HEALTH MANAGEMENT

Roy Johnson, a Wollongong resident, founded the Australian Health Management Group (AHMG) (now known as Australian Health Management, ahm) in 1971 in response to the lack of service he received from his health fund in regards to his daughter's leukemia. Johnson wanted to establish a health fund that "held its members interest above all else". Hence, ahm was established as a not-for profit organisation that is wholly owned and governed by its members. It focuses on the health and wellbeing of its members and the community at large through its provision of insurance and health management services.

ahm's mission is to offer "a balanced mix of insurance and health management products which together promote and sustain long-term good health". ahm is dedicated to providing their members with a comprehensive health service and not just health insurance.

Today, ahm is the eighth largest provider of health insurance in Australia, with over 115,000 members (AHMG Annual Report, 2003). The company is comprised of a series of sub-health funds, including:

- 1 Australian Health Management
- 2 Government Employees Health Fund
- 3 Australian Country Health
- 4 Illawarra Health Fund
- 5 Mutual Health
- 6 Overseas Student Health Cover

Each health fund offers hospital and ancillary products to suit a wide variety of lifestyles and budgets. For example, Australian Country Health caters for people in rural and country areas (AHMG Annual Report, 2003). In addition, hospital support and disease management are provided at no extra cost to all members with hospital cover.

As of February 2005, the Australian Health Management Group consolidated their entire business offering and combined all of their separate health funds into one, known as Australian Health Management.

3.6.1 Total Health

Prior to February 2004, ahm ran a series of risk management and disease management programs targeting a variety of chronic diseases (appendix 3a) and specific programs were offered in the following areas:

1. Living with Arthritis
2. Living with Asthma
3. Living with Diabetes
4. Health Check Program (to help members make healthier lifestyle changes)
5. Heart Check program (to help members manage their cardiovascular problems)
6. Men's Health Program
7. Smart Start Program (which provided women with information and support from pre-conception to their child's second birthday)

Total Health is a complementary program available to all members aged 18 and over. The program is 12 months in duration, and during this time members receive professional support and guidance (via telephone support and regular fact sheets) to help them meet their health goals.

3.6.1.1 Theoretical foundations of the Total Health program

The Total Health program employs telephone support counseling to encourage members to make either a lifestyle behaviour change (for example, lose weight) or a self-management behaviour change (for example, complying with a medication regime) (Iverson, 2003).

The telephone support counseling is based on two theoretical approaches: the stages of change theory and motivational interviewing.

The stages of change theory: This is also called the transtheoretical model. It identifies six stages in the health behaviour change process: precontemplation, contemplation, preparation, action, maintenance and termination. The theory recognises that each person is different and at different stages of readiness to make health behaviour change (Rimer, 2002). Hence, individuals should receive interventions that start at their stage in the behaviour change process (Rimer, 2002).

Motivational interviewing: This is an approach to behaviour change that uses empathic or reflective listening and directive questioning to help members move towards self-defined behaviour change goals (Lewis, DeVellis and Sleath, 2002).

Furthermore, the Total Health program is also based on 10 evidence-based principles (Iverson, 2003):

1. *Agreement on behaviour change policy:* this principle posits that individual should be allowed to select the focus of the behaviour change effort to ensure optimal success.
2. *Decisional balance:* this principle posits that an individual is more likely to engage in the behaviour change when the decisional balance is positive, that is, when the gains associated with the behaviour change outweighs the costs.
3. *Attribution of failure:* this principle posits that an individual to more likely to make subsequent behaviour change attempts when they can attribute past failed attempts to factors outside themselves and/or factors they can change and subsequently avoid.
4. *Goal setting:* this principle posits that goals should be set that are specific, achievable and measurable in order to support behaviour change.
5. *Preferred method of influence:* this principle posits that individuals should be allowed to select the best strategy to achieve behaviour change. This can be in

one of three ways: being told what to do; engaging in behaviour change with other people who have similar goals; or making change without any help except expert advice.

6. *Action plan*: this principle posits that an individual is more likely to engage in behaviour change if an action plan is implemented for each goal highlighting what needs to be done, how it will be done and when it will be done.
7. *Response efficacy*: this principle posits that an individual is more likely to be successful when he/she believes their actions will actually result in the expected benefits/outcomes.
8. *Identification of barriers*: this principle posits that an individual should be encouraged to identify and overcome the major barriers hampering successful behaviour change.
9. *Self-efficacy*: this principle posits that individuals can confidently make behaviour change(s).
10. *Relapse prevention*: this principle posits that an individual is more likely to maintain their behaviour change if they can identify and manage the 'high risk' situations that may make it difficult to maintain the behaviour and/or cause them to revert back to their old behaviours.

The 10 evidence-based principles outlined above are integrated into each telephone support phone call to help members identify, set and maintain a health behaviour change goal.

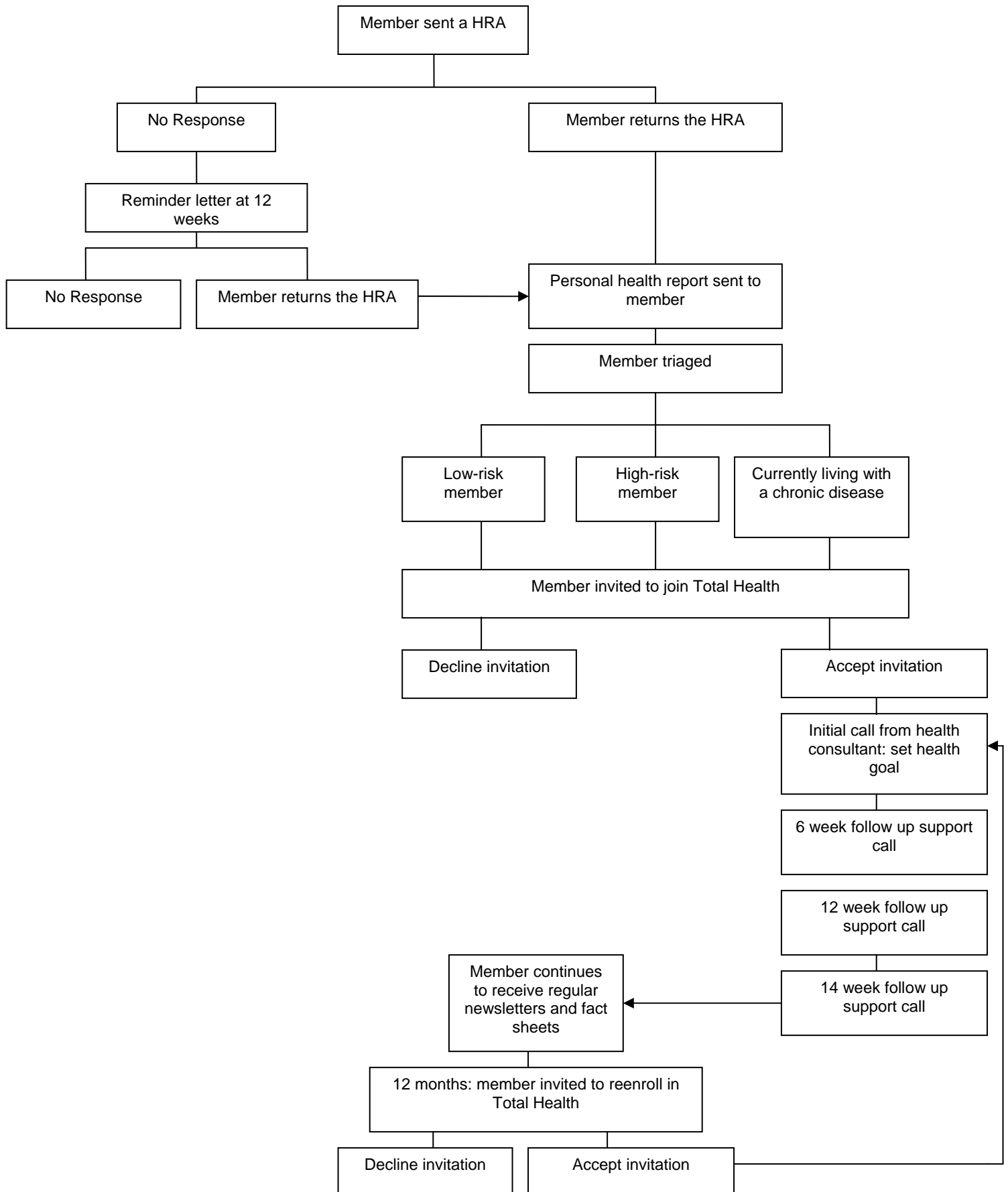
3.6.1.2 Joining Total Health

Enrollment in Total Health begins with the completion of a Health Risk Assessment (HRA) form, which is a health and well-being questionnaire used to assess and profile a member's current health status. The HRA was developed by the Health Management Research Centre at the University of Michigan, and asks a series of questions in relation to diet, exercise, lifestyle and health-related behaviours such as smoking and alcohol consumption patterns (appendix 3b). The HRA was extensively modified for an Australian context prior to its implementation with ahm members.

Based on the HRA results, ahm triages its members into one of three categories: 1) members who currently have a chronic illness; 2) members who are at high risk of developing a chronic illness and 3) members who are at low risk of developing a chronic illness. Special emphasis is placed on those members either currently living with a chronic condition or who are considered at high risk of developing a chronic illness. All members who complete and return their HRA are sent a personalised health report, which provides them with a snapshot of their current health status (appendix 3c), thereby providing them feedback on their current health and quality of life. The report also makes recommendations on specific areas that members can address in order to improve their health. This is followed by a call from one of ahm's lifestyle consultants inviting them to join Total Health.

Members who agree to join the program are then provided with telephone support with the initial call being used to help the member set a health goal. Follow-up calls occur at six, 12 and 14 weeks. These calls aim to motivate members to continue working towards their goals, as well as identify and address any barriers that may impede on their success. After 14 weeks, members are sent regular fact sheets to encourage them to continue working towards their goal, maintain their new health behaviour and, most importantly, prevent relapse from occurring. The program lasts for 12 months, after which time members are provided with the option to reenroll in Total Health and set a new health goal (Figure3.4).

Figure 3.4: Total Health enrolment process



3.7 SUMMARY

This chapter examined the role of disease and risk management programs in preventing and curbing the adverse effects associated with chronic diseases – namely, disease and risk management programs aim to a) address the precursors to the development of chronic condition(s), many of which are modifiable lifestyle behaviours and b) help individuals living with chronic condition(s) to better manage their disease to avoid further deterioration and/or complications in the future.

The use of disease and risk management programs is common in the United States where there is an increasing trend for employers to offer what is termed ‘health and wellbeing programs’. Such initiatives are slowly starting to gain prominence in Australia as healthcare expenditure continues to rise; however, they are generally offered by private health insurance providers (such as ahm) and often characterised by low participation rates. Hence, the biggest challenge is finding effective ways to engage and enrol at-risk adults into beneficial disease and risk management programs. Chapter 4 introduces prospect theory (namely through the use of message framing) as a means of guiding the design of interventions aimed at increasing participation rates and, chapter 5 explores the use of incentives and their impact upon uptake rates in a disease and risk management program.

4.

PROSPECT THEORY

Decision making is a cognitive process that involves evaluating information and reaching a judgment or conclusion based on that information (Harris, Nagy and Vardaxis, 2006). Numerous theories have been developed in an attempt to understand and explain how people make decisions, among them Tversky and Kahneman's prospect theory (1979) which is the focus of this chapter. According to prospect theory, people often have inconsistent preferences when the same choice is presented in different forms – generally through simple changes in wording – and this is known as message framing (Kahneman and Tversky, 1979). The theory posits that people evaluate the consequences of a decision problem on the basis of either potential gains or losses from a particular reference point, generally the status quo, and tend to be risk averse when information is framed positively and risk-taking when information is framed negatively (O'Connor, Pennie and Dales, 1996). However, many studies have tested this basic tenet across a variety of different contexts with conflicting results. Despite this, prospect theory (namely the use of message framing) remains popular, especially in health promotion where it is commonly applied.

A clear understanding of prospect theory and how it can be used to influence the decision-making process is important to enable effective messages to be developed in an attempt to encourage at-risk adults to join disease and risk management programs. This chapter examines prospect theory – its origins, applications and implications – as well as critically examining the theory across a variety of different contexts, with particular attention paid to health and health behaviour change.

4.1 DECISION MAKING UNDER CONDITIONS OF UNCERTAINTY

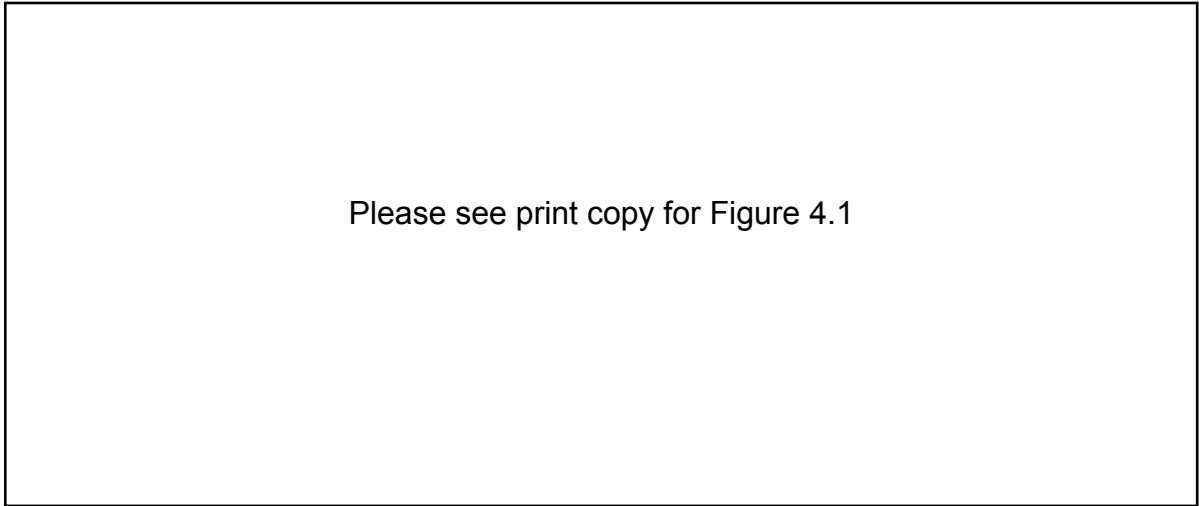
Tversky and Kahneman (1979) developed prospect theory in the late 1970's to address the shortcomings associated with utility theory, namely its failure to adequately explain how individuals make decisions under conditions of uncertainty (Edwards, 1996). The concept of uncertainty suggests that all decisions entail some degree of risk and people are often forced to choose between options without knowing in advance what the consequences will be (Trepel, Fox and Poldrack, 2005).

4.1.2 The Value Function: A Visual Depiction of Gain and Loss

Prospect theory has evolved into one of the leading theories regarding decision-making. The theory postulates that people evaluate information in terms of either potential gains or losses from a particular reference point (Smith and Petty, 1996).

The relationship between gains and losses can be visually demonstrated on the prospect theory value function (Figure 4.1). The value function is concave above the reference point and convex below the reference point, thus creating an S-shape. The value function is concave for gains and convex for losses from the reference point, and the slope for losses is steeper than the slope for gains (Tversky and Kahneman, 1979). This suggests that “framing a decision problem in terms of gain versus loss has two major outcomes. First, it holds that people are risk-averse when a decision problem is formulated in terms of gains and risk-taking when the information is formulated in terms of losses. Second, it suggests that people exhibit loss aversion, that is, losses loom larger than gains” (Zhang and Buda, 1999:2).

Figure 4.1: Prospect theory value function



(Adapted from: Kahneman and Tversky, 1979)

Risk aversion and risk taking are two important concepts associated with prospect theory:

4.1.2.1 Risk aversion

First proposed by Kahneman and Tversky (1979), risk aversion posits that people assign relatively more value, importance and weight to events that have negative, rather than positive implications (Pratto and John, 1991). This implies that people are “adverse to negative departures from a reference point” (Ratner, Kahn and Kahneman, 1999:3) and as a result, choices framed in terms of losses have a greater influence than those framed in terms of gains. Since people are more sensitive to losses than to gains the displeasure associated with a loss is generally greater than the pleasure associated with a gain of the same amount (Kobberling and Wakker, 2005). This is reflected in the value function (Figure 4.1), which is steeper for losses than for gains (Kobberling and Wakker, 2005).

4.1.2.2 Risk taking

The defining characteristic that makes a decision risky is the probability of loss – usually expressed as either loss of current assets or a loss of opportunity for more assets (Highhouse and Yuce, 1996). Risk taking was originally thought to be a personality trait (Plax and Rosenfield, 1976). However, behavioural decision theories – such as prospect theory (1979) – consider risk-taking to be a function of the task, people’s decision frames

and their information processing strategies. Hence, conscious decision making is based on a set of options and criteria by which people evaluate the projected consequences (Schoemaker, 1993).

The relationship between gains and losses, risk aversion and risk taking is exemplified in Tversky and Kahneman's well known *Asian Disease Study* (1981).

4.1.2 Tversky and Kahneman's (1981) Asian Disease Study

The Asian disease study was conducted on a sample of 307 students from Stanford University and the University of British Columbia. The study was administered via a questionnaire in a normal classroom setting.

Participants in the first experimental group were asked to read the following hypothetical situation and decide which course of action they would follow.

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs is as follows:

Scenario 1 (N=152)

- *If program A is adopted, 200 people will be saved.*
- *If program B is adopted, there is a 1/3 probability that 600 people will be saved, and 2/3 probability that no one will be saved.*

Which of the two programs would you favour?

The results of the study revealed that 72 percent of participants chose program A, indicating that the majority of participants were risk averse. Hence the certainty of saving

200 lives was more attractive than the probability of a one-third chance of saving 600 lives (Tversky and Kahneman, 1981).

Participants in the second experimental group also received the same scenario; however, the consequences of the programs were framed differently:

Scenario 2 (N=155)

- *If program C is adopted, 400 people will die.*
- *If program D is adopted there is a 1/3 probability that no one will die, and 2/3 probability that 600 people will die*

Which of the two programs would you favour?

In the second scenario, the majority of participants chose scenario D (78 percent) which indicates that the certain death of 400 people was less attractive than the two-thirds chance that 600 people would die. Hence participants in the second group of the study exhibited risk-taking behaviour.

Kahneman and Tversky's (1981) study shows how a single scenario can lead to two different outcomes depending on the way in which the information is presented. The first scenario was framed in terms of *number of lives saved* and the second scenario was framed in terms of *number of lives lost*; this change in message frame led to a shift from risk aversion to risk taking (Tversky and Kahneman, 1981).

4.1.3 The Decision Making Process

According to prospect theory, there are two stages in the decision making process: an editing phase whereby the decision maker recodes the alternatives based on some reference point (Wang and Fischbeck, 2004), followed by an evaluation phase where the value and

weighting functions are used to model preferences for each alternative (Wang and Fischbeck, 2004)

4.1.3.1 Phase one: Editing

During the editing phase the problem is posed and potential choices are edited into a particular framework for viewing alternatives (Elliot and Archibald, 1989). This is done automatically and generally without much effort (Arora and Arora, 2004). A core component of the editing phase is ‘framing’; this is when possible outcomes are classified as either gains or losses relative to a neutral reference point (Horowitz, 1998). The neutral reference point is usually the status quo, whereby gains are positive deviations from the reference point and losses are negative deviations from the reference point (Horowitz, 1998).

4.1.3.2 Phase two: Evaluation

During the evaluation phase, each of the contemplated alternatives is evaluated and the prospect of highest value is selected (Horowitz, 1998; Tversky and Kahneman, 1986). However, the theory does not posit the evaluation criteria; thus it is assumed to be dependent on the individual.

4.1.4 The Underlying Mechanism of Prospect Theory

Prospect theory posits that people tend to prefer the sure option when two alternatives are framed positively (in terms of gains) and prefer the risky option when two alternatives are framed negatively (in terms of losses). This suggests that people have “different orientations in win situations versus loss situations” (Toland and O’Neill, 1983:53) and tend to be risk averse when messages are positively framed and risk taking when messages are negatively framed (van Schie and van der Plight, 1995).

This notion is further exemplified in Tversky and Kahneman's (1986) example:

Scenario 1 (N=126)

Assume yourself richer by \$300 than you are today. You have to choose between:

- A sure gain of \$100
- 50 percent chance to gain \$200 and 50 percent chance to gain nothing

Scenario 2 (N=128)

Assume yourself richer by \$500 than you are today. You have to choose between:

- A sure loss of \$100
- 50 percent chance to lose nothing and 50 percent chance to lose \$200

From the example, it can be seen that the two scenarios provided are identical in terms of their outcomes, that is, both options present a choice between \$400 for sure and an even chance of \$500 or \$300 (Tversky and Kahneman, 1986). However, the first scenario is positively framed and as a result 72 percent of respondents displayed risk-averse behaviour and preferred the sure option of gaining \$100. Meanwhile, the second scenario was negatively framed and subsequently, 64 percent of respondents displayed risk-taking behaviour and preferred the probability of either losing nothing or losing \$200 as opposed to the sure loss of \$100 (Tversky and Kahneman, 1986).

4.2 MESSAGE FRAMING

Message framing examines how changes in wording can lead to different preferences (Kuhberger, Schulte-Mecklenbeck and Perner, 1999). This is based on the notion that different people can view the same situation in many different ways. For example, some may view a glass of wine as half full while others may see it as half empty – and each of

these perspectives is considered objectively correct (Mandel, 2001). Messages can therefore be manipulated so that the exact same situation is described in complementary ways and the difference that results from such manipulations is known as a formulation effect (Mandel, 2001). In general, messages can be framed either positively (emphasising gains) or negatively (emphasising losses). Below are examples of positively and negatively framed messages for three different types of behaviours: flossing, recycling and sunscreen use.

Example 1: Flossing your teeth

1. *Positive message:* By flossing your teeth regularly you are preventing plaque build-up and reducing your risk of gum disease and tooth decay.
2. *Negative message:* By not flossing your teeth regularly you are allowing plaque build-up and increasing your risk of gum disease and tooth decay.

Example 2: Recycling

1. *Positive message:* When you recycle, you are saving the environment.
2. *Negative message:* When you do not recycle, you are not saving the environment.

Example 3: Sunscreen use and skin cancer

1. *Positive message:* If you use sunscreen you will reduce your risk of developing skin cancer.
2. *Negative message:* If you do not use sunscreen you will increase your risk of developing skin cancer.

4.2.1 Types of Framing Effects

Levin, Schneider and Gaeth (1998) developed a typology which identifies three different types of framing effects; risky choice framing, attribute framing and goal framing. This typology was developed as a mean of explaining the vast, yet disparate, literature on the

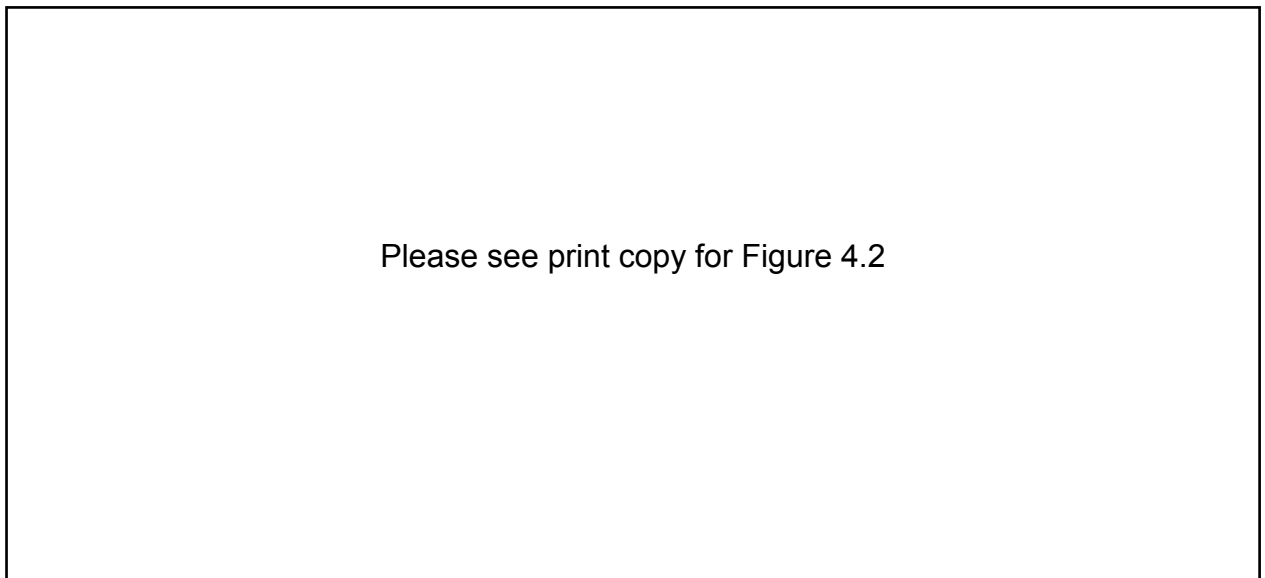
effects of positively and negatively framed messages with some studies supporting the use of positive framing (Arora, 2000; Mitchell, 2001), some the use of negative framing (Rothman, Salovey, Antone, Keough and Martin, 1993) and some finding no framing effects at all (Lalor and Hailey, 1989; O'Connor, Pennie and Dales, 1996; van Assema, Martens, Ruiter and Brug, 2001). Levin, Schneider and Gaeth (1998) argue that these inconsistent findings are largely due to different studies employing “different operational definitions of framing and thus have tapped different underlying processes” (Levin, Schneider and Gaeth, 1998: 149). Hence, different types of framing effects are governed by different fundamental mechanisms and consequences – each of which is discussed below.

4.2.1.1 Risky choice framing

First proposed by Tversky and Kahneman (1981), this type of framing effect is best exemplified by the *Asian Disease Study* described earlier in the chapter. Risky choice framing is characterised by two choice options, one of which is the *certain option* and the other is the *risky option*. This form of framing is often referred to as the ‘standard view of framing’ because it is the original type of framing used to illustrate prospect theory (Levin, Schneider and Gaeth, 1998).

Risky choice framing examines people’s risk preferences between a risky and riskless option dependant on whether the options are described positively (for example, in terms of lives saved) or negatively (for example, in terms of lives lost) (Levin, Schneider and Gaeth, 1998). Tversky and Kahneman (1981) found a ‘choice reversal’ whereby subjects exposed to the positively framed message preferred the sure option and subjects exposed to a negatively framed message preferred the risky option thus highlighting the “tendency for people to be more likely to take risks when options focus attention on the chance to avoid losses than when options focus on the chance to realise gains” (Levin Schneider and Gaeth, 1998:153; Tversky and Kahneman, 1981). Framing manipulation can therefore determine whether outcomes are evaluated in terms of gains or losses (Figure 4.2) (Levin Schneider and Gaeth, 1998).

Figure 4.2: The standard risky choice paradigm

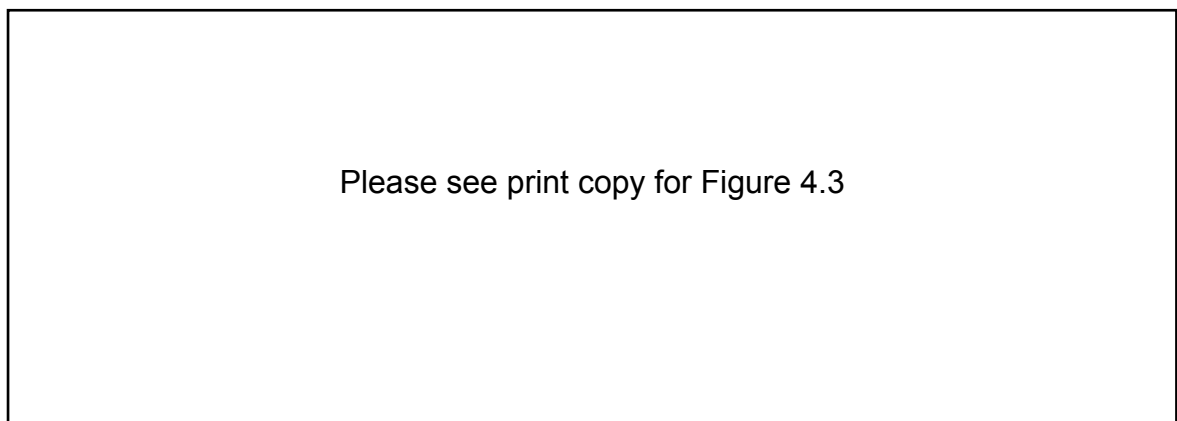


(Source: Levin, Schneider and Gaeth, 1998)

4.2.1.2 Attribute framing

Described as the “simplest case of framing”, attribute framing is characterised by a *single attribute* which forms the subject of the framing manipulation (Levin Schneider and Gaeth, 1998). The options are simple unspecified complements whereby the favourability of accepting an object or event determines the (un)favourability of rejecting the same object or event (Figure 4.3) (Levin Schneider and Gaeth, 1998).

Figure 4.3: The attribute framing paradigm



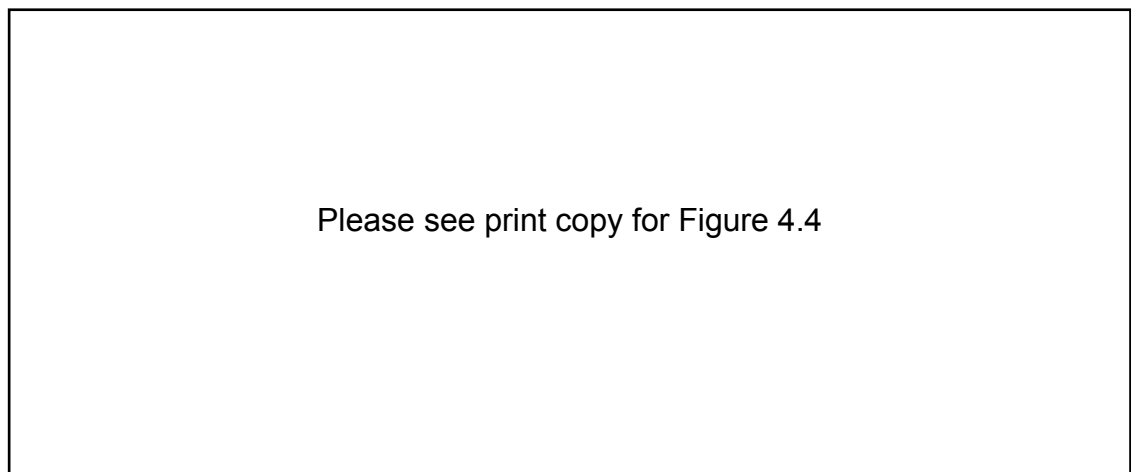
(Source: Levin, Schneider and Gaeth, 1998)

A well-known example of attribute framing is the *Lean Beef Study* (Levin and Gaeth, 1988). As the name suggests, the study asked consumers to rate ground beef (also known as mince meat) on several scales for taste and attributes such as greasiness, fat and quality based on the verbal labels used to define the meat – 75 percent lean or 25 percent fat – either before or after tasting (Levin and Gaeth, 1988). Overall, 88 University students participated in the 2×2 study between message frame (positive versus negative) and product experience (taste before labelling versus taste after labelling). The results of the study found ratings to be higher in the positive condition than in the negative condition with most, but not all, individual tests for framing effect yielding significant results (Levin and Gaeth, 1988). Furthermore, the framing effect was reduced when participants actually tasted the meat; this suggests that attribute labelling or framing effect has less influence as people become more experienced with the product (Levin and Gaeth, 1988).

4.2.1.3 Goal framing

Goal framing is becoming increasingly popular in persuasive communications and is distinguished by the use of positive and negative messages to promote the *same* behaviour (Figure 4.4) (Levin, Schneider and Gaeth, 1998).

Figure 4.4: The basic goal framing paradigm



(Source: Levin, Schneider and Gaeth, 1998)

This type of framing focuses on gains and losses thus issues are framed to focus on the potential to provide a gain (positive frame) or the potential to avoid a loss (negative frame) in relation to a given behaviour (Figure 4.4) (Levin, Schneider and Gaeth, 1998). For example, Banks et al. (1995) conducted a study to determine the effects of message framing (gain versus loss) on mammography utilisation. This is a form of goal framing because both the positive (gain) and negative (loss) message aimed to persuade women to engage in the same behaviour, that is, regular mammograms to detect early breast cancer. Women (n=133) were asked to view a framed video presentation on breast cancer and mammography testing, whereby the positive message was “when you get a mammogram, you are taking advantage of the best method for detecting breast cancer early” (Banks et al., 1998: 180) and the negative message was “when you avoid getting a mammogram, you are failing to take advantage of the best method for detecting breast cancer early” (Banks et al., 1998: 180). Participants were then contacted at six and 12 months after the video presentation to determine mammography utilisation rates among the two conditions tested. The study hypothesised that more women in the loss-framed condition, as opposed to the gain-framed condition, would obtain a mammogram over the next 12 months. The results of the study revealed that at the six-month follow up, more women in the loss-framed condition had indeed obtained a mammogram compared to women in the gain-framed condition (45 percent compared to 34 percent respectively). This trend continued and at the 12-month follow up, 66 percent of women in the loss-framed condition had obtained a mammogram compared to 51.5 percent of women in the gain-framed condition; the difference was statistically significant.

4.2.1.4 Four-way framing

In addition to the three different types of framing effects proposed by Levin, Schneider and Gaeth (1998), Detweiler, Bedell, Salovey, Pronin and Rothman (1999) have identified four-way framing whereby a given behaviour can be manipulated in four different ways (Table 4.1) and these are:

1. Gaining a positive outcome *by engaging* in a particular behaviour
2. Missing out on a positive outcome *by not engaging* in a particular behaviour

3. Gaining a negative outcome *by not engaging* in a particular behaviour
4. Missing out on a negative outcome *by engaging* in a particular behaviour

Table 4.1: Four-way framing

Please see print copy for Table 4.1	
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(Source: Jones, 2007)

Detweiler et al. (1999) applied four-way framing in their study which examined the effect of message framing in motivating sunscreen use. The study was conducted on a sample of beach goers (n=217) whereby participants were given a brochure framed in one of the following four ways:

1. The benefits gained by sun-protective behaviours, for example “protect yourself from the sun and you will help yourself stay healthy” (Detweiler et al., 1999: 191). This was referred to as the ‘gain: attain-desirable’ condition.
2. The undesirable outcomes avoided by sun-protective behaviours, for example “don’t expose yourself to the sun and you won’t risk becoming sick” (Detweiler et al., 1999: 191). This was referred to as the ‘gain: not attain-undesirable’ condition.

3. The benefits foregone by unsafe sun exposure, for example “don’t protect yourself from the sun and you won’t help yourself stay healthy” (Detweiler et al., 1999: 191). This was referred to as the ‘loss: not attain-desirable’ condition.
4. The undesirable outcomes incurred by unsafe sun exposure, for example “expose yourself to the sun and you will risk becoming sick” (Detweiler et al., 1999: 191). This was referred to as the ‘loss: attain-undesirable’ condition.

Hence, two of the messages emphasised gains and two of the messages emphasised losses. Participants were asked to read the brochure and complete the accompanying questionnaire before returning it to a central location. On receipt of the completed questionnaire, participants were given a coupon for a free sample of SPF 15 sunscreen which was redeemable at a different location half an hour later – the reasoning for which was unspecified. It was therefore assumed that this was done to ensure only motivated participants would redeem the coupon; however, this has the potential to affect the results because participants may have left the beach prior to the specified time. Thus the non-redemption of the coupon may have been due to inconvenience as opposed to disinterest. The study found that the two gain-framed conditions and the two loss-framed conditions acted similarly (Detweiler et al., 1999). In particular, 71 percent of participants in the two gain-framed conditions redeemed their coupon for a free sample of sunscreen compared to 53 percent of participants in the two loss-framed conditions – thus gain-framed messages were found to be particularly effective among beach goers, especially those who had not planned to use sunscreen that day ($\chi^2(1, N=59) = 4.86, p < 0.03$) (Detweiler et al., 1999).

The introduction of four-way framing reveals the complexity associated with message framing, especially in relation to language. This could potentially explain the inconsistency in results between various framing studies and will be discussed in greater detail later in the chapter – specifically in relation to health.

4.3 APPLICATIONS OF MESSAGE FRAMING

4.3.1 Positive versus negative – which is more effective?

Many researchers have attempted to answer the above question over the years with conflicting results. The answer to the question remains of great interest and the centre of much debate – primarily because the answer will undoubtedly have considerable implications. A definitive answer will allow future communications to be carefully crafted and targeted in such a way that they achieve the desired outcomes and optimal results. For example, marketers can persuade consumers to choose their company's product over their competitors, and health professionals can encourage people to engage in the desired health behaviour (e.g. regular mammograms) and/or cease an undesired behaviour (e.g. quit cigarette smoking). Given its flexibility it is not surprising that message framing has been applied to a variety of different contexts including: marketing (Zhang and Buda, 1999; Puto, 1987 and Ganzach and Karsahi, 1995), finance (Roskowski and Snelbecker, 1990), international relations (Boettcher, 1995) and health (Meyerowitz and Chaiken, 1987; Detweiler, Bedell, Pronin and Rothman, 1999) to name just a few.

This section examines some popular applications of prospect theory and message framing – highlighting the disparity in results.

4.3.1.1 Marketing

Message framing is gaining prominence in marketing as “marketers are becoming increasingly concerned about the effectiveness of their messages” (Zhang and Buda, 1999:1) in part because of a progressively cluttered and highly competitive market.

Zhang and Buda (1999) examined the effect of message framing and need for cognition for a new stereo receiver among a sample of university students (n=160). The study employed a $2 \times 2 \times 2$ study design between message frame (positive versus negative), source credibility (expert versus non-expert) and need for cognition (low versus high) (Zhang and Buda, 1999). Students were randomly assigned to each of the three conditions and were

asked to first read the product description and then assess the stereo receiver based on the attractiveness of the product, their willingness to buy it and their perception of its performance (Zhang and Buda, 1999). The results indicated that “framing had a significant influence on consumer responses to advertisements” (Zhang and Buda, 1999:11). Specifically, positively framed messages resulted in significantly more positive responses than negatively framed messages and this was evident for all measures tested, that is, attractiveness ($F=16.21$, $p<0.001$), willingness to purchase ($F=11.76$, $p<0.001$) and perceived performance ($F=24.50$, $p<0.001$) (Zhang and Buda, 1999). However the study lacked a control group and, unfortunately, no demographic information was provided thus the male to female ratio is unknown. This has the potential to skew the results because the stereo receiver may appeal more to males than females, with research showing that “girls show a markedly lower interest in technology than boys” (Anonymous, 2006).

4.3.1.2 Finance

In finance, risk tolerance is considered central to decision making. Roskowsky and Snelbecker (1990) tested this notion by examining the effects of framing on financial planners who deal with (financial) risk on a daily basis. The 2×2 study between message frame (gain versus loss) and the ownership of money at risk (your own versus your clients) was conducted on a sample of attendees at a financial planning conference ($n= 212$). Participants were exposed to a hypothetical scenario containing two strategies (either dealing with their own money or their clients) whereby they were asked to choose which strategy they would prefer. The results of the study found significant main effects for framing ($F= 7.43$, $df= 1/211$, $p= 0.007$) and money ownership ($F= 5.91$, $df= 1/211$, $p= 0.016$) (Roskowsky and Snelbecker, 1990). Hence, participants exposed to the gain framed message were more likely to avoid risks and participants exposed to the loss framed message were more likely to take risks thereby supporting Kahneman and Tversky’s (1979) prospect theory. In addition, financial planners were more cautious in dealing with their client’s money than their own money. This goes against the belief that people are more risk-seeking with others’ money than their very own (Roskowsky and Snelbecker, 1990). The study concluded that even financial planners are not ‘immune’ to framing bias (Roskowsky and Snelbecker, 1990).

4.3.1.3 International relations

A number of political scientists (Levy, 1996; Jervis 1988) have applied prospect theory and message framing to their analyses regarding matters in international relations (Boettcher, 1995). For example, Boettcher (1995) attempted to replicate Kahneman and Tversky's (1979) findings using foreign policy problems. The study hypothesised that "framing of a foreign policy problem will affect the risk propensity of a decision maker: in the domain of *gains*, the decision maker will tend to be *risk averse*; in the domain of *losses*, the decision maker will tend to be *risk acceptant*" (Boettcher, 1995: 569).

The study was conducted with political science undergraduate students (n= 72). Students were randomly assigned to one of three conditions whereby they were asked to complete a questionnaire:

1. *Group 1: Control group* (n= 24). Students in this group were presented with a series of sets (two terms to a set) of verbal probabilities and asked to attach a numerical probability estimate to each term (i.e., certain and toss-up) (Boettcher, 1995).
2. *Group 2: Gains group* (n= 24). Students in this group were presented with a series of sets of foreign policy problems framed as gains (troops were saved, territory was gained or monetary aid was received) and sets of verbal probabilities. They were asked to attach a numerical probability estimate to each term, as well as make a choice regarding the problem (Boettcher, 1995).
3. *Group 3: Losses group* (n= 24). Students in this group were presented with a series of sets of foreign policy problems framed as losses (troops were killed, territory was lost or money was disbursed) and sets of verbal probabilities. They were asked to attach a numerical probability estimate to each term, as well as make a choice regarding the problem (Boettcher, 1995).

The results indicated that prospect theory did extremely well in predicting responses to the military problem (survival or deaths of troops and expansion or loss of territory) with 83 percent of students in the gains domain choosing the less risky (certain) option and 92 percent of students in the loss domain choosing the riskier (toss-up) option; this difference

was statistically significant ($p < 0.01$). However, the result for the economic problem (gain or loss of military aid) was not significant with only 42 percent of students in the loss domain choosing the riskier option.

4.3.2 Message Framing and Health

This section examines the application of prospect theory and message framing in a health context. This is one of the many approaches used by health advocates to influence positive health behaviour change because information alone is seldom sufficient to motivate people to engage in positive health behaviours – for example, the dangers of smoking are well-known yet many people choose to continue smoking (Schneider, 2006). Health advocates are therefore continually challenged to explore new and different ways of influencing health behaviour change, including the development and application of health theories (such as the theory of reasoned action, the theory of planned behaviour and the transtheoretical model to name just a few) to more novel approaches, for example, the use of fear appeals and message framing.

In health, message framing has been applied to a variety of health behaviours such as: mammography screening, safe sex, sunscreen use, healthy eating and oral hygiene. Message framing in a health context aims to either promote a healthy behaviour such as regular pap smear screening, or to persuade the cessation of an unhealthy behaviour such as smoking (Rothman et al., 1999). Consistent with message framing studies conducted in other areas, the results have been mixed with some studies finding positive framing effects (Arora 2000; Apanovitch, McCarthy and Salovey 2003), others finding negative framing effects (O'Connor, Ferguson, Rory and O'Connor 2005; Meyerowitz and Chaiken 1987) and some finding no framing effect at all (O'Connor, Pennie and Dales 1996; Siminoff and Fetting 1989).

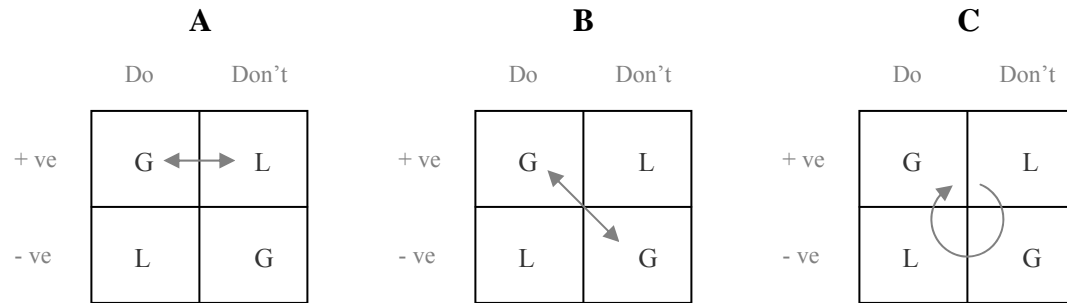
Table 4.2 summarises research studies examining message framing in a health context; reflecting a lack of consensus in regards to the effectiveness of positively and negatively framed messages. Despite the inconsistent results, message framing remains popular

because people often have unstable and varying preferences, hence, their preference between two options may reverse under two normatively equivalent conditions (Wong and Kwong, 2005). Communications can, therefore, be framed in such a way that it reverses unfavourable preferences to increase the likelihood that the option of interest will be chosen.

Search Strategy: The following databases were searched for studies that applied message framing: Cinahl, Medline (1966-), Proquest 5000, PsycInfo (1985-) and ScienceDirect. The key search terms used included (or a combination of): message framing; prospect theory; framing; framing effects; positive messages; negative messages; health; and behaviour change. Only studies that met the inclusion criteria were included for analysis, that is, the study had to be published in a peer-reviewed journal, between 1985 to present, and examined message framing in a health context to encourage health behaviour change. Studies that did not meet these inclusion criteria were therefore omitted. The search yielded 48 articles and, of these, 12 were excluded after examining the abstract and six because they did not meet the inclusion criteria upon further examination – leaving a final of 30 studies examining a total of 39 experiments; as summarised in Table 4.2.

From Table 4.2, it can be seen that the majority of framing studies in a health context applied goal framing with disparate outcomes; this could potentially be due to the complexity associated with message framing – generally in relation to language. That is, some studies compared the positive gain associated with performing a health behaviour with the positive loss associated with not performing the health behaviour, while others compared the positive gain associated with performing a health behaviour with the negative gain associated with not performing the health behaviour. Hence, not all messages were constructed uniformly. As a result, some of the messages were constructed using two-way framing whereby the messages were expressed as direct bi-polar opposites of each other, some were constructed using four-way framing as exemplified by Detweiler et al (1999) and others were constructed using a combination of both; this is demonstrated in Figure 4.5.

Figure 4.5: Message framing disparity



* 'Do' refers to performing the health behaviour. 'Don't' refers to not performing the health behavior.
 * G = Gain. L= loss

- A: Exhibit A shows messages that compare the benefits gained by performing a given behaviour with the benefits forgone by not performing the given behaviour.
- B: Exhibit B shows messages that compare the benefits gained with performing a given behaviour with the negatives incurred by not performing the given behaviour
- C: Exhibit C shows four-way framing.

These differences in message framing pose two main problems. The first is ambiguity in relation to the definition of what constitutes a positively and negatively framed message and the second is message confusion and distortion as a result of choices relating to wording.

4.3.2.1 Defining positively and negatively framed messages

Differences in message framing have led to debate in regards to the classification of certain messages as either positive or negative. For example, in Meyerowitz and Chaiken's (1987) study on Breast Self Examination (BSE), the positively framed message was "*research show that women who do BSE have an increased chance of finding a tumour in the early, more treatable stage of the disease*". However, some would argue that this message is indeed negative because 'finding a tumour' is not considered positive; hence causing confusion in relation to what constitutes a positively versus a negatively framed message.

4.3.2.2 Choice of wording

When developing positively and negatively framed messages, the choice of wording is not always uniform and this has the potential to distort the overall message and bias the results. For example, a positively framed message encouraging exercise would be "If you exercise,

you will stay thin”. Thus according to goal framing, the negative message would emphasise the loss associated with not exercising, that is, “if you do not exercise, you will not stay thin”. However, some would define the negative message as “if you do not exercise, you will get fat”. This has the potential to become problematic when the adjectives used to describe the outcome of either performing or not performing a given behaviour are not objectively equivalent, that is, when one adjective is considered stronger or more persuasive than the other.

4.3.2.3 The disparity in framing health behaviours

The disparity in framing health behaviours becomes evident when the messages are compared using four-way framing. Appendix 4a classifies each of the message framing studies examined in Table 4.2 using the four-cell grid outlined in Figure 4.5; from this it was found that of the 39 experiments from the 30 articles examined:

- 12 compared engaging in a health behaviour and gaining a positive outcome with not engaging in a health behaviour and forgoing the positive outcome.
- 17 studies compared engaging in a health behaviour and gaining a positive outcome with not engaging in a health behaviour and incurring a negative outcome.
- Two studies employed four-way framing
- Four did not specify the messages employed and therefore could not be classified
- Three were unclassified because they did not employ goal framing and instead used attribute framing.
- One was classified as unsure.

This makes comparison difficult because not all studies applied a uniformed, standard approach.

4.3.3 Other influencing factors

Table 4.2 also highlights how message framing is rarely tested alone as researchers typically examine other variables that may influence the framing effect in an effort to explain the inconsistency in study results and determine the most persuasive combination to

motivate human behaviour. Hence, the effect of message framing often occurs in conjunction with other factors which enhance the impact of the framing effect. Some studies even found both positive and negative framing effects depending on the factor(s) that it is paired with and tested. For example, Maheswaren and Meyers-Levy (1990) found that negatively framed messages were more effective in high-involvement situations, that is, when people processed the messages in-depth, while positively framed messages were more effective in low-involvement situations, that is, when people are not motivated to process the messages in-depth.

The following section examines factors which are commonly used in conjunction with message framing. These are:

- The type of health behaviour (i.e. detection or prevention)
- The amount of message processing due to the personal importance of the issue (i.e. high involvement or low involvement)
- The person's mood at the time of message processing

4.3.3.1 Health behaviour

Rothman et al. (1999) argue that the relative effectiveness of message framing (gain or loss) is dependent on the type of behaviour being promoted. In particular, loss framed messages have been found to be more effective when promoting illness-detecting (screening) behaviours and gain-framed messages more effective when promoting health-affirming (prevention) behaviours. This is because for illness-detecting behaviours, the negative consequences associated with not engaging in the behaviour – often death – are considered far more dire than the gains associated with early detection; making them more persuasive. For prevention behaviours, people tend to be more influenced by the positive outcomes they can gain for investing effort in the given behaviour. This is consistent with the interventions in Table 4.2 where it was noted that certain health behaviours displayed similar framing effects. For example, four of the six mammography and breast self-examination (screening) studies showed significant negative/loss framing effects (Meyoritz and Chaiken, 1987; Banks et al, 1995; Finney and Iannotti, 2000) one displayed no framing

effects (Lalor and Hailey, 1989). Another study found negative framing effects, but only when participants were in a positive mood, and positive framing effects when participants were in a negative mood (Keller, Lipkus and River, 2003). This tendency towards negatively framed messages for mammography screening and breast self-examination supports Rothman et al. (1999) theory because the behaviour is considered an illness-detecting behaviour, that is, screening behaviour to detect breast cancer.

4.3.3.2 Issue involvement and level of processing

Issue involvement and level of processing have been found to impact on framing effects with research suggesting that high-involvement respondents are more likely to process the message(s) in-depth compared to low-involvement respondents. As a result people tend to be more responsive to negatively framed messages (Block and Keller, 1995; Maheswaran and Meyers-Levy, 1990). This position is supported by Block and Keller (1995) who conducted two studies. The first, involving a sample of 94 undergraduate students who received a four-page pamphlet about Human Papilloma Viruses (HPV) which was manipulated for issue involvement (low versus high) and message frame (positive versus negative). The results indicated that when participants processed the messages in-depth, negative frames were more persuasive but when there was a lack of message processing, positive frames were more persuasive. The second study was with a sample of 115 university students (graduate and undergraduate). Students received a brochure on skin cancer which was also manipulated for issue involvement (low versus high) and message frame (positive versus negative). The results of the study showed that attitudes and intentions to follow the recommendations made in the brochure in the lower efficacy condition were higher for the negatively framed message than the positively framed message. Thus, both studies support “message processing mediates the effect of efficacy on persuasion” (Block and Keller, 1995: 201).

Maheswaran and Meyers-Levy (1990) examined how “message framing and issue involvement might jointly influence people’s attitudes toward and compliance with a preventative health behaviour advocacy” (Maheswaran and Meyers-Levy, 1990: 362). The study was conducted on a sample of 98 undergraduate students who were informed that the

purpose of the study was to ascertain their attitudes towards health related issues (Maheswaran and Meyers-Levy, 1990). Each student was randomly assigned a booklet that contained the stimulus material with manipulated message frame (positive versus negative) and involvement (high versus low) (Maheswaran and Meyers-Levy, 1990). Students assigned to the high involvement condition were exposed to information about coronary heart disease specific to people aged under 25 years (the same age group as the sample population) whereas students in the low involvement condition were exposed to information about coronary heart disease specific to senior citizens (Maheswaran and Meyers-Levy, 1990). Students were then asked to read information describing the role of cholesterol in the development of heart disease, followed by a message encouraging the use of a diagnostic blood test to identify one's cholesterol level and risk of heart disease – both of which were either positively or negatively framed (Maheswaran and Meyers-Levy, 1990). The negatively framed message produced more favourable attitudes in the high-involvement condition ($M_s = 5.70$ vs. 4.82 ; $F_{1,94} = 15.54$, $p < 0.001$), and the positively framed message produced more favourable attitudes in the low-involvement condition ($M_s = 5.36$ vs. 4.27 ; $F_{1,94} = 24.07$, $p < 0.001$) (Maheswaran and Meyers-Levy, 1990). This suggests that in the high-involvement condition participants were stimulated to process the message in greater detail and, as a result, participants assigned disproportionate weight to the negatively framed message and were more persuaded by it (Maheswaran and Meyers-Levy, 1990).

Similarly, Donovan and Jalleh (2000) examined the impact of involvement on framing effects. Their study, a two-by-two factorial design between message frame (positive vs. negative) and involvement (low-involvement vs. high-involvement), was for a hypothetical child immunisation program. The study was conducted via mall intercept whereby women aged 18-45 were asked to participate in the study. These women were given information about the hypothetical new immunisation to protect young children (up to a year old) against bronchitis and pneumonia. The information was either positively or negatively framed. The positive message stated that 90 percent of children do not develop any side effects from the immunisation, while the negative message stated that 10 percent of children do experience side effects. The side effect noted was common flu-like symptoms

within the first two weeks of immunisation. Women with children less than a year old or women who intended on having children in the next year were classified as high-involvement, whereas women without young children and who did not intend on having children within the next year were classified as low-involvement. Overall 100 women participated in the study. The results showed that framing had a significant effect on attitudes with more favourable attitudes towards the positively framed message than the negatively framed message ($X = 4.21$ versus 3.67 , $F(1,100) = 9.96$, $p = 0.002$). However, in relation to involvement, there was no difference between the high-involvement and low-involvement condition for attitude towards or intention to immunise. This suggests that high and low-involvement respondents did not differ in the level of message processing, thus contradicting Block and Keller (1995) and Maheswaran and Meyers-Levy (1990) findings.

4.3.3.3 Emotions

Emotions such as a person's affective state, disposition and level of ambivalence at the time of decision-making have the potential to influence the resulting outcome; this section examines each of these notions.

Affective State: A person's affective state (i.e., their mood) is said to influence decision-making and ultimately, framing effects. The notion of mood affecting decision-making is a well-known phenomenon that has been demonstrated even from a very young age when children realise that it is better to tell their parents bad news (for example, getting school detention) when they are in a positive mood, as opposed to a negative mood, because it eases the resulting consequence(s).

Keller, Lipkus and Rimer (2003) tested the effect of one's affective state – coupled with the use of message framing – on decision making. This experiment involved women from a local woman's resource centre ($n = 85$) and examined mammography utilisation. Participants were first asked to write a vivid recount of either a happy or sad life event – this was used to influence the person's affective state and set the mood for the next part of the study. Participants were then asked to read a booklet containing framed information

about the risk factors associated with breast cancer and mammography. The results of the study showed that participants in a positive state were more persuaded to get a mammogram when they received the loss-framed message compared to the gain-framed message ($F(1,41) = 5.26, p < 0.03$), while participants in a negative state were more persuaded to get a mammogram when they received the gain-framed message compared to the loss-framed message ($F(1,30) = 3.89, p < 0.05$). Participants in a positive state also had higher risk estimates for getting breast cancer when they received the loss-framed message ($F(1,41) = 6.56, p < 0.02$), whereas participants in a negative state provided higher risk estimates when they received the gain-framed message ($F(1,39) = 46.39, p < 0.01$). This suggests that “prior affective states such as mood can determine the effectiveness of framed messages” (Keller, Lipkus and Rimer, 2003: 58).

Disposition: Mann, Sherman and Updegraff (2004) have argued that health messages can be framed to target a person’s dispositional motivation because this influences the type of message frame (gain versus loss) that a person finds persuasive. They hypothesised that avoidance-orientated people would be more receptive to a loss-framed message and approach-orientated people would be more responsive to a gain-framed message; this hypothesis was tested for dental flossing. Their study was conducted on a sample of 63 undergraduate students. The gain-framed message was titled “Great breath, healthy gums only a floss away” and emphasised the benefits of regular flossing including “flossing your teeth daily removes particles of food in your mouth, avoiding bacteria, which promotes great breath” (Mann, Sherman and Updegraff, 2004: 332). The loss framed message was titled “Floss now and avoid bad breath and gum disease” and emphasised the risks associated with not flossing regularly, including “if you don’t floss your teeth daily, particles of food remain in the mouth, collecting bacteria, which causes bad breath” (Mann, Sherman and Updegraff, 2004: 332). The results of the study support their hypothesis; that is, “as participants became more avoidance-orientated, they reported flossing more in response to the loss-framed article, and as they became more approach-orientated, they reported flossing more in response to the gain-framed article” (Mann, Sherman and Updegraff, 2004: 332). Furthermore, individuals who were avoidance-orientated and exposed to a loss-framed message exhibited the healthiest flossing behaviour (Mann,

Sherman and Updegraff, 2004). However, it can be argued that while the actual messages conveyed in the pamphlets were objectively equivalent, the titles were not. The gain-framed article was titled “Great breath, healthy gums are only a floss away” while the loss-framed article was titled “Floss now and avoid bad breath and gum disease”. This is not objectively equivalent because *gum disease* is considered more attention grabbing and creates stronger connotations than *healthy gums*.

Ambivalence: This refers to the coexistence of positive and negative emotions or feelings at the time of decision-making which has the potential to influence the decisions that people make and consequently, framing effects. Broemer (2002) conducted three studies examining the degree of experienced ambivalence towards health behaviours and how this moderates the impact of differently framed messages. Overall, the results of the three studies found that “highly ambivalent people are more persuaded by negatively framed messages whereas individuals low in ambivalence are more persuaded by positively framed messages” (Broemer, 2002: 685).

4.4 LIMITATIONS

There are a few shortfalls that have been acknowledged in relation to the majority of message framing studies. The first, as reflected in the given examples, is that the studies are usually conducted in a simulated environment, namely with student populations and as a result examine ‘intentions’ and not ‘actual’ behaviours. Hence, these studies are not a true reflection of behaviour because what one intends to do and what one actually does are two very different things. Ganzach and Karsahi (1995) acknowledge this shortfall and address it in their study by examining the impact of message framing on real life buying behaviour. Consumers of an actual credit card company (n= 246) whose card has been dormant for the three months preceding the study were randomly selected to receive, first by phone and then by mail, framed communication about their credit card (Ganzach and Karsahi, 1995). The aim was to increase credit card usage, hence, the positive message emphasised the benefits associated with using the card (for example, safer than carrying cash) while the negative message emphasised the loss associated with not using the card (for example,

higher transaction fees for cheques compared to the credit card) (Ganzach and Karsahi, 1995). The results of the study found that the loss-framed message outperformed the gain-framed message with the percentage of customers who started to use the credit card in the loss condition being more than double the percentage of customers in the gain condition (54.8 percent compared to 16.4 percent) (Ganzach and Karsahi, 1995).

In addition, student populations are not representative of the general population. As a result, the majority of these studies have relatively young populations, and research shows that this age cohort is not as responsive to health communications as older adults (Liang et al., 1999). Other limitations in relation to the sample population include the fact that “although message framing has been applied in many areas, including health promotion, the research focuses predominantly on middle-class, white populations” (Schneider, 2006: 812).

And lastly, the majority of studies on message framing involve a single exposure to a framed message followed by an immediate decision on the participants’ behalf in relation to their preferred option. This is not representative of the ‘real world’, whereby there is a time lag between message exposure and decision-making.

This thesis attempts to overcome and address these limitations. Firstly, it is conducted in a ‘real world’ setting on a sample of private health insurance members, thus it examines actual behaviour among a diverse sample population.

4.5 SUMMARY

This chapter has examined prospect theory and its broad application across a variety of different contexts, in particular, the use of goal framing in a health domain to influence behaviour change. Review of the literature found a lack of consensus in relation to framing effects, that is, “the phenomenon whereby the choices people make are systematically altered by the language used in the formulation of options” (Kim et al., 2005); this was consistent across all domains examined. However, this could potentially be due to the study context and sample characteristics with the majority of studies conducted in a simulated environment and largely with a white middle-class population. This has the potential to bias the results and is acknowledged as a major limitation of many studies in this area. Furthermore, this chapter also revealed that framing effects rarely occur in isolation (as a result of pure message framing). Instead, a variety of different variables work together to influence decision-making and behaviour change with some of the most commonly cited being issue involvement, the type of health behaviour in question, and a person’s affective state at the time of decision making.

Table 4.2: Message Framing and Health

Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing*	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Meyerowitz and Chaiken (1987)	Breast self-examination (BSE)	Experimental design. Randomly assigned to one of four conditions: 1. Gain-frame 2. Loss-frame 3. No frame 4. No-information (i.e. no pamphlet)	Female undergraduate students (n= 79)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	The importance of BSE	Pamphlet	Single exposure	Participants in the loss-framed condition expressed greater intentions to perform BSE than those in the no-frame or no pamphlet condition (p < 0.05) and marginally from those expressed in the gain-frame condition (p < 0.10).
1	2											
3	4											
Lalor and Hailey (1989)	Breast self-examination (BSE)	2 × 2 factorial design between perceived susceptibility to breast cancer (high vs. low) and message frame (positive vs. negative)	Undergraduate women (n= 55).	Actual messages not stated.	The importance of BSE	Pamphlet	Single exposure	No significant framing effects (p = 0.490).				

Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Maheswaran and Meyers-Levy (1990)	Cholesterol	2 × 2 factorial design between involvement (high vs. low) and message frame (positive vs. negative)	Undergraduate students (n= 98)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	The importance of a diagnostic blood test to identify your cholesterol level and risk of heart disease	Booklet	Single exposure	Negatively framed messages produced more favourable attitudes in the high-involvement condition (Ms = 5.70 vs. 4.82; $F_{1,94} = 15.54$, $p < 0.001$) and positively framed messages produced more favourable attitudes in the low-involvement condition (Ms = 5.36 vs. 4.27; $F_{1,94} = 24.07$, $p < 0.001$)
1	2											
3	4											
Rothman, Salovey, Antone, Keough and Martin (1993)	Skin cancer detection or prevention	Two 2 × 2 factorial design between gender (male vs. female) and message frame (positive vs. negative)	Undergraduate students Study 1: n= 525 Study 2: n= 146	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	The importance of skin cancer detection	Study 1: Framed information sheets on skin cancer. Study 2: Exposure to framed health education material on skin cancer.	Single exposure	Study 1: Exposure to a negatively-framed message led women to be even more likely and men even less likely to intend to obtain a skin exam ($F(1, 185) = 3.96$, $p < 0.0001$). Study 2: Request for more information and/or a sunscreen sample showed no framing effect. However, gender did have an effect with more women requesting additional information than men (51 percent vs. 33 percent). Likewise, more women also requested a sunscreen sample than men (63 percent vs. 37 percent) ($p < 0.01$).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Steffen, Sternberg and Teegarden (1994)	Cancer self-examination: Men's testicle self-exam (TSE) for cancer.	3 (message frame: positive, negative and neutral) × 3 (experience level: read and practice, read and read and; read only) + 1 (No TSE information control group) × 3 (measurement times)	Undergraduate men (n= 277)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	The importance of TSE	Pamphlet	Single exposure	<p>Prior to exposure to the pamphlet, average TSE = 1.9 times in the 4 months leading up to study.</p> <p>Post exposure, average TSE = 4.46 times in 3 months.</p> <p>No framing effects were found for TSE and behaviour, intention, attitude, fear of and beliefs. No p-values were reported.</p>
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Tykocinski, Higgins and Chaiken (1994)	Eating breakfast	2 × 2 factorial design between self-discrepancy type (actual ought vs. actual ideal) and message frame (positive vs. negative).	Undergraduate students (n= 39)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Encouraging healthy eating patterns, especially breakfast	A booklet containing a cover letter, persuasive message, a thought listing task, a measure of intentions, and a breakfast menu request form	Single exposure	AO ¹ subjects expressed stronger intentions in the positive-framing condition compared to the negative-framing condition (F (1,39) = 12.00, p < 0.001). AI ² subjects expressed stronger intentions in the negative-framing condition than the positive-framing condition (F (1, 39) = 6.78, p < 0.01). ¹ Actual Ought (AO) is people who are orientated towards max. the absence of negative outcomes and min. the presence of negative outcomes. ² Actual Ideal (AI) are people who are orientated towards max. the presence of positive outcomes and min. the absence of positive outcomes.
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Banks, Salovey, Greener, Rothman, Moyer, Beauvais and Epel (1995)	Mammo-graphy screening	Experimental design. Subjects randomly assigned to one of two conditions: 1. Gain-frame 2. Loss-frame.	Women aged 40 and over who did not currently adhere to mammo-graphy guidelines (n= 133)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Persuade women to obtain mammo-graphy screening	Framed video presentation on mammo-graphy screening	Single exposure	Women who viewed the loss-framed message were more likely to have obtained a mammogram within 12 months of the intervention (p= 0.07).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Block and Keller (1995)	Two studies: Study 1: HPV Study 2: Skin cancer	2 ×2 factorial design between levels of efficacy (high vs. low) and message frame (positive vs. negative)	Undergraduate students: Study 1: n= 94 Study 2: n= 115	<u>Study 1:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table> <u>Study 2:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	1	2	3	4	Study 1: The use of precautions, such as practicing safe sex, to avoid HPV Study 2: The use of protection, such as sunscreen, to avoid skin cancer	Pamphlet: Study 1: “HPV, What’s that?” Study 2: “Facts on skin cancer”	Single exposure	Study 1: Significant efficacy main effect on intentions to follow the recommendations (F (1, 90) = 9.54, p< 0.05, ω ² = 0.10). Thus when participants processed the messages in-depth, negative frames were more persuasive and when there was a lack of message processing, positive frames were more persuasive. Study 2: Attitudes (F (1,111) = 2.77, p< 0.05, ω ² = 0.05) and intentions (F (1,111) = 3.27, p< 0.05, ω ² = 0.06) to follow the advocated behaviour in the lower efficacy condition were higher for negative than positive messages.
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O’Connor, Pennie and Dales (1996)	Influenza immunisation	Experimental design. Subjects randomly assigned to one of two conditions: 1. Positively framed message. 2. Negatively framed message.	Non-immunised patients with chronic respiratory or cardiac disease (n= 292)	This study used attribute framing and as a result, the messages could not be classified using 4-way framing	To receive an influenza immunisation	Framed information sheet on influenza, its complications and immunisation	Single exposure	No framing effect on immunisation rates (p= 0.93); however, framing did influence their expectation of immunisation benefits/risks and side effects (p< 0.05). Participants assigned in the positive frame had significantly higher expectations that they would not have any side effects to the immunisation (p= 0.05).								

Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Detweiler, Bedell, Salovey, Pronin and Rothman (1999)	Sunscreen use	Experimental design. Subjects assigned to one of four conditions: 1. Gain frame/ attain-desirable 2. Gain frame/ not attain-undesirable 3. Loss frame/ attain undesirable 4. Loss frame/ not attain desirable	Beach goers aged 18 and over (n= 217)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Promoting sunscreen use	Pamphlet. Four types: 1. Gain-frame, attain desirable. 2. Gain-frame, not attain undesirable. 3. Loss-frame, attain undesirable 4. Loss-frame, not attain desirable	Single exposure	71 percent of participants in the gain-framed conditioned redeemed their coupon for a free sample of sunscreen compared to 53 percent in the loss-framed condition (p< 0.01). Gain-frame messages were effective among beach goers who had not planned to use sunscreen (χ^2 (1, N = 59) = 4.86, p < 0.03 (b = 1.37, SE = 0.62, odds ratio = 3.93).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Rothman, Martino, Bedell, Detweiler and Salovey (1999)	Study one: New disease Study two: Gum disease	2 × 2 factorial design between behaviour (prevention vs. detection) and message frame (gain vs. loss)	Undergraduate students: Study 1: n= 176 Study 2: n = 120	<u>Study 1:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table> <u>Study 2:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	1	2	3	4	Study 1: Promoting prevention or detection behaviours for a hypothetical disease, the Letrolisus virus Study 2: Oral hygiene behaviour to prevent or detect dental health problems	Study 1: Framed health information about the Letrolisus virus Study 2: 4-page framed dental health pamphlet	Single exposure	Study One: Stronger intentions to perform the detection behaviour after reading the loss-framed message compared to the gain-framed message (t (39) = 2.20, p<0.05). Study Two: Significant interaction between message frame and behaviour (F (1, 116) = 7.22, p < 0.01). Prevention condition: those who read a gain-framed message reported greater intentions to use mouth rinse in the next week (M= 6.63, SD= 2.79) compared to those who read the loss-framed message (M= 5.83, SD= 2.70) (p< 0.001). Detection condition: those who read a loss-framed message reported greater intentions to use a disclosing rinse in the next week (M= 3.87, SD= 2.73) than those who read a gain-framed message (M= 2.87, SD = 2.30) (p< 0.001).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Arora (2000)	Dental examination	2 × 2 factorial design between credibility (high vs. low) and message frame (positive vs. negative)	Judgemental sampling. Adults of a large Midwestern city (n= 210)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Intention to visit a dentist to have a dental examination	Two informational booklets	Single exposure	Credibility and framing (positive) had a strong effect on attitude and intention to visit a dentist (p < 0.001 and p < 0.02 respectively)
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Donovan and Jalleh (2000)	Immunisation (child up to 1 year old)	2 × 2 factorial design between level of involvement (low vs. high) and message frame (positive vs. negative)	Adult females, aged 18-45 years (n= 100).	This study used attribute framing and as a result, the messages could not be classified using 4-way framing	Intention to immunise young children	Information sheet on new hypothetical immunisation for children	Single exposure	Positive framing was found to be superior for low involvement respondents, especially in relation to intention to seek more information on the immunisation (F (1,100) = 5.31, p= 0.024). No framing effect for high involvement respondents (p= 0.89)				

Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings
Blanton, Stuart and Vanden-Eijnden (2001)	Influenza immunisation	2 × 2 factorial design between behavioural norm (healthy vs. unhealthy) and message frame (positive vs. negative)	Undergraduate students (n=124)	Actual messages not stated.	Encouraging influenza immunisation (referred to as a flu shot)	Exposure to two framed 'fictitious' newspaper articles. The first article examined the prevalence of flu shots. The second article introduced framed personal attributes related to immunisation	Single exposure	Negative message frame increased intentions (M= 6.34, SD = 0.90) to a greater degree than the positive frame (M = 5.61, SD = 1.41) when getting a flu shot was normative (F (1, 120) = 5.06, p < 0.05). Positive message frame increased intentions (M = 6.10, SD = 1.12) to a greater degree than the negative frame (M = 5.48, SD = 1.61) when not getting a flu shot was normative (F (1, 20) = 3.54, p < 0.06).

Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Farrell, Ferguson, James and Lowe (2001)	Blood transfusion	2 × 3 factorial design between message frame (loss, gain and combined) and donation history (yes or no)	Undergraduate students, both donors and non-donors (n= 254).	This study used attribute framing and as a result, the messages could not be classified using 4-way framing	Blood transfusions are safe	Exposure to a famed hypothetical scenario whereby participants were involved in an emergency that required a blood transfusion	Single exposure	Participants who received the information as a gain frame, regardless of their donation history, were significantly more confident in the safety of the blood they were to receive compared to those who received the loss or combined frame (p= 0.03).				
Mitchell (2001)	Genital herpes	2 × 2 factorial design between mood (happy vs. sad) and message frame (positive vs. negative)	Undergraduate students (n= 125)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Genital herpes information seeking	Participants watched either a stand-up comedy act (happy) or an emergency vet clip (sad)	Single exposure	<p>Participants perceived more response efficacy when the message was framed positively (M=22.07, SD = 5.51), than when it was framed negatively (M = 20.01, SD = 6.24; F 1,114) = 3.58, p = 0.06, r= 0.17).</p> <p>In addition, participants in a happy mood were more likely to be persuaded by a positive message and participants in a sad mood were more likely to be persuaded by a negative message (eta² = 0.03, r = 0.17). However, this was not significant (p=0.20 and p= - 0.13 respectively).</p>
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Shneider, Salovey, Apanovitch, Pizarro, McCarthy, Zullo and Rothman (2001)	Mammo-graphy screening	2 × 2 factorial design personal-isation (multicultural message vs. Latina message) between and message frame (gain vs. loss)	Low-income, ethnic women (n= 752)	<u>Multi-cultural message:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table> <u>Latina message:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	1	2	3	4	Mammo-graphy utilisation	Video presentation	Single exposure	<p>Loss-framed message elicited greater negative affect (M= 4.28, SD= 2.04) than gain-framed messages (M= 3.81, SD= 1.94), F(1, 729) = 9.92, p< 0.01).</p> <p>41% of participants reported having a mammogram at the 6-month follow up and 57% at the 12-months follow-up.</p> <p>Participants were 1.81 times more likely to report getting a mammogram when the multicultural message was loss framed (50%) compared to the gain frame (36%, p< 0.01).</p>
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Van Assema, Martens, Ruiter and Brug (2001)	Nutrition education	2 × 2 factorial design between dietary behaviour (fat vs. fruit and vegetables) and message frame (positive vs. negative)	Adults recruited from adult education schools (n= 152)	<div><u>Fat message:</u><table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table></div> <div><u>Fruit and Vegetable message:</u><table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table></div>	1	2	3	4	1	2	3	4	Nutritional messages to encourage healthy eating	Framed informational booklet	Single exposure	No significant differences in attitudes (F < 1.00, ns) and intentions (F < 1.00, ns) were found between the positive-frame and negative-frame condition.
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Broemer (2002)	Three studies: Study one: Health attitude Study two: Health-related lifestyle Study three: Safe sex	All three studies employed a 2×2 factorial design between ambivalence (high vs. low) and message frame (gain vs. loss)	Study one: Male undergraduate students (n= 80) Study two: Undergraduate students (n= 120) Study three: High school students (n= 80)	<u>Study 1:</u> Actual messages not stated. <u>Study 2:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table> <u>Study 3:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	1	2	3	4	Study one: Adopting regular exercise and low-fat diet Study two: Personal health related lifestyle Study three: Condom use and HIV	Background information to a questionnaire	Single exposure	The results of all three studies are supportive of the hypothesis that highly ambivalent individuals are more persuaded by negatively framed messages, while individuals low in ambivalence are more persuaded by positively framed messages. This was statistically significant across all three studies with all p-values less than 0.05 for study one and two and less than 0.01 for study three.
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Finney and Ianotti (2002)	Mammography screening	Experimental design. Subjects randomly assigned to one of three conditions: 1. Positive 2. Negative 3. Standard (control)	Women due for mammography screening with either a positive or negative history of breast cancer (n= 929)	Actual messages not stated.	Increasing women's use of mammography screening	A reminder letter to women due for mammography screening	Single exposure	At 1-month, women with a positive history of breast cancer who received the negatively framed letter demonstrated higher compliance than those who received a positively framed reminder letter ($\chi^2 = (1, N= 211) = 2.34, 1 \text{ tail}, p = 0.06, 2 \text{ tail}, p = 0.012$). However, this was not evident at 2-months where the standard letter was favoured ($p = 0.05$). This suggests the framing effect is short-lived.								

Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Apanovitch, McCarthy and Salovey (2003)	HIV testing	2 × 2 × 2 factorial design between action (attain vs. not attain), valence (desirable vs. undesirable) and perceived certainty of the outcome of the HIV test (certain vs. uncertain)	Women from a low-income neighbourhood (n= 342).	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Encourage HIV testing	Exposure to a framed videotaped educational program.	Single exposure.	<p>Participants certain of the test's outcome were more persuaded by the gain-framed message and as a result, reported a higher rate of testing (χ^2 (1, N= 281) = 4.84, $p < 0.05$).</p> <p>Participants uncertain of the test's outcome reported similar rates of testing for both the gain and loss-framed condition (χ^2 (1, N= 144) = 0.78, $p > 0.10$).</p>
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Keller, Lipkus and Rimer (2003)	Mammo-graphy screening	2 × 2 factorial design between affect (positive vs. negative) and message frame (gain vs. loss)	Two studies: 1. Women aged 40-70 years from a women’s resource centre (n = 85). 2. Women aged 40-70 years recruited from local newspaper advertisements (n= 124).	<u>Study 1:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table> <u>Study 2:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	1	2	3	4	Mammo-graphy testing to detect breast cancer early	Informational booklet	One-off	Study 1: Participants in a positive mood were more persuaded to get a mammogram when exposed to the loss-frame message (F (1, 41) = 5.46, p < 0.03). Participants in a negative mood were more persuaded by the gain-frame message (F (1, 39) = 3.89, p < 0.05). Study 2: Similarly, participants in a positive mood were more persuaded by a loss-framed message (F (1, 39) = 5.06, p < 0.05). Participants in a negative mood were more persuaded by a gain-framed message (F (1, 35) = 4.65, p < 0.05).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Stuart and Blanton (2003)	Safe sex (condom use)	Quasi-experimental design. Subjects randomly assigned to one of two conditions: 1. Positively framed message 2. Negatively framed message	Undergraduate student (n= 123)	<u>Pilot study:</u> <table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table> <u>Main study:</u>	1	2	3	4	Condom use to prevent STDs and unwanted pregnancies	Exposure to a framed statement	Single exposure	Participants in the negative-frame condition gave higher prevalence ratings for condom use than those in the positive-frame condition (p< 0.001).
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Arora and Arora (2004)	Nutrition education	2 × 2 factorial design between credibility (low vs. high) and message frame (positive vs. negative)	Graduate students (n = 267).	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Promoting good eating practices	Exposure to a newsletter	Single exposure	No framing effects for attitude towards and intention to perform healthy eating behaviours. However, credibility was significant for both attitude and intention (p < 0.001).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Mann, Sherman and Updegraff (2004)	Dental flossing	2 × 2 factorial design between orientation (approach-orientated vs. avoidance-orientated) and message frame (gain vs. loss)	Undergraduate students (n= 63)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Promoting flossing	Articles adapted from the American Dental Association.	Single exposure In addition, each student was given 7 flosses to use over the next week.	Avoidance-orientated people reported flossing more when exposed to a loss-framed message compared to a gain-frame message. Approach-orientated people reported flossing more when exposed to a gain-framed message compared to a loss-framed message. This frame × orientation interaction was found to be significant and positive (β= 0.37, p< 0.05).
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McCall and Ginis (2004)	Exercise adherence	Experimental design. Subjects randomly assigned to one of three conditions: 1. Gain-framed information 2. Loss-framed information 3. No information (control group).	Men and women recruited from a hospital out-patient cardiac exercise program (n= 60).	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Exercise adherence.	Fact sheets that were framed with either 10 gain-frame or 10 loss-frame statements.	Initial exposure to the fact sheet. Participants were then given the fact sheet on a magnet to stick on their fridge.	Over the 3 month period, participants in the gain-frame condition exercised more than those in the control group (p=0.05).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings				
Richardson, Milam, McCutchan, Stoyanoff, Bolan, Weiss, Kemper, Larsen, Hollander, Weismuller, Chou and Marks (2004)	Safe sex	Experimental design. Subjects randomly assigned to one of three conditions: 1. Gain-frame 2. Loss-frame 2. No-frame	HIV positive patients (n= 585)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Encourage safer-sex practices and risk-reduction behaviours	3-5 minutes one-on-one counselling sessions to all patients to discuss safe-sex goals and risk-reduction behaviours	Counseling provided on every visit	Unprotected sex was reduced by 38 percent (p < 0.001) among those with two or more sex partners who received the loss-framed message.
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O'Connor, Ferguson and O'Connor (2005)	Safe sex: male contraception	2 × 2 factorial design between gender (male vs. female) and message frame (positive vs. negative)	Undergraduate students, 52 percent of which were male (n= 304)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Intentions to use hormonal male contraception	A framed information sheet about a male contraceptive pill, followed by a questionnaire on intention to use	Single exposure	Exposure to a loss-framed message influenced intention to use the daily male pill in men with a more positive attitude towards the pill (β= -0.17, p< 0.05).
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Author(s)	Health Behaviour	Research Design	Study Population	Type of Framing	Focus of Framing	How Delivered	Extent of Exposure	Findings								
Rivers, Salovey, Pizarro, Pizarro and Schneider (2005)	Pap smear	2 × 2 factorial design between behaviour (detection vs. prevention) and message frame (gain vs. loss)	Women attending an urban community health clinic (N= 441).	<div><div><div>Prevention behaviour:</div><table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table></div><div><div>Detection behaviour:</div><table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table></div></div>	1	2	3	4	1	2	3	4	Importance of obtaining a pap smear	Exposure to a framed video presentation on pap smear testing	Single exposure	Loss-framed messages emphasising the cost of not detecting cervical cancer early and gain-framed messages emphasising the benefits of preventing cervical cancer were the most persuasive in motivating women to obtain a pap smear (p=0.038).
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Arora, Stoner and Arora (2006)	Exercise	2 × 2 factorial design between credibility (high vs. low) and message frame (positive vs. negative)	Residents of a Midwestern city (n= 136)	<table><tr><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td></tr></table>	1	2	3	4	Exercise for a healthier lifestyle	Exposure to a framed newsletter followed by a questionnaire	Single exposure	No main framing effects. Attitudes were most affected by high credibility, especially for negative framing (p< 0.05).				
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* See appendix 4a for the specific framed messages used in each study.

* Please see over for legend

* Legend:

Message framing:

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= Positive benefits gained compared to positive benefits forgone by engaging/not engaging in the health behaviour.

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= Positive benefits gained compared to negative costs incurred by engaging/not engaging in the health behaviour.

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= Four-way framing.

5.

INCENTIVES

The word incentive is derived from the Latin word meaning ‘to stimulate’ (Neil, 1990) because of its ability to induce a desired response and/or bring about a desired behaviour. Incentives are therefore considered a stimulus for action and this makes them popular across a wide variety of contexts (Erlen, Sauder and Mellors, 1999). For example, employers use incentives to improve productivity. This technique is heavily utilised by Mary Kay Cosmetics, a direct selling company that recognise and reward top performers with free gifts. These include diamond rings, fur coats, trips and the most coveted incentive of them all, the signature pink Cadillac (Mardenfeld, 1996).

This chapter will examine the main psychological principles underpinning the use of incentives – in particular, how incentives work to motivate human behaviour. It will also explore the wide application of incentives across a variety of different domains, particularly, the use of incentives in a health context to achieve health behaviour change. This chapter is therefore illustrative, as opposed to an exhaustive review of the literature, and will focus on the applications of incentives that pertain to the study, that is, the use of incentives to encourage participation in health programs.

5.1 MAIN PRINCIPLES PERTAINING TO INCENTIVES

While there is no single unifying theoretical framework directly relating to incentives, a variety of different theories from the field of psychology can be applied to explain and support their use. These include B.F. Skinner’s Operant Conditioning, the Norm of Reciprocity and Social Exchange Theory.

5.1.1 Operant Conditioning: B.F Skinner's Theory on Rewards

Operant conditioning (also known as instrumental conditioning) was developed by psychologist B.F. Skinner and refers to behaviours that are controlled by their consequences (Staddon and Cerutti, 2003). According to this theory, people respond in certain ways to either gain a reward or avoid a punishment. Thus, “operant behaviours are emitted because of consequences that occur *after* the behavior” (Peter and Olson, 1996: 266) and these subsequent consequences are labeled by Skinner as either positive or negative reinforcement.

Positive reinforcement: Occurs when a response produces a desire for the stimulus; thus, a positive contingency exists between the instrumental response and the stimulus and this increases the rate of responding (Domjam, 2003). For example, a child is given a new toy for excelling in his science exam or an employee receives praise for good work. Positive reinforcement is also often used in marketing by consumer product companies through the use of promotional tools, such as free gifts with purchase and loyalty cards, in an effort to reinforce behaviour – and this is generally purchase of a company's products. Hence, promotional tools can be used by marketers to shape new behaviour and reinforce existing behaviour; however, it should be noted that the promotional tool implemented should not overshadow the product they are aiding because this only leads to extinction of the behaviour when the promotion ceases (Rothschild and Gaidis, 1981).

Negative reinforcement: Occurs when a response eliminates or prevents the occurrence of an aversive stimulus (Domjam, 2003). For example, an employee works productively to avoid being fired, a child studies for an exam to avoid failing and a driver follows the speed limit to avoid being fined.

Positive and negative reinforcement therefore have the ability to “strengthen or increase the probability of a target response” (Kardes, 2002:205).

5.1.2 The Norm of Reciprocity

“There is no duty more indispensable than that of returning a kindness”

(Cicero, 106 BC – 43 BC)

First formally proposed by Gouldner in 1960, the Norm of Reciprocity provides an insight into the psychological foundations underlying the use of incentives. According to this theory, “people should help those that have helped them” (Gouldner, 1960), that is, people often feel obliged to give back to others the form of behaviour that was first given to them (Gershaw, 1994). Hence, people often reward kind actions and punish unkind ones (Falk and Fischbacher, 2001).

The fundamentals of the Norm of Reciprocity can be applied to the use of incentives to better understand how they work and in particular to explain the effectiveness of the use of a prepaid incentive. Individuals are more likely to comply with a given request (such as: complete a questionnaire, join a program or participate in a study) if they have been provided with a small gift (incentive) prior to or at the same time the request was made. This is because the provision of a small gift builds a psychological obligation whereby people feel the need to reciprocate and, as a result, comply with the request (Jobber et al, 2004).

This notion of reciprocity is deeply embedded in human culture and is evident from a very young age when children are socialised to reciprocate and repay what another person has provided them (Gershaw, 1994). For example, Kunz and Woolcott (1976) tested this basic tenet by sending Christmas cards in early December to a random sample of residents from two American mid-western cities, and found that over 20 percent of receivers responded to the Christmas card without questioning the identity of the unknown sender (Kunz and Woolcott, 1976). A further application can be seen in the religious sect Hare Krishna who often use the principles of reciprocity as part of their public fundraising tactic, that is, prospective targets are given a small gift (such as a flower) before a request for a donation is made.

5.1.3 Social Exchange Theory

Social Exchange Theory can also be used to explain the use of incentives. Social Exchange Theory is based on the idea of “cooperation between two or more people for mutual benefit... (and this can be) manifested in many different forms within and across cultures: ritualized gift giving, the exchange of a favor between friends, trade in market economy, and barter are all forms of social exchange” (Cosmides and Tooby, 1987: 52). The theory is based on the assumptions that: a) behaviour is motivated by the desire to increase gain and avoid loss, and: b) exchange relations develop in structures of mutual dependence (Cook, 2001).

Social Exchange Theory therefore differs from the Norm of Reciprocity. According to Social Exchange Theory people are motivated by the returns their actions are expected to bring (Dillman, 2000), while the Norm of Reciprocity is based on giving back to others the behaviour that was first given to them (Gershaw, 1994) – regardless of the returns it is expected to bring. Thus the behaviour occurs before the incentive is received in the Social Exchange Theory and afterwards in the Norm of Reciprocity.

According to Social Exchange Theory, three factors predict a person’s actions and these are:

1. *Rewards*: What a person expects to gain by engaging in a particular behaviour.
2. *Costs*: What a person forgoes or spends to receive the reward.
3. *Trusts*: The long-term expectation that the rewards from engaging in a particular behaviour will outweigh the costs (Dillman, 2000).

The application of Social Exchange Theory can be seen in social marketing where there is the “implicit idea that the suppliers absorb the values of the customer in some way, that is, they not only produce the goods or programs for their intended customer but change or modify their [the customers] ideas according to their needs and opinions” (Leathar and Hastings, 1987: 50).

Thus according to Social Exchange Theory, incentives reward people for engaging in a particular behaviour (Dillman, 2000). Incentives work by influencing people's decisional balance, that is, when posed with a decision, people tend to weight up the pros and cons associated with each alternative course of action and incentives have the ability to tip people's decisional balance by making the chosen course of action appear more 'attractive' (Hall, 2006).

5.2 POPULAR APPLICATIONS OF INCENTIVES

Incentives have been utilised in both health and non-health contexts and this section outlines their broad application across both areas.

5.2.1 Incentives in a Non-Health Context

The use of incentives in a non-health context (Table 5.1) is long-standing; this section briefly examines some of the popular applications of incentives – namely in marketing, research and the workplace.

5.2.1.1. Incentives and Marketing

Consumer product companies often employ incentives generally in the form of coupons, percentage-off deals, discount vouchers, loyalty cards and giveaways in an attempt to persuade consumers to try their products or to switch from another brand (Heslin and Johnson, 1992). For example, American clothing chain Gap Inc. launched a promotion in 2005 whereby everyone who tried on a pair of jeans from a Gap retail outlet received a card that entitled them to a free song download from iTunes (Van Dusen, 2005). The promotion aimed to get people into the store and, more importantly, into the jeans (Van Dusen, 2005).

The use of sales promotions such as those employed by Gap is popular with consumer product companies because of its ability to entice customers (Kivetz, 2005: 725). In addition, Wirtz and Chew (2002) found that the use of incentives increased positive word of mouth among satisfied customers and reduced the likelihood of negative word of mouth among unsatisfied customers.

However, Kivetz (2005) acknowledges the downfalls associated with the use of sales promotions and incentives, including that consumers may perceive the incentive as a form of coercion to buy a company's products and thus threatening to the consumer's perceived freedom. In addition, Rothschild and Gaidis (1981) believe that the use of promotional tools can overshadow the products they were intended to aid. Their overuse can also lead to dependency whereby consumers discontinue buying the product when the promotion no longer exists (Rothschild and Gaidis, 1981). Despite this, the use of sales promotions and incentives remains common among consumer product companies.

5.2.1.2. Incentives and Survey Research

One of the most popular applications of incentives is in survey research where they are used to increase response rates to mail surveys (Biner and Kidd, 1994; Brennan, Seymour and Gendall, 1998; Brennan, Hoek and Astridge, 1992; Gajraj, Faria and Dickinson, 1990). The majority of studies in this area tend to support the use of monetary incentives. For example, Fox and colleagues (1988) conducted a meta-analysis to examine the factors that influence response rates to mail surveys and found that monetary incentives, among other factors, had a positive effect. Across the 30 studies analysed it was found that a 25 cent incentive increased response rates by approximately 16 percent, while a one dollar incentive increased response rates by approximately 31 percent (Fox, Crask, Kim, 1988). This is consistent with Church's (1993) meta-analysis which also supports the use of monetary incentives. Church (1993) found that the use of a monetary incentive increased response rates by approximately 19 percent compared to the control group, while non-monetary incentives only produced an 8 percent increase in response rates. Meta-analyses that examined the effects of non-monetary incentives have found that they produce smaller positive effects on response rates in mail surveys compared to monetary incentives (White, Carney and Kolar, 2005). This is because "people spend more time thinking about what they are doing when there is money on the table" (Read, 2005: 267). The value of monetary incentives is also more universally understood; non-monetary incentives are therefore only valued when people actually want the specific item (Ryu, Couper and Marans, 2005).

Literature also supports the use of a prepaid incentive, in particular, a prepaid monetary incentive. For example, in a meta-analysis conducted by Armstrong (1975) examining 18 empirical studies utilising incentives, it was found that prepaid monetary incentives had a strong positive impact on response rates. Likewise, Yu and Cooper's (1983) meta-analysis of 93 studies found that both prepaid and promised incentives increased response rates to mail surveys; however, prepaid incentives increased response rates over controls to a greater extent than promised incentives (Yu and Cooper, 1983). This is in-line with meta-analyses conducted by Kanuk and Berenson (1975), Church (1993) and Edwards et al (2002). Hence, "prepaid monetary incentives have been studied and relatively consistent positive results have been reported" (Jobber et al, 2004: 347). The effectiveness of a prepaid incentive in inducing mail survey response can be explained by Gouldner's Norm of Reciprocity. That is, the enclosure of an incentive with the survey builds a psychological obligation whereby people feel the need to reciprocate and, as a result, comply with the request and complete the questionnaire (Jobber et al, 2004).

In survey research, it has been acknowledged that incentives can cause people to carry out behaviours for the wrong reasons, that is, to simply receive the incentive; this has the potential to bias any results. This can occur, for example, when respondents half-heartedly complete a survey to merely receive the incentive because "using incentives may affect the sample composition by drawing in respondents with characteristics different than those who would otherwise participate, thereby resulting in different responses" (Ryu, Couper and Marans, 2005: 90). For example, a survey examining people's perceptions of organic foods might give participants free samples of organic food as a token of appreciation. However, this might attract a large sample of people who eat or are interested in eating organic foods to participate while deterring those who do not like organic foods.

5.2.1.3 Incentives in the Workplace

Companies can use incentives to "recognise, validate and value outstanding work" (Wiscombe, 2002: 42). Employers use incentives as a means of motivating employees and increasing productivity. For example, Condly, Clark and Stolovitch (2003) conducted a meta-analysis examining the effects of incentives in the workplace and found that

employees who received incentives increased their work performance on average by 22 percent compared to employees who performed similar work but did not receive any incentives (Condly, Clark and Stolovitch, 2003).

Incentives can either be extrinsic or intrinsic in nature. Extrinsic incentives are tangible rewards such as bonuses, prizes, merchandise, or privileges that have demonstrative value and convey status or recognition (Burchman, Dewey and Schneier, 1988). For example, Boeing recognise its employees' outstanding performance by giving them fun rewards such as chocolate bars emblazoned with slogans like 'we can't spell s_ccess without u', movie tickets and massage vouchers (Garvey, 2004). Intrinsic rewards, on the other hand, refer to intangible rewards such as privileges and opportunities to grow and contribute in more satisfying ways (Burchman, Dewey and Schneier, 1988). Intrinsic rewards therefore tend to be more personal in nature and may include verbal feedback, greater authority, increased involvement in decision-making and training opportunities (Burchman, Dewey and Schneier, 1988). For example, at a Toyota plant in India, the walls and machinery were festooned with stickers of employees' names where they had suggested an innovative idea or improvement (Garvey, 2004). This recognises an employee's outstanding contribution to the plant and acts as a visual reminder to the employee that they made a difference (Garvey, 2004).

In relation to the use of incentives in a work setting, Herzberg (1968) argues that the most powerful motivator of employees is intrinsic incentives, in particular, the ability for employees to grow and learn through achievement and recognition. This was ascertained from a *Factors Affecting Job Attitudes* survey conducted with 1685 employees across a variety of industries. The survey found that 40 percent of employees stated that achievement led to extreme job satisfaction, and a further 30 percent nominated recognition (Herzberg, 1968). Hence, "being recognized for a job well done reinforces and enhances the pride and satisfaction people take naturally in their accomplishments. It is particularly powerful when the recognition comes from the boss and even more powerful when the recognition comes in front of peers" (Lacey, 1994: 6). This is because praise and

recognition have intrinsic values to employees and can act as a powerful reinforcer of behaviour (Lacey, 1994).

5.2.2 Incentives in a Health Context

Incentives are often used in a health context to either encourage positive health behaviour change or increase participation and retention in health programs and or clinical trials. Thus incentives have “been offered to both health-care providers and the public with the ultimate goal of improving health in various populations” (Achat, McIntyre and Burgess, 1999: 285).

5.2.2.1 Incentives and Health Behaviour Change

Incentives can be used to encourage health behaviour change (Table 5.2). This is based primarily on the underlying principles of Skinner’s operant conditioning which posits that behaviours that are positively reinforced are more likely to be repeated (Wirtz and Chew, 2002). For example:

Immunisation: One area that often uses incentives to increase compliance rates is immunisation (Achat, McIntyre and Burgess, 1999; Moran et al., 1996). For example, a trial was carried out in Massachusetts (USA) to test the effectiveness of offering a lottery incentive to increase influenza immunisation rates. All immunised patients in the intervention group were eligible to enter a prize draw to win one of three \$50 grocery vouchers; “the modest monetary value helped ensure that the incentive was not viewed as coercive” (Achat, McIntyre and Burgess, 1999: 285). The study found that use of an incentive had a positive impact on immunisation rates with more people in the intervention group being immunised than in the control group (29 percent vs. 20 percent respectively) (Achat, McIntyre and Burgess, 1999).

In Australia, the ‘Immunise Australia: Seven Point Plan’ was introduced in 1998 with the aim of encouraging parents to ensure their children’s immunisation coverage was up-to-date for their age (Australian Government Department of Health and Ageing, 1997). This plan makes use of both positive and negative incentives. The positive incentive, known as

the ‘Maternity Immunisation Allowance’, provided parents with financial incentives to immunise their children. Under this plan, parents who fully immunised their children by the age of 18 months were rewarded with a lump sum payment of approximately \$AUD229. On the other hand, parents who did not immunise their children or whose children’s immunisation was not up-to-date for their age were ineligible to receive Child Care Benefit payments, a weekly payment used to help with the cost of child care generally ranging from \$20.50 to \$122 per week (Bond et al., 2002).

The ‘Immunise Australia Plan’ illustrates the main principles of Skinner’s operant conditioning. The financial rewards can be regarded as a positive reinforcement for immunisation, while the ineligibility of Child Care Benefit payments can be regarded as a punishment for not engaging in the recommended immunisation behaviours.

Results of the ‘Immunise Australia Plan’ show that full immunisation coverage in Australia by the end of 2003 was nearly 95 percent at 12 months of age and 90 percent at 24 months of age, in line with national targets (McIntyre, 2005). This compares to a rate of only 53 percent of Australian children aged 0-6 years being fully immunized in 1989/90 (Horvath, 2007), demonstrating a significant increase in immunization rates following the implementation of the ‘Immunise Australia Plan.’

Breastfeeding: Sciacca, Phipps, Dube and Ratliff (1995) implemented incentives into a breast-feeding program aimed at encouraging pregnant women to breastfeed postpartum. The program consisted of two main components; the first was a two-hour expectant couple breastfeeding class and the second was five prenatal education sessions which were one hour in duration. In addition, expectant mothers also received ongoing breastfeeding support from mothers who had successfully breastfed. Women in the intervention condition also received incentives – both prenatally and postpartum – for completing each of the program components. The incentives included baby products, toys and gift vouchers. The results of the study found that the proportion of women who exclusively breast-fed in the intervention condition was higher than in the control group (43 percent vs. 17 percent at three months postpartum) (Sciacca, Phipps, Dube and Ratliff, 1995). The study therefore

concluded that incentives were effective in attracting women to participate in educational interventions designed to promote breastfeeding, and this in turn can dramatically increase the rate and duration of breastfeeding (Sciacca, Phipps, Dube and Ratliff, 1995).

Dietary behaviour: A systematic review investigating the efficacy of monetary incentives in modifying dietary behaviour identified and examined four randomised controlled trials and found a “positive effect of incentives on healthy eating or weight loss compared with the control condition” (Wall et al., 2006: 520). In particular, monetary incentives were found to positively influence healthier food choices, purchases and consumption and/or weight loss (Wall et al., 2006). However, the authors acknowledge that a relatively small number of randomised controlled trials were encompassed in the systematic review; each varying in quality with no attempts made to assign a formal rating.

5.2.2.2 Incentives and Participation and/or Retention

Incentives can also be used to persuade people to participate and/or retain their membership in beneficial health programs and clinical health trials (Table 5.3).

Workplace wellness programs: The implementation of health programs in the workplace is growing in popularity because it is considered to be an ideal setting for health promotion initiatives (Harden et al., 1999) as it “provides easy and regular access to a large number of people who make up a relatively stable population and it may encourage sustained peer support and positive peer pressure” (Harden et al., 1999: 540). However, workplace wellness programs are often plagued by low participation rates which have the potential to hinder their effectiveness despite evidence showing that employees who participate in these programs experience beneficial health outcomes (Linnan et al., 2001). Incentives have been integrated into these programs to help overcome low participation rates.

Physical activity programs: DeVahl, King and Williamson (2005) examined whether or not the provision of an academic incentive would increase participation rates in a physical activity program among students enrolled in a cardiopulmonary patient management course. Students were invited to join a low-intensity aerobic exercise program in which the

aim was to decrease their body fat. Students who were able to achieve this goal were awarded bonus academic points in one of two ways – as a single bonus point added onto an exam or bonus points (depending on percent of body fat lost) added to their overall course grade. Hence, students in the latter group had the greater reward. The results of the study revealed that incentives have a positive impact on adherence and percent of body fat lost (DeVahl, King and Williamson, 2005). Students who received bonus points added to their overall course grade had fewer non-participants (12 students compared to 17 in the single exam bonus point group), lower non-completion rates (24 vs. 41 students), higher completion rates (65 vs. 51 students) and higher percent of body fat lost (-3.3 ± 1.7 vs. -1.4 ± 1.2) (DeVahl, King and Williamson, 2005).

Drug abstinence programs: Incentives have been also implemented to increase attendance and adherence in drug abstinence programs. For example, Jones and colleagues (2001) conducted a study to evaluate the effectiveness of offering pregnant women an incentive for attending treatment in a specialised substance abuse treatment program – namely for cocaine and heroin addiction. The treatment program consisted of two phases: a residential care phase followed by a 30-day intensive outpatient phase (involving attendance in a 6.5-hour program seven days a week). The incentive worked on an escalating reinforcement schedule whereby participants received a voucher each time they attended a full day of treatment and provided a negative urine sample. The vouchers were for monetary values and increased by \$5 a day for each consecutive day that the target behaviours were met. Participants could earn a maximum of \$525 in vouchers over the duration of the program. The vouchers were then exchanged for goods and services. The incentive and non-incentive groups did not differ in terms of premature drop-out; however, the incentive group attended significantly more days compared to the non-incentive group ($p \leq 0.05$) (Jones, Haug, Silverman, Stitzer and Svikis, 2001).

Smoking cessation programs: Hennrikus et al. (2002) evaluated the effectiveness of incentives on participation and quit rates in worksite smoking cessation program. The study included 24 worksites which were randomised into one of six conditions based on three different program formats (group program, telephone counseling program or a choice of

either program) and two different incentive conditions (with incentive or without incentive). The incentive was \$10 for joining the cessation program, \$20 for completing three-fourths of the program, and entry into a grand prize which differed by worksite with five of the sites implementing a single cash prize of \$500, six sites offering two prizes of \$250 and one site offering four prizes of \$125. Winners of the cash prizes had to be abstinent at the time of drawing and this was confirmed by a saliva test. All participants were surveyed at baseline, 12 and 24 months. The offer of an incentive nearly doubled enrolment rates, from 12 percent of cigarette smokers to 22 percent ($F_{3,20}=9.71$, $p=0.0054$) (Hennrikus et al., 2002). However, results of both the 12 and 24 month follow-up surveys indicated that the incentives did not have a lasting effect on quit rates with no significant difference found between the incentive and non-incentive condition ($p=0.9029$ and $p=0.4146$ respectively).

Clinical health trials: The recruitment and retention of participants for clinical health trials is important to “test a priori hypotheses with statistical confidence and to minimise bias” (Bryant and Powell, 2007: 1377). Davis, Broome and Cox (2002) conducted a study to identify the impact of various factors on retention in community-based clinical trials over a 10-year period, and found that the provision of a meaningful incentive played a positive role. In particular, they found that “the symbolism of an incentive may be more important than its actual value” (Davis, Broome and Cox, 2002: 48). For example, Gilbert and Kreiger (1998) conducted a study to evaluate the effects of a \$5 cash incentive in increasing response rates to a follow-up questionnaire in an ongoing study designed to examine the relationship between the use of antidepressant medication and subsequent risk of breast cancer. The study found that the use of an incentive dramatically improved response rates which were 20 percent higher in the incentive group compared to the non-incentive group 20 weeks after the initial mailing (Gilbart and Kreiger, 1998).

Bowen et al. (2000) tested the effectiveness of incentives with conflicting results. Bowen et al.’s (2000) study provided participants with two incentives (a certificate of appreciation and one of two lapel pins) to aid retention in a lung cancer chemoprevention trial. The results of the study indicated that the provision of an incentive had no significant influence on

retention at the two-year follow-up point ($p= 0.78$) (Bowen et al., 2000). This could be attributed to the actual type of incentive implemented with many studies finding the use of a monetary incentives, such as that implemented by Gilbert and Kreiger (1998), to be more persuasive.

While incentives have been found to positively influence participation in health programs, they do not necessarily create long-term behaviour change. Thus, “research does not support the contention that rewards and incentives promote lasting behaviour change” (Robison, 1998:1). For example, Kamb et al. (1998) studied the effects of offering attendants of an STD clinic ($n= 1344$) either a monetary or non-monetary incentive, both to the value of \$15, to encourage participation in a HIV/AIDS program. Monetary incentives were more effective than non-monetary incentives in increasing participation rates; however, after 24 months the rate of new STDs were similar between both groups – suggesting that incentives did not affect motivation to change behaviour in the long term (Kamb et al., 1998).

The ineffectiveness of incentives in the long term reflects the basic tenets of operant conditioning, whereby “people who are rewarded for a behavior are more likely to engage in that behavior again” (Wirtz and Chew, 2002: 143). Thus, the removal of an incentive has the potential to cause the behaviour to cease. According to Operant Conditioning this is known as ‘extinction’, that is, the “reduction of learned response that occurs because the conditioned stimulus is no longer paired with the unconditioned stimulus” (Domjam, 2003: 277).

Robison (1998), on the other hand, believes the ineffectiveness of incentives in creating long-term behaviour change is largely due to the fact that incentives applied in health promotion often focus on the outcome and not the actual behaviours needed to reach the outcome. As a result, many studies fail to address the underlying causes of the problem. For example, a child who continually wanders out of his/her room at bedtime might be rewarded with a toy for staying in the room and sleeping through the night. However, this does not address the underlying cause(s) of the problem – maybe he/she was cold, scared of

the dark or simply put to bed too early (Robison, 1998). Likewise, weight loss programs that reward people for losing weight do not necessarily address the main problem – that food may be used as a means to mask bigger problems, such as loneliness or depression.

5.3 LESSONS LEARNED AND CONCLUSION

Chapter 5 illustrates the wide application of incentives across a variety of domains. The examples suggest that incentives have the potential to act as reinforcement for the desired behaviour and this is primarily based on the underlying tenets of operant conditioning, Norm of Reciprocity and Social Exchange Theory (Benabou and Tirole, 2003).

The research on incentives to date has found relatively disparate results, except in the area of survey research which has shown fairly consistent findings. This includes general consensus for the use of monetary incentives in inducing mail survey response rates. However, it should not be assumed that offering large amounts of money will automatically lead to higher response rates, with the majority of studies finding a positive correlation between monetary incentives and response rates generally testing with small monetary values, such as the effect of offering \$1 compared to \$5 (for example, Fox, Crask and Kim, 1988). Some studies which have examined the effects of offering large monetary incentives have found no significant effects for the higher denominations (for example, James and Bolstein, 1992; VanGeest et al., 2001).

Non-monetary incentives have also been found to be effective in inducing mail survey response; however, its overall effects are generally smaller than those obtained for monetary incentives (for example, Church, 1993). Furthermore, selection of the incentive should be taken into consideration because incentives are often used to reinforce certain behaviours and therefore are most meaningful and effective when they are “closely tied to the behaviors they intend to reinforce” (Hall, 2006: 19). This is why intrinsic incentives are so effective in the workplace compared to the provision of gifts, cash and other tangible items.

Much of the research on the use of incentives in a health context has resulted in disparate findings, especially in relation to their ability to produce long-term behaviour change. This can be partially attributed to the complexity of the behaviours targeted such as drug addiction, immunisation, smoking cessation, breast-feeding and dietary behaviour. The majority of studies in this area do not solely focus on incentives and their overall effects are usually dependent on a variety of other factors, such as the effectiveness of counseling or social support networks, the level of knowledge of the benefits and barriers of the behaviour, or the degree of emotional or physical dependence on the behaviour (such as smoking). For example, incentives may be implemented to increase child immunisation rates and find no effect. However, this might be due to the fact that the majority of parents in the sample population did not immunise their children because they were scared of the potential side-effects in doing so and therefore no reflection of the actual incentive.

Table 5.1: The effect of incentives on non-health behaviours

Author(s)	Behaviour	Study Population	Type of Incentive	Research Design	Findings
Reid and Bailey-Dempsey (1995).	Academic performance (either grades or attendance).	High school students. (n= 112)	Monetary incentive.	Experimental design. Three groups: 1. Payment (monetary). 2. Case management. 3. Control.	The results of the case management program were far superior to that of the payment program in terms of students' grades and attendance. However, neither programs' effect carried over to the next year; thus no long term effects were achieved.
Roberts, Wilson, Roalfe and Bridge (2004).	Questionnaire completion.	Patients of eight general practices. (n= 8645)	Monetary incentive. All participants who returned their questionnaire were entered into a draw for a prize of £100 of 'High Street' shopping vouchers.	Experimental design: Two groups: 1. Treatment condition (with incentive). 2. Control (without incentive).	4012 patients responded to the initial mailing, of which 47.5 percent were in the intervention group and 48.2 percent were in the control group ($\chi^2 = 0.5$, $p = 0.48$). Thus the use of an incentive had no effect on response rate in a postal questionnaire.
Thomson, Peterson-Brown, Russell, McCaldin and Russell (2004).	Questionnaire completion.	Practicing general practitioners. (n= 568)	Non-monetary incentive. The incentive was entry into a lottery to win either six bottle of champagne or one chance of six bottles of champagne.	Randomised controlled trial. Two groups: 1. The chance to win a single prize of six bottles of champagne. 2. Six chances to win a bottle of champagne.	The chance to win six bottles of champagne generated a 68 percent response rate compared to the chance to win one of six bottles of champagne which only generated a 59 percent response rate. However, this was not statistically significant ($p = 0.323$).
Jang and Matilla (2005).*	Customer loyalty.	Restaurant patrons. (n= 145)	Monetary and non-monetary incentives. Perceptions of incentives on restaurant loyalty programs.	Questionnaire and focus groups to determine customer preferences towards loyalty reward programs in the restaurant industry.	The majority of respondents favoured immediate monetary gratification, with savings cited as the most sought after benefit.

Author(s)	Behaviour	Study Population	Type of Incentive	Research Design	Findings
Davis, Winsler and Middleton (2006)*	Academic performance	College students (n= 136)	Monetary and non-monetary rewards. Perceptions of extrinsic rewards on past and present academic performance	Survey to determine student perceptions of extrinsic rewards given by parents and teachers for academic performance from elementary school to high school.	The study found that reward history related significantly to students' motivational orientation and performance in college, and these relations are generally stronger for boys than girls ($p < 0.05$).

* Study did not use incentives to motivate behaviour but instead examined perceptions of incentives.

Table 5.2: The Effect of incentives on health behaviours

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
Moran, Nelson, Wofford, Valez and Case (1996)	Influenza immunisation	High-risk patients of a community health centre (n= 797)	Monetary incentive Lottery-incentive incentive whereby immunised persons went into a draw to win one of three \$50 grocery certificates.	Randomised controlled trial. Four groups: 1. Control 2. Educational brochure 3. Lottery-incentive 4. Educational brochure and incentive	The educational brochure group was more likely to be immunised than the control group (odds ratio= 2.29, 95 percent CI 1.45 to 3.61). Similarly the incentive group was also more likely to be immunised than the control group (odds ration = 1.68, 95 percent CI 1.05 to 2.68) However, no difference between the group mailed both interventions and the control group (odds ratio = 4.21, 95 percent CI 2.48 to 7.14).
Harland, White, Drinkwater, Chinn, Farr and Howel (1999)	Physical activity	Members of an urban general practice (n= 523)	Monetary incentive. Members in the incentive condition received vouchers entitling them to free access to leisure facilities	Randomised controlled trial. 2 × 2 factorial design between motivational interviewing group (one interview vs. intensive six interviews over 12 weeks) and incentive group (with or without).	More participants in the intervention group reported increased physical activity scores at 12 weeks than the control group (38 percent vs. 16 percent, 22 percent difference, 95 percent confidence interval for difference 13 percent to 32 percent).

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
Malotte, Hollinshead and Rhodes (1999)	TB skin test reading among drug users	Active injection drug and/or crack cocaine users (n= 1078)	Monetary and non-monetary incentives. See study design.	Experimental design. Participants were randomly assigned to one of five conditions: 1. \$10 cash 2. Grocery store coupons 3. Bus tokens/ fast-food coupons 4. Motivational education 5. Usual encouragement to return	The \$10 cash was the most effective ($p < 0.001$) with 95 percent of participants returning for skin test reading compared to 86 percent who received grocery vouchers ($p < 0.001$), 83 percent who received either bus tokens or fast-food tokens ($p < 0.001$), 47 percent who received the educational session ($p < 0.001$) and 49 percent who received usual encouragement to return ($p = 0.547$). Non-monetary incentives were therefore somewhat less effective than monetary incentives.
Lieber, Coldon and Colon (2003)	Childhood immunisation	Children from 22 day care centres (n= 471)	Non-monetary. Parents received transportation vouchers and gifts (e.g. pens, cups and vouchers for Kmart and Wal-Mart) upon immunisation.	Experimental design. One group, i.e. the treatment condition. Parents were educated about childhood immunisation and rewarded for immunising their child(ren).	Prior to the study, less than 1 percent of children from the 22 childcare centres examined had 100 percent age-appropriate immunisations. By study completion, four childcare centres had 100 percent age-appropriate immunisation, two had 92 percent and 95 percent respectively, and another had 89 percent.

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
Seal, Kral, Lorvick, McNeese, Gee and Edlin (2003)	Hepatitis B vaccination	Injection drug users (n= 366)	Monetary incentives. \$20 cash per visit (once a month) over a six month period.	Experimental design. Two groups: 1. Monetary incentive 2. Outreach (assigned to an outreach worker who would contact the injection drug user weekly to provide safe injection information and remind them of upcoming vaccine appointments).	The monetary incentive condition outperformed the outreach condition with 69 percent of all participants in the monetary condition receiving all three Hepatitis B vaccinations compared to 23 percent in the outreach condition (odds ratio = 13.8, CI 2.9, 128; p< 0.0001).

Table 5.3: The effect of incentives on participation in health-related programs

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
Kamb et al. (1998)	HIV/STD prevention counseling	Patients from five STD clinics (n= 1344)	Monetary and non-monetary incentives Patients were invited to enrol in a multi-session risk reduction program and were offered either \$15 for each additional session attended or non-monetary incentives to the same value.	Experimental design. Two groups: 1. Monetary incentive (\$15) 2. Non-monetary incentive (valued at \$15)	31 percent of participants who were offered the monetary incentive enrolled compared to 23 percent who were offered non-monetary incentives (p= 0.002). In addition, 55 percent of patients offered monetary incentives completed all sessions compared to 37 percent of participants offered other incentives (p< 0.0001). However, STD rates were still similar across both groups after six, 12 and 24 months.
Budney, Higgins, Radonovich and Novy (2000)	Treatment for marijuana dependence	Patients of an outpatient clinic for the treatment of marijuana dependence (n= 60)	Monetary incentive. Voucher-based incentive whereby the first negative specimen was worth \$1.50 and this amount increased by \$1.50 for each subsequent negative specimen. In addition, a \$10 bonus was also earned for each two consecutive negative specimens.	Experimental design. Three groups: 1. Motivational enhancement 2. Motivational enhancement plus coping skills therapy 3. Motivational enhancement plus coping skills therapy plus voucher-based incentives	The use of a voucher-based incentive program improved marijuana abstinence rates when compared to either motivational or cognitive-behavioural therapy alone (logrank χ^2 (2, N= 60) = 8.3, p< 0.02, estimated effect size w= 0.37).

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
Martinson, Lazovich, Lando, Perry, McGovern and Boyle (2000)	Reduce smoking intervention	Adolescent members of a managed care organisation (n= 4200)	Monetary incentives	Experimental design. Four groups: 1. \$2 cash group 2. \$15 cash group 3. \$200 prize draw group 4. No-incentive group (control)	The use of an incentive increased overall survey response rates (55 percent in the non-incentive condition compared to 60 percent in the incentive condition). However, the incentive did not influence adolescents willingness to be contacted about a smoking intervention (65 percent willing in the incentive condition compared to 60 percent in the non-incentive condition, $p= 0.03$).
Donatelle, Prows, Champeau and Hudson (2000)	Smoking cessation intervention: Significant Other Supporter program (SoS)	Pregnant smokers (n= 220)	Monetary incentives The incentive was a \$50 voucher per month for confirmed quitters.	Randomised control trial. Two groups: 1. Incentive 2. Non-incentive (control)	The results of the study found significant differences in quit rates at eight months gestation between the treatment (32 percent quit rate) and control groups (9 percent quit rate) ($\chi^2= 18.4$, $p< 0.0001$).
Jones, Haug, Silverman, Stitzer and Svikis (2001)	Drug abstinence program	Pregnant women admitted to a specialised substance abuse treatment program (n=155)	Monetary and non-monetary incentives Patients in the incentive condition were offered \$5 vouchers for attendance at each full day of treatment and this increased by \$5 for each consecutive day. This was then redeemable for goods.	2 × 2 factorial design between incentive condition (with or without) and treatment condition (residential care or outpatient care).	Patients in residential care who were assigned the incentive condition attended significantly more days (mean= 6.9, SD= 0.3) compared to the non-incentive condition (mean= 6.6, SD= 0.8) ($F(1, 78) = 5.774$, $P< 0.05$). Similarly, patients receiving outpatient care who were assigned the incentive condition also attended more days (mean= 5.2, SD= 2.2) than the non-incentive condition (mean= 4.1, SD= 1.9, $p< 0.05$).

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
Malotte, Hollinshead and Larro (2001)	Tuberculosis treatment in drug users	Active injection drug and crack cocaine users (n= 163)	Monetary incentives The incentive was \$5 per visit.	Randomised controlled trial. Three groups: 1. Direct observed therapy at the participants chosen location with an incentive 2. Direct observed therapy at a study community site with an incentive 3. Active outreach with no monetary incentive	Participants in the active outreach group were less likely to complete treatment compared to participants in either of the monetary incentive conditions ($p < 0.001$). Hence, monetary incentives were more effective than active outreach.
Hennrikus et al. (2002)	Smoking cessation (worksite program)	Workers from 24 worksites (n= 407)	Monetary incentives The incentive was \$10 for joining a cessation program and \$20 for completing three fourths of the program coupled with entry into a draw for either \$500 or \$250 cash	3 × 2 factorial design between program formats (group program, phone counseling program or a choice of either program) and level of incentives (with or without)	At 12-month and 24-month follow-up, 15.4 percent and 19.4 percent of program participants reported they had not smoked in the last seven days respectively. Enrolment in programs in the incentive condition was almost double that of the no-incentive condition (22.4 percent vs. 11.9 percent respectively). However, this did not necessarily mean greater cessation rates.

Author(s)	Health Behaviour	Study Population	Type of Incentive	Study Design	Findings
DeVahl, King and Williamson (2005)	Physical activity	Physiotherapy students (n= 210)	Non-monetary Students who met weight loss goals (percent of body fat) were awarded bonus points towards improving their academic performance	Experimental design. Two groups: 1. Single exam bonus (SEB) whereby the bonus point was added to a single exam 2. Course grade bonus (CGB) whereby the bonus point was added to the overall course grade	The CGB group was more effective and resulted in greater exercise adherence and health outcomes (percent of body fat lost) compared to the SEB group ($p < 0.005$).
Petry et al. (2005)	Drug abstinence program	Cocaine or methamphetamine users beginning outpatient substance abuse treatment (n= 415)	Non-monetary incentives	Experimental design. Two groups: 1. Usual care 2. Usual care plus abstinence-based incentives for 12 weeks	The abstinence-based incentive, an average of \$203 in prizes per participant, was effective in improving retention and associated abstinence outcomes ($p < 0.01$).
Sigmon and Stitzer (2005)	Counseling attendance by methadone maintained patients	Patients enrolled in a methadone maintenance treatment program (n= 102)	Monetary incentives	Experimental design. Prize-draw upon attendance at each counseling session, whereby there was a 50 percent chance that the draw would result in a prize. Prizes included \$1, \$5 and \$20.	The incentive significantly increased the percent of counseling sessions attended (52 percent vs. 76 percent, $p = 0.04$) and promoted periods of continuous attendance ($p < 0.01$).

6.

PILOT STUDIES

This chapter details two pilot studies. The first, conducted with Australian Health Management (ahm), was designed to examine the effectiveness of offering ahm members an incentive to re-enrol in either the ‘Living with Arthritis’ or ‘HealthCheck’ program. The second pilot study involved undergraduate students at a local university and was designed to examine the efficacy of positively and negatively framed health messages on attitudes and intentions towards a hypothetical disease and risk management program called Total Wellbeing.

The general aims of both pilot studies was to gain a better understanding of the role of incentives and message framing, particularly in relation to participation in disease and risk management programs – and, hopefully provide critical insight into how to best persuade and/or motivate people to join programs that are beneficial to their health and wellbeing.

6.1 PILOT STUDY 1: AUSTRALIAN HEALTH MANAGEMENT

The focus of the first pilot study was to determine the effectiveness of offering members two types of incentives (i.e. small gift versus the opportunity to enter a competition) on re-enrolment rates in two programs (i.e. the Living with Arthritis (LWA) and HealthCheck (HC) programs). The study was conducted in 2003, prior to the introduction of the current Total Health program.

6.1.1 Aim of Pilot Study One

The primary aim of this pilot study was to test the effectiveness of two different types of incentives versus no-incentives on re-enrolment rates in two ahm programs.

6.1.2 Study Design

The pilot study employed a 3×2 factorial design between incentive (gift incentive, competition incentive or no incentive) and program (LWA or HC) (Table 6.1).

Table 6.1: Study design (pilot one)

	Living with Arthritis (LWA)	HealthCheck (HC)
No Incentive	Condition 1	Condition 2
Competition Incentive	Condition 3	Condition 4
Gift Incentive	Condition 5	Condition 6

6.1.3 Methodology

6.1.3.1 Sample population

Overall, 890 members were sent an invitation letter to re-enrol in the programs. Of these, 308 (35 percent) were directed at the LWA program and 582 (65 percent) at the HC program. The sample sizes for the conditions tested differed due to the different numbers of members who were due for re-enrolment each month for the two programs; hence, eligible members were not randomly assigned to one of the three conditions tested. Table 6.2 outlines the final sample population by program and condition type.

Table 6.2: Conditions tested for the Living with Arthritis and HealthCheck programs

Condition	Living with Arthritis (n=)	HealthCheck (n=)
No Incentive	101	201
Competition Incentive	132	194
Gift Incentive	75	187
Total	308 members	582 members

6.1.3.2 Conditions tested

Overall, six different re-enrolment letters were developed (Table 6.1) by manipulating the incentive and ahm program.

1. Incentive

Three different incentive conditions were tested – gift incentive, competition incentive and no incentive.

Gift incentive: Members in the gift incentive condition were sent a re-enrolment letter (appendix 6A) offering them a small ‘thank you’ gift upon receipt of their completed re-enrolment form. The gift differed depending on the program, with members re-enrolling in the LWA program being offered a heat pack and members in the HC program being offered a backpack. Both gifts were of similar value and were chosen by ahm because they complemented the programs, were reasonably priced and an appropriate weight and dimension for posting.

Competition incentive: Members in the competition incentive group were sent a re-enrolment letter (appendix 6B) offering them the opportunity to enter a competition upon receipt of their completed re-enrolment form. The competition gave members the chance to win \$500 towards either gym membership or the purchase of health/sports related

equipment (for example, a treadmill, surfboard or golf clubs). This restriction was placed to ensure the prize was in line with ahm's mission of health and wellbeing.

No incentive: Members in the no incentive condition were simply posted a re-enrolment letter (appendix 6C).

2. ahm programs

The three different incentive conditions were applied to two ahm programs to determine their effect on re-enrolment rates.

HealthCheck (HC): The HC program aims to help members develop a healthier lifestyle by offering them support (via telephone, newsletters, information brochures and educational material) with health related issues such as: blood pressure, cholesterol, nutrition, exercise, weight control and smoking.

Living with Arthritis (LWA): The LWA program aims to help members with arthritis better manage their condition. This is achieved through regular telephone support, monitoring and education which are customised to meet the needs of individual members.

6.1.3.3 Implementation

The pilot study was implemented over a four-month period (May-August) in 2003. The sample population was chosen based on the members' re-enrolment dates; hence, all members in both the LWA and HC program who were due for re-enrolment in May and June were assigned the no incentive condition (conditions 1 and 2 in Table 6.2), all members who were due for re-enrolment in July were assigned the competition incentive condition (conditions 3 and 4) and lastly, all members who were due for re-enrolment in August were assigned the gift incentive condition (conditions 5 and 6).

Members were invited to re-enrol in either the LWA or HC program via a letter (appendix 6A-6C), with a reminder sent at six weeks if no response had been received from the member. This is consistent with recommended survey protocol by Dillman

(2000). The competition letter clearly stated that members who re-enrolled by the cut-off date would be eligible to enter the draw to win \$500 towards either the purchase of gym membership or approved health/sports-related equipment. The draw occurred after the cut-off date and the winner was notified by phone and mail. The gift-incentive letter simply stated that members who re-enrolled would receive a complementary gift as a thank you for all their time and effort. The gift was not identified in the letter but was mailed to members after their re-enrolment form had been received; hence, it was a post-action incentive.

6.1.4 Hypotheses

H₁: Re-enrolment rates in the incentive condition (gift and competition) will be higher than the non-incentive condition for both the Living with Arthritis and HealthCheck programs.

This hypothesis assumes that the use of an incentive will motivate members to re-enrol. This is based on the tenet that incentives act as positive reinforcers for the desired behaviour, and behaviour that is positively reinforced is more likely to occur than non-reinforced or negatively reinforced behaviour (Kardes, 2002; Benabou and Tirole, 2003; Rothschild and Gaidis, 1981).

H₂: Re-enrolment rates will be higher for the gift incentive condition than the competition incentive condition across both programs.

This hypothesis assumes that members would prefer the sure option of gaining a small gift compared to the possibility of winning a larger prize. This is based on prospect theory which posits that people often “under weigh outcomes that are merely probable in comparison with outcomes that are obtained with certainty” (Kahneman and Tversky, 1979: 263). Hence, it is assumed that members would place more value on the small gift – resulting in a higher re-enrolment rate.

6.1.5 Methods of Analysis

All data was analysed using SPSS v.11.5. The main statistical tests performed were chi-square analysis and logistic regression.

6.1.6 Results

The results of the pilot study (Table 6.3) show that initial re-enrolment rates across all conditions tested were higher for the LWA program than the HC program (54 percent vs. 44 percent re-enrolled respectively, $z = 2.84$, $p < 0.1$). The results were to be expected due to the different nature of the programs, that is, members enrolled in the LWA program have a recognised medical condition and tend to be generally older, while members in the HC program do not suffer from any specific medical conditions and, on average, tend to be younger. Similarly, final re-enrolment rates across all conditions tested were also higher for the LWA program than the HC program (65 percent versus 57 percent re-enrolled respectively).

Table 6.3: Re-enrolment rates

Condition	Living with Arthritis			HealthCheck		
	Initial offer (%)	Reminder offer (%)	Total (%)	Initial offer (%)	Reminder offer (%)	Total (%)
No Gift	47	10	57	39	13	52
Competition	56	14	70	46	14	60
Gift	60	8	68	49	13	62
Average	54	11	65	44	13	57

6.1.6.1 LWA Program Results

The results showed that for the LWA program, the competition incentive condition performed best with an overall re-enrolment rate of 70 percent ($z = 1.71$, $p < 0.01$). This was followed by the gift incentive condition with 68 percent ($z = 2.84$, $p < 0.05$) and then the non-incentive condition with 57 percent. Hence, the use of an incentive (either competition or gift) increased re-enrolment rates by 11 to 13 percentage points.

6.1.6.2 HC Program Results

The results for the HC program showed that the gift incentive condition performed best with an overall re-enrolment rate of 62 percent ($z = 1.99$, $p < 0.01$). This was closely followed by the competition incentive condition (60 percent re-enrolment, $z = 1.70$, $p < 0.05$) and then the non-incentive condition (52 percent). The use of an incentive therefore increased re-enrolment rates by 10 to 12 percentage points compared to the use of no incentive (that is, the no gift condition).

6.1.6.3 Hypotheses results

H₁: Re-enrolment rates in the incentive condition (gift and competition) will be higher than the non-incentive condition for both the Living with Arthritis and HealthCheck programs.

The results of the pilot study showed that incentives do have a positive impact on re-enrolment rates with significantly more members re-enrolling when an incentive was offered. Thus H₁ was supported.

H₂: Re-enrolment rates will be higher for the gift incentive condition than the competition incentive condition across both programs.

In relation to the two different types of incentives tested, it was found that the probability of winning a bigger prize was equally as attractive as the sure option of gaining a small ‘thank you’ gift. Thus H₂ was not supported.

6.1.7 Discussion

The results of this pilot study demonstrated that incentives increase re-enrolment rates, with both forms of incentives (gift and competition) showing higher re-enrolment rates compared to the use of no incentive. However, there was no significant difference between the gift and the competition conditions.

Despite the evidence for the effectiveness of offering members an incentive upon re-enrolment, the cost of doing so from a business point of view needs to be taken into consideration. In relation to this pilot study, the cost was quite considerable – \$19 per re-enrolling member for the gift incentive condition (\$15 for the gift, \$4 for postage) resulting in a total of \$345 in gift costs across the two programs. Meanwhile, the cost of the competition incentive condition was \$1650 per program (\$500 for the prize, \$150 for government permits and \$1000 in design, artwork and personnel costs). Hence, the cost of offering the competition incentive was \$24 per re-enrolling member in the LWA program and \$27.50 per re-enrolling member in the HC program.

6.1.8 Limitations of the Study

The main limitation of this pilot study was sample selection. Although every effort was made to ensure the sample sizes were equal, business-related logistical factors dictated that it was not possible to randomly allocate members to each of the conditions tested. As a result, the sample population was chosen based on re-enrolment dates. This made the

study more feasible to implement, but resulted in the sample sizes being uneven across the two programs and three conditions tested.

6.1.9 Conclusion

The pilot study results indicate that re-enrolment rates were significantly higher across the two programs for the incentive condition compared to the non-incentive condition. Thus incentives are effective in increasing re-enrolment rates. However, from a business point of view, incentives can be costly to implement and this needs to be factored in when determining the overall feasibility of incentives. For ahm, it is recommended that ‘thank you’ gifts be implemented because it was the most economical option and there were no significant differences between the two incentive conditions tested.

6.2 PILOT STUDY 2: UNIVERSITY OF WOLLONGONG

This pilot study, conducted with first and second year undergraduate students at the University of Wollongong, was designed to determine the effectiveness of message framing, with or without an incentive offer, on enrolment rates in a hypothetical disease management program called Total Wellbeing. The opportunity to enrol in the program was made from one of three sources – a private health insurance company, an employer or a local area health service (Table 6.4).

6.2.1 Aim of Pilot Study Two

This pilot study was designed to determine:

1. The effectiveness of message framing as a tool to encourage enrolment in the Total Wellbeing program
2. The effectiveness of offering an incentive that is redeemable upon program enrolment
3. The impact of the source of the letter on willingness to enrol in the program

6.2.2 Study Design

The pilot study was conducted using convenience sampling at the University of Wollongong and employed a $3 \times 3 \times 2$ factorial design between message frame (positive, negative or neutral), letter source (health insurance company, employer or a local area health service) and incentive (with or without) (Table 6.4).

Table 6.4: Study design (pilot two)

Letter Source	Message Frame	With an Incentive Offer	Without an Incentive Offer
CHBCR ₁	Positive	Letter 1	Letter 2
	Negative	Letter 3	Letter 4
	Neutral	Letter 5	Letter 6
Current Employer	Positive	Letter 7	Letter 8
	Negative	Letter 9	Letter 10
	Neutral	Letter 11	Letter 12
Wollongong Health ₂	Positive	Letter 13	Letter 14
	Negative	Letter 15	Letter 16
	Neutral	Letter 17	Letter 18

₁ CHBCR is a hypothetical private health insurance provider of which the student is member

₂ Wollongong Health is a local health service

6.2.3 Methodology

6.2.3.1 Sample population

The sample population was chosen by convenience sampling. First and second year undergraduate students, across three different faculties, were approached in lectures and invited to participate in the study.

6.2.3.2 Conditions tested

Overall, 18 different versions of the enrolment letter were developed (Table 6.4) by manipulating the source of the letter, the message frame and the incentive offer.

1. Letter source

Students were randomly allocated a letter inviting them to join Total Wellbeing from one of three different sources: a health insurance company called CHBCR, the student's

hypothetical current employer or a local area health service called Wollongong Health. This aimed to determine the impact of the source of the health program on students' perceived credibility of the program and their willingness to enrol.

2. Message framing

Three different types of framed messages were developed in accordance with Prospect Theory:

1. A positive message emphasising what students could expect to *gain* by joining Total Wellbeing
2. A negative message emphasising what students could expect to *lose* by not joining Total Wellbeing
3. A neutral message

The specific positive, negative and neutral messages employed were:

Positive message:

Did you know?

Maintaining a healthy weight can reduce your risk of developing diabetes

Eating a healthy diet can provide you with increased energy

Regular exercise can prevent heart disease.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

Negative message:

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

Neutral message:

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge.

All the letters were identical in relation to their content and layout, but differed in terms of the source, message frame and incentive offer. This was to counteract any effects whereby one letter would be considered more persuasive or appealing than the other.

3. Incentive

The incentive employed was a hypothetical \$10 Rebel Sport gift voucher. Students therefore did not actually receive any incentives to participate in the study; however, they were asked how likely they would join Total Wellbeing if they were offered a \$10 Rebel Sport gift voucher. Rebel Sport is an Australian chain of stores specialising in sporting equipment, apparel and footwear.

6.2.3.3 Procedures

Over a three week period first and second year students were approached during lectures in the Faculty of Commerce, the Faculty of Health and Behavioural Sciences and the Faculty of Informatics at the University of Wollongong to participate in the study. Students were given a handout which consisted of four parts. The first was a *student participation sheet*, which broadly stated the purpose of the study, the voluntary nature of participation and how all participants would remain anonymous (Figure 6.1).

Students who chose to participate in the study were then given a questionnaire. The first page included an introductory paragraph setting the context for the letter that the students were about to read (Figure 6.2). This short paragraph asked students to imagine they had received a letter from one of the three possible sources inviting them to join a new health program called Total Wellbeing. For example, students who received a letter from their health insurance provider, CHBCR, read the following:

Imagine you are a member of a health insurance company called CHBCR. CHBCR have sent you the following letter inviting you to join 'Total Wellbeing', a health program run by the company.

Please read the letter and then answer the questions on page 3. All answers provided will remain anonymous and be used purely for the purpose of this study.

Students were then asked to read a letter inviting them to join a hypothetical disease and risk management program known as Total Wellbeing (Figure 6.3) (appendix 6D-6U). After reading the letter, students answered a short questionnaire consisting of 12 questions – six of which focused on demographic characteristics to enable the sample population to be profiled (Figure 6.4).

The first question asked students to rate on a five-point scale whether or not they would join Total Wellbeing if it was offered to them free of charge, with 1= highly unlikely and 5= highly likely.

The second question asked students how much they were willing to pay if the program was not offered for free. Overall, six price brackets were given ranging from ‘not willing to pay’ to ‘willing to pay over \$200’; students were instructed to tick the box that best reflected how much they were willing to spend to join Total Wellbeing. This was used to determine the impact of price, and the perceived value that students placed on the health program.

The third question asked students to rate on a five-point scale how healthy they considered themselves to be, with 1= very unhealthy and 5= very healthy. This was used to determine whether or not there was an association between self-perception of healthiness and students’ willingness to join the program.

The fourth question asked students to indicate whether or not they felt the program would be beneficial to anyone they knew. A list of possible relations to the student was given, for example: mum, dad and partner. For each relation, students were asked to indicate the person’s gender and age. This was used to determine student perceptions of the program’s target group, that is, the sorts of people that students felt would benefit most from the program - for example, did students see the program as being more beneficial for older or younger people? Males or females?

The fifth question asked students if they suffered from any chronic condition(s); a list of common conditions were provided, including asthma, diabetes and depression. Students also had the opportunity to indicate other chronic conditions they suffered that were not included in the list.

The sixth and final question asked students whether any of their family members suffered from a chronic condition. A series of common conditions were listed with additional

room provided for students to indicate any other chronic conditions that were not on the list. This was used to ascertain whether exposure to a chronic condition (either personally or through a family member) had any impact on a student's willingness to join a health program.

The last section of the questionnaire asked students a series of demographic questions, including: age, gender, postcode, degree currently enrolled in, whether the student was studying full-time or part-time and whether they were a domestic or international student. This enabled a profile of the sample population to be developed.

6.2.4 Hypotheses

H₁: More participants who receive a framed letter (positive or negative) will indicate their willingness to join Total Wellbeing compared to students who did not receive a framed letter (neutral message).

It was hypothesised that positively and negatively framed messages encouraging participants to join Total Wellbeing would be more persuasive than unframed (neutral) messages. This was based on the premise that the framing of a decision problem often influences the type of decision that people make and furthermore, the way in which a message is framed has the potential to affect the amount of persuasion it elicits (McElroy and Seta, 2003 and Smith and Petty, 1996).

H₂: More participants who receive a negative message will indicate their willingness to join Total Wellbeing compared to students who receive a positive message.

It was hypothesised that a greater proportion of participants who received a negative message would indicate their willingness to join Total Wellbeing because "negative information is more attention grabbing in general and receives greater scrutiny than positive information" (Smith and Petty, 1996: 257).

H₃: More participants who were exposed to the hypothetical incentive offer will indicate their willingness to join Total Wellbeing compared to students who were not offered the hypothetical incentive offer.

It was hypothesised that a greater proportion of participants in the incentive condition would indicate their willingness to join the Total Wellbeing program because incentives have the ability to motivate people by acting as ‘positive reinforcers’ for the desired behaviour (Shah, Higgins and Friedman, 1998 and; Kardes, 2002).

H₄: More females will indicate their willingness to join Total Wellbeing than males

It was hypothesised that more females would be willing to join Total Wellbeing than males because of the gender differences in attitudes towards health. Males tend to rate health behaviours as less important than females; in addition, the typical male “would not be interested in learning about health and nutrition, or cooking, and he would be unconcerned about his weight, diet or hygiene” (Wardle, Haase, Steptoe, Nillapun, Jonwutiwes and Bellisle, 2004: 108).

H₅: More participants who receive a letter from Wollongong Health will be willing to join the Total Wellbeing program than students who received a letter from their employer or CHBCR

It was hypothesised that a greater proportion of participants who received a letter from Wollongong Health would be willing to join the Total Wellbeing program. This was based on the assumption that members considering joining a health and wellbeing program are more likely to trust a health organisation, such as Wollongong Health, as opposed to their employer or a private health insurance company. This hypothesis was based on two factors. Firstly, in Australia it is not common to join a health and wellbeing program through one’s employer as compared to the United States where the nature of

health cover is substantially different and predominately employer-based. Secondly, it is assumed that people will be skeptical of joining a health and wellbeing program through their private health insurance company because of the perception that such a program is more for organisational than participant gain, that is, to help reduce company premiums.

6.2.5 Methods of Analysis

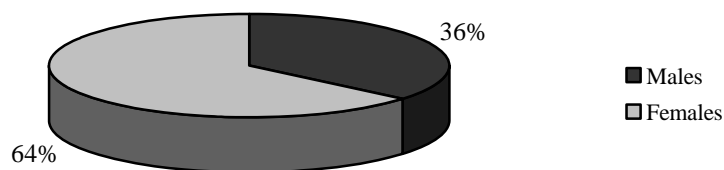
All data was analysed using SPSS v.11.5 and the main statistical test performed was chi-square analysis.

6.2.6 Results

6.2.6.1 Sample population

Overall, 790 students participated in the study. Of these, 510 (64 percent) were female and 281 (36 percent) were males, with an age distribution of 16-50 years (mean= 20.3 years, SD= 9.4 years) (Figure 6.5).

Figure 6.5: Gender distribution of sample population



The majority of the students (N= 703, 89 percent) were domestic students; only 87 (11 percent) were international students. In addition, the majority of the students (N= 764, 96.6 percent) were studying full-time with only 24 (3.4 percent) studying part-time.

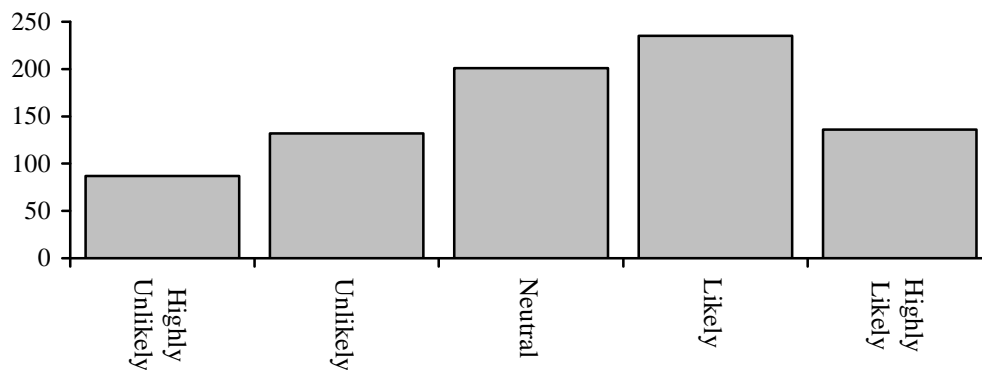
6.2.6.2 Questionnaire results

This section will present the results for each question included in the questionnaire (Figure 6.4).

Q1: How likely are you to join Total Wellbeing if the program was offered for free?

The results revealed that the majority of students were likely to join if the Total Wellbeing program was offered free of charge, with only 27 percent (N= 219) indicating they would be unlikely or highly unlikely to join (Figure 6.6).

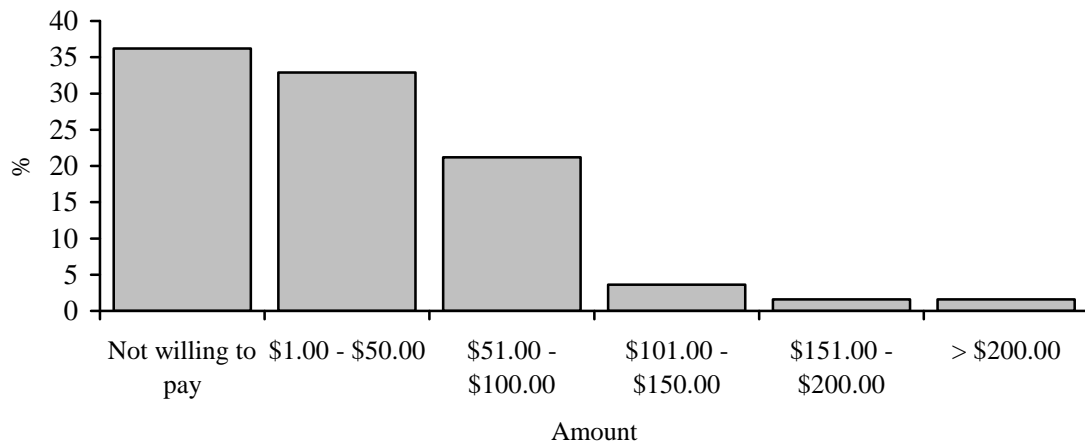
Figure 6.6: Likelihood of joining for free



Q2: If Total Wellbeing was not offered for free, how much would you be willing to pay per annum?

The results for this question revealed that 36 percent of students would not be willing to pay if the Total Wellbeing program was not offered free-of-charge versus 27 percent in question one. Of those willing to pay, the majority (54 percent) were willing to spend between \$1.00 to \$100.00 to join the program (Figure 6.7).

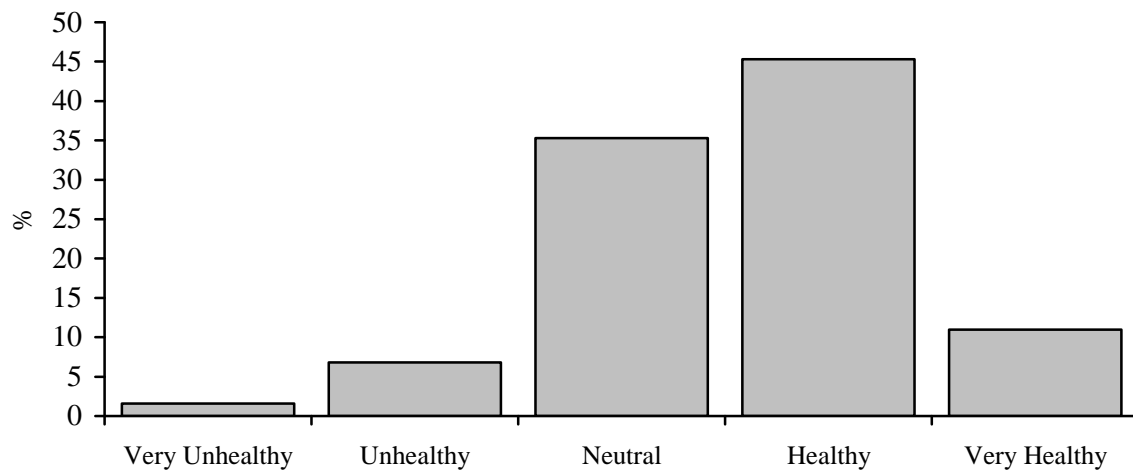
Figure 6.7: Amount willing to pay



Q3: How healthy do you consider yourself?

The majority of students considered themselves to be healthy (45 percent, N= 358) (Figure 6.8). However, 8.4 percent of students perceived themselves to be unhealthy and this is considered relatively high for this age group.

Figure 6.8: Self-perception of health



Q4: Do you think the Total Wellbeing program would be beneficial to anyone you know?

Students were asked to indicate whether or not they thought the Total Wellbeing program would be beneficial to their mother, father, grandfather, grandmother, sibling, friend and others. Students felt the program would be more beneficial for their parents, in particular their mother, as opposed to their grandparents (Table 6.5).

Table 6.5: Benefit to others

Do you think the program will benefit anyone you know?				
	Yes		No	
	N	%	N	%
Mother	422	53.4	367	46.4
Father	373	47.2	418	52.8
Grandfather	130	16.4	661	83.6
Grandmother	169	21.4	622	78.6
Sibling	228	28.8	563	71.2
Partner	63	8.0	728	92.0
Friend	197	24.9	593	75.0

Q5: Do you suffer from any chronic conditions?

Students were asked to indicate whether or not they suffered from asthma, diabetes, osteoporosis, arthritis, depression or heart disease. They also had the opportunity to indicate any other chronic conditions they may have. Table 6.6 shows the results; it can be seen that the most common chronic condition specified was asthma.

Table 6.6: Chronic conditions (self)

Do you suffer from the following chronic conditions?				
	Yes		No	
	N	%	N	%
Asthma	117	14.8	673	85.1
Diabetes	13	1.6	778	98.4
Osteoporosis	7	0.9	784	99.1
Arthritis	15	1.9	776	98.1
Depression	31	3.9	760	96.1
Heart disease	13	1.6	778	98.4

For the ‘other’ option, students indicated chronic conditions such as cancer, chronic fatigue and epilepsy. A small percent of participants indicated a series of conditions that were not considered chronic, such as acne, allergies and hayfever.

Q6: Do any members of your family suffer from any chronic conditions?

This question asked students to indicate whether or not anyone in their family suffers from asthma, diabetes, osteoporosis, arthritis, depression or heart disease or any other chronic conditions.

Asthma was the most common chronic condition among family members, followed by diabetes and arthritis. For the ‘other’ option, students indicated chronic conditions such as schizophrenia, cancer and emphysema. Similarly, many students also indicated conditions that were not considered chronic, such as anemia, stress and skin disease.

Table 6.7: Chronic conditions (family/others)

Does anyone in your family suffer from the following chronic conditions?				
	Yes		No	
	N	%	N	%
Asthma	199	25.2	592	74.8
Diabetes	142	18.0	649	82.0
Osteoporosis	52	6.6	739	93.4
Arthritis	135	17.1	656	82.9
Depression	91	10.2	710	89.8
Heart disease	93	11.8	698	88.2
Other	34	4.3	756	95.6

6.2.6.3 Hypotheses results

H₁: More participants who receive a framed letter (positive or negative) will indicate their willingness to join Total Wellbeing compared to students who did not receive a framed letter (neutral message).

H₂: More participants who receive a negative message will indicate their willingness to join Total Wellbeing compared to students who receive a positive message.

The results indicated that a framed message (either positive or negative) was no more effective in increasing participation rates in Total Wellbeing than the standard (neutral) message ($p = 1.34$). Hence, message framing did not influence a participant's decision to join the program; H_1 and H_2 were rejected.

H₃: More participants who were exposed to the hypothetical incentive offer will indicate their willingness to join Total Wellbeing compared to students who were not offered the hypothetical incentive offer.

H₃ was rejected; thus incentives did not influence participation rates in Total Wellbeing (p= 0.188).

H₄: More females than males will indicate their willingness to join Total Wellbeing

Gender was shown to influence participation rates with females more likely to join the program than males, even when the program was not offered for free. Fewer than the expected number of females fell into the “not willing to pay” category (p =0.022); thus supporting H₄, that is, more females than males indicated their willingness to join the Total Wellbeing program.

H₅: More participants who receive a letter from Wollongong Health will be willing to join the Total Wellbeing program than students who received a letter from their employer or CHBCR

The source of the letter influenced participants’ decision to join Total Wellbeing with those receiving a letter from their health insurance company, CHBCR, less likely to enrol in the program (p= 0.011). Thus H₅ was supported.

6.2.7 Discussion

The results of this pilot study demonstrate that the use of message framing and the offer of an incentive were both ineffective in persuading students to join Total Wellbeing. However, this result could be related to the sample population. Research shows that young adults and adolescents often view themselves as invincible and demonstrate higher risk-taking behaviours. It is therefore possible that students could not relate to, and were

not motivated by, the health messages employed because they viewed them as irrelevant. In addition, the majority of students in the sample population felt that they were healthy with only a small proportion defining themselves as either unhealthy (6.8 percent) or very unhealthy (1.6 percent) and as a result, many students felt the program would be more beneficial to their parents, in particular, their mother.

However, the pilot study showed that the source of the letter did play a significant role with a greater proportion of students in the CHBCR group (that is, the private health insurance company) being less likely to join. This suggests that trust plays an important part when deciding whether or not to join a disease and risk management program; hence, members in the sample population were more likely to trust and join a health program offered by a local area health service than their private health insurer. It may be that the offer of joining a health program from a private health insurance company is viewed as being made for purely hedonistic reasons and as a result many were skeptical.

6.2.8 Limitations of the Study and Direction for Future Research

The study was conducted using a convenience sample of university students; this population is not representative of the general population. The sample population was higher educated and relatively young, with a mean age of 20 years; research show this age group tend to display higher risk-taking behaviour and often view themselves as being invincible. It is recommended that future studies with this cohort should consider the use of health messages relevant to this age group to ensure saliency and greater persuasion.

6.2.9 Conclusion

Message framing and the offer of an incentive did not influence hypothetical uptake rates in the Total Wellbeing program. However, participation rates were influenced by the letter source and gender.

Figure 6.1: Participant information sheet



Participant Information Sheet

Associate Professor Sandra C. Jones and Christina Hoang

This study is being conducted by the Centre for Health Behaviour and Communication Research (CHBCR) and the Faculty of Health and Behavioural Sciences at the University of Wollongong by Associate Professor Sandra C. Jones and Christina Hoang.

The aim of the study is to test the effectiveness of an invitation letter and overall interest in a hypothetical health program called Total Wellbeing. This involves reading a letter inviting participants to join Total Wellbeing and then completing a series of questions. The questionnaire will take approximately 10-15 minutes.

Participation in the study is purely voluntary and all responses will remain confidential. Your name will not be recorded and you will remain anonymous.

If you have any enquiries about the research, you can contact Christina Hoang on 02 4221 4231. If you have any concerns or questions regarding the way in which this research is or has been conducted, you can contact the Ethics Officer, Human Research Ethics Committee, University of Wollongong on 02 4221 4457.



Christina Hoang

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University of Wollongong NSW 2522 Australia
Telephone: +61 2 4221 4231
Facsimile: +61 2 4221 3370

Figure 6.2: Sample preamble

Imagine you are a member of a health insurance company called CHBCR.

CHBCR have sent you the following letter inviting you to join 'Total Wellbeing', a health program run by the company.

Please read the letter and then answer the questions. All answers provided will remain anonymous and used purely for the purpose of this study.



Figure 6.3: Sample invitation letter

Find out how you
can receive a \$10.00
Rebel Sport Voucher

Dear valued member,

CHBCR is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all CHBCR members.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to CHBCR, and one of our health consultants will contact you.

Yours Sincerely,
The CHBCR Team



I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

Figure 6.4: Questionnaire

PLEASE ANSWER THE FOLLOWING QUESTIONS IN REGARDS TO THE LETTER YOU HAVE JUST READ:

- 1) On a scale of 1-5, please indicate how likely you are to join **Total Wellbeing** if it was offered free of charge after reading the letter?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5
Highly Unlikely				Highly Likely

- 2) If **Total Wellbeing** was not offered free of charge from your health insurance company, how much would you be willing to pay to join the program per annum?

<input type="checkbox"/>	Not willing to pay
<input type="checkbox"/>	\$1.00 - \$50.00
<input type="checkbox"/>	\$51.00 - \$100.00
<input type="checkbox"/>	\$101.00 - \$150.00
<input type="checkbox"/>	\$151.00 - \$200.00
<input type="checkbox"/>	> \$200

- 3) On a scale of 1-5, please indicate how healthy you consider yourself to be

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5
Very Unhealthy				Very Healthy

- 4) Do you think the Total Wellbeing program would be beneficial to anyone you know? Please indicate their relation to you.

<input type="checkbox"/>	Mother
<input type="checkbox"/>	Father
<input type="checkbox"/>	Grandfather
<input type="checkbox"/>	Grandmother
<input type="checkbox"/>	Sibling: Please indicate their Age: _____ and Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
<input type="checkbox"/>	Partner: Please indicate their Age: _____ and Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
<input type="checkbox"/>	Friend: Please indicate their Age: _____ and Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
<input type="checkbox"/>	Other: Please indicate their Age: _____ and Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female

5) Do you suffer from any of the following chronic conditions? (tick all that apply)

- ☐ Asthma
 - ☐ Diabetes
 - ☐ Arthritis
 - ☐ Osteoporosis
 - ☐ Heart disease
 - ☐ Depression
 - ☐ Other: Please indicate: _____
-

6) Do any member(s) of your family suffer from a chronic condition? (tick all that apply)

- ☐ Asthma
 - ☐ Diabetes
 - ☐ Arthritis
 - ☐ Osteoporosis
 - ☐ Heart disease
 - ☐ Depression
 - ☐ Other: Please indicate: _____
-

Demographic information:

1) Age: _____

2) Gender: ☐ Male ☐ Female

3) Postcode:

4) Degree: _____

5) Are you a domestic or international student? (Please tick one)

- ☐ Domestic
- ☐ International

6) Are you a full-time or part-time student? (Please tick one)

- ☐ Full-time
- ☐ Part-time

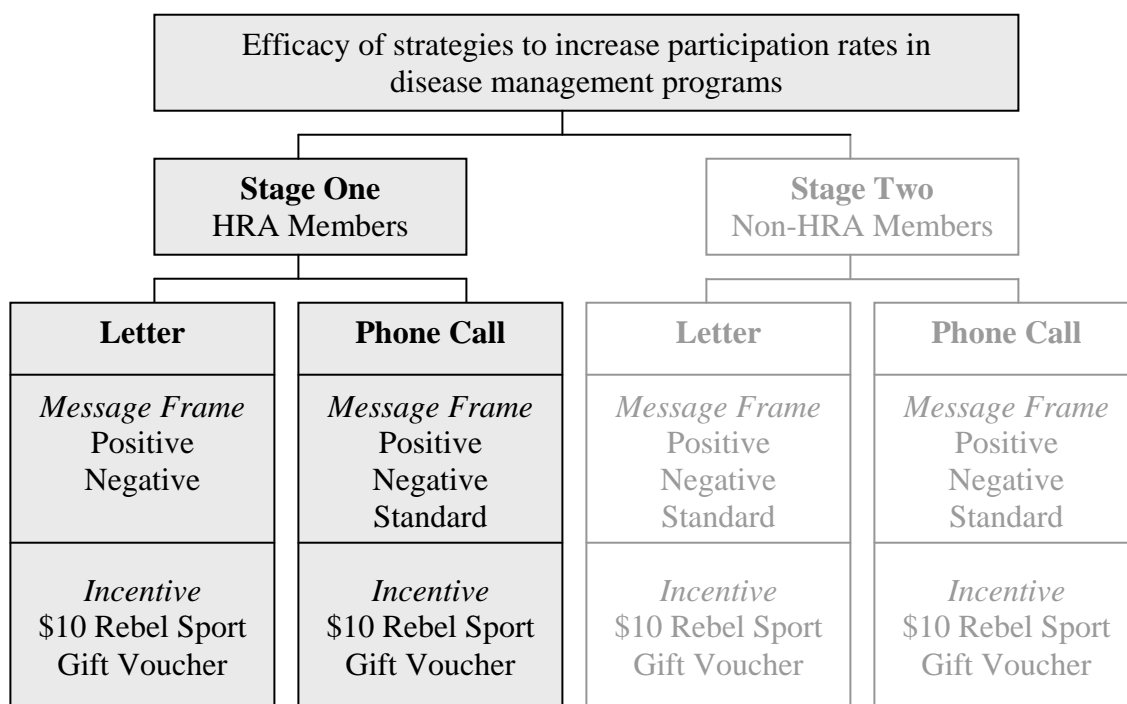
Thank you for your participation!

7.

STAGE ONE

This chapter details the first stage of a two stage study used to test the efficacy of message framing and the provision of an incentive on uptake rates in Total Health among members of ahm who had completed their health risk assessment (HRA). The second stage of the study (Chapter 8) focuses on ahm members who had not completed their HRA (Figure 7.1). Two experiments were conducted for Stage One of the study – an invitation phone call and an invitation letter – each of which applied prospect theory (through message framing) and an incentive. Furthermore, the HRA data for members of the sample population was examined to determine the impact of various health factors (for example exposure to a chronic condition, BMI, physical activity levels) on members’ decisions to join Total Health.

Figure 7.1: Study outline: (Stage One)



7.1 EXPERIMENT 1: INVITATION LETTERS

7.1.1 Aim

The aim of this experiment was to test the relative effectiveness of positively and negatively framed invitation letters, with or without the use of an incentive offer, on uptake rates in Total Health.

7.1.2 Study Design

This experiment employed a 2×2 factorial design between message frame (positive versus negative) and incentive (with incentive versus without incentive) (Table 7.1). Four different types of letters were developed and tested for the experiment: positively framed invitation letter, positively framed invitation letter with an incentive offer, negatively framed invitation letter and negatively framed invitation letter with an incentive offer (appendix 7A-7D).

Table 7.1: Study design (invitation letters)

	Positively Framed Message	Negatively Framed Message
With Incentive	<i>Condition 1</i> Positive message with incentive	<i>Condition 3</i> Negative message with incentive
Without Incentive	<i>Condition 2</i> Positive message	<i>Condition 4</i> Negative message

7.1.3 Methodology

7.1.3.1 Sample population

The sample population was comprised of 1500 ahm members who were randomly selected from ahm's database. These members had not been contacted by ahm since returning their HRA and this ensured they were not exposed to, or influenced by, any marketing communications or campaigns which had the potential to bias the results. Members were sent an invitation letter inviting them to enrol in the Total Health program; the invitation letters were evenly distributed among the different message frames and incentive conditions.

7.1.3.2 Development of the messages (framing)

This experiment employed prospect theory via the use of message framing. Two evidence-based health messages were developed:

1. A positively framed message that focused on what members can expect to *gain* by joining Total Health.
2. A negatively framed message that focused on what members can expect to *lose* by not joining Total Health.

Consistent with prospect theory the messages were direct bi-polar opposites of each other; the same outcome was described in complementary ways to enable formulation effects to be observed, that is, the difference that results from such manipulation (Mandel, 2001). The use of bi-polar messages also increases the validity of the results by counteracting any effects whereby one message is considered stronger than the other.

The specific positive and negative messages employed in the study were:

Positive message:

Did you know?

- 1 Maintaining a healthy weight can reduce your risk of developing diabetes
- 2 Eating a healthy diet can provide you with increased energy
- 3 Regular exercise can prevent heart disease.

Take this opportunity to join Total Health and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

Negative message:

Did you know?

- 1 Being overweight can increase your risk of developing diabetes
- 2 Eating an unhealthy diet can make you feel tired and lethargic
- 3 Lack of exercise can lead to heart disease.

Miss this opportunity to join Total Health and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

The messages were designed using evidence-based health information, that is, information derived from “well designed and interpreted research studies” (Bilsker and Goldner, 2004: 272). This included information from peer-reviewed literature as well as various

publications from the Australian Institute of Health and Welfare; hence, the messages developed targeted contemporary health issues that are relevant to Australians.

Figure 7.2 is an explanatory letter which highlights the main differences between the positive and negative letter as well as providing a brief rationale for various aspects of the letter.

7.1.3.3 Selection of the incentive

The incentive employed was a \$10 Rebel Sport gift voucher. This was offered to half of the sample population upon enrolment in Total Health, that is, it was a post-action incentive.

The \$10 Rebel Sport gift voucher was chosen by ahm for a variety of reasons. Firstly, it rewards members for joining Total Health without being considered a bribe. Secondly, the \$10 denomination was not large enough to encourage members to join Total Health simply to receive the voucher and then withdraw from the program a few weeks later. Lastly, Rebel Sport is an Australian sports store, thus allowing members to purchase sporting equipment or clothing which complements Total Health's core focus on health and wellbeing.

All gift vouchers were sent to enrolling members with an accompanying 'with compliments' slip (appendix 7E) congratulating them on joining the Total Health program.

7.1.3.4 The invitation letter

ahm usually utilises an external mailhouse to mass-produce and carry out their mailouts; however, for the purpose of this experiment all letters were produced in-house by ahm. This was largely due to the small volume of letters that needed to be produced for each condition tested, making it easier to track and monitor in-house.

The letters were mailed out on June 14, 2005 and contained an August 1, 2005 cut-off date – giving members six weeks to respond. The August 1 cut-off date was chosen for a variety of reasons including: it was an easy date to remember; gave members a reasonable amount

of time to respond; and, hopefully, created a sense of urgency and thereby encouraged members to respond promptly.

Members interested in joining Total Health were asked to complete and return a tear-off reply coupon located at the bottom of the letter. Each reply coupon had been printed with the member's details and included a series of simple tick boxes that allowed the member to indicate a preferred day and time to be contacted by an ahm lifestyle consultant. In addition, a reply-paid envelope was supplied to make it convenient for members to respond. Research shows that the use of a reply-paid envelope has the potential to increase response rates – “sometimes providing an advantage of five to seven percentage points” (Dillman, 2000: 173).

Upon receipt of the reply coupon an ahm lifestyle consultant contacted the member – on the preferred day and time – and enrolled them in the Total Health program.

Figure 7.3 is a process map visually depicting the course of action undertaken by ahm from the time the letters were sent through to program enrolment.

7.1.3.5 Data management

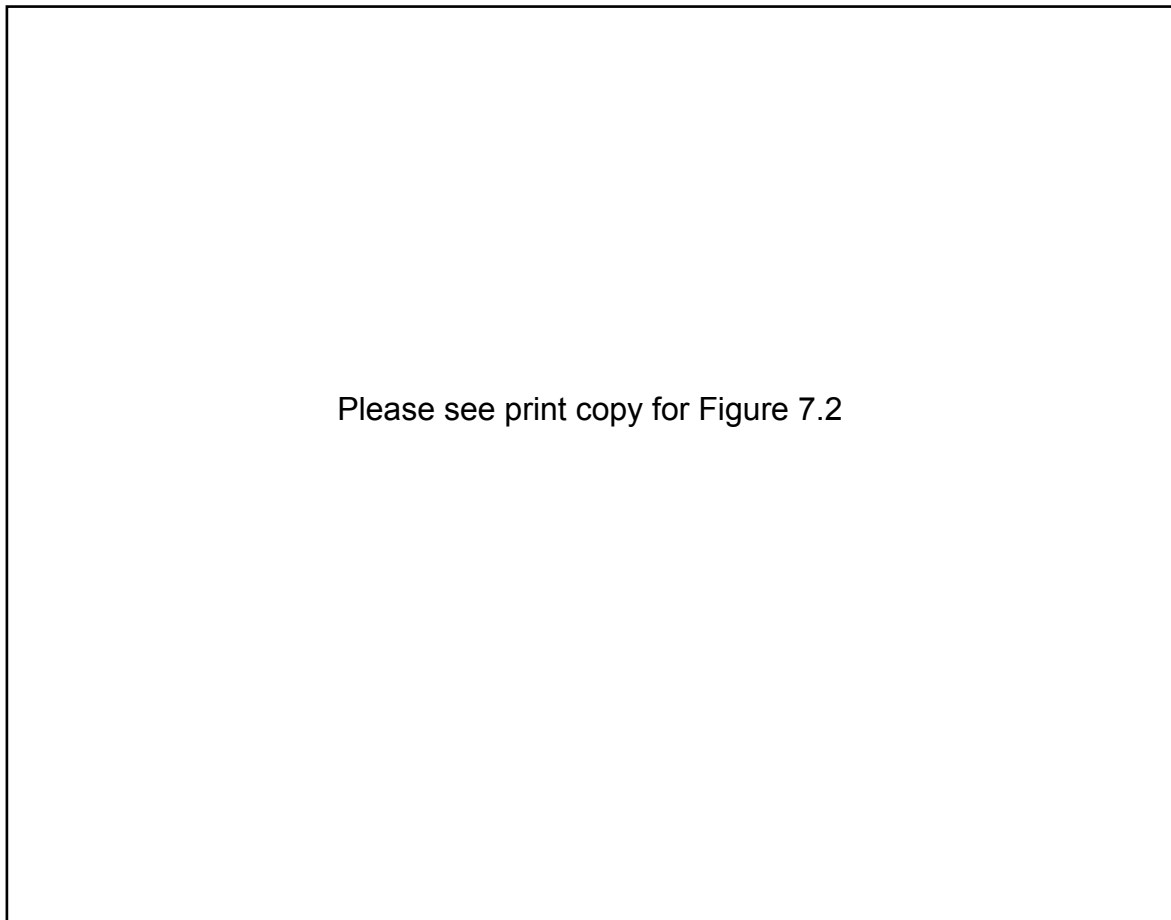
A coding system was implemented to help manage the letters. All invitation letters and their accompanying tear-off reply coupon were coded in the bottom right hand corner (for example, NL= negative letter and NL1= negative letter with an incentive offer) to enable the member and the type of letter they received to be easily matched and/or traced.

When members returned their reply coupon, their details (that is, their member number and type of letter they received) were recorded in an Excel database. This was later matched up to their HRA data and transferred to SPSS for analysis.

7.1.3.6 Methods of analysis

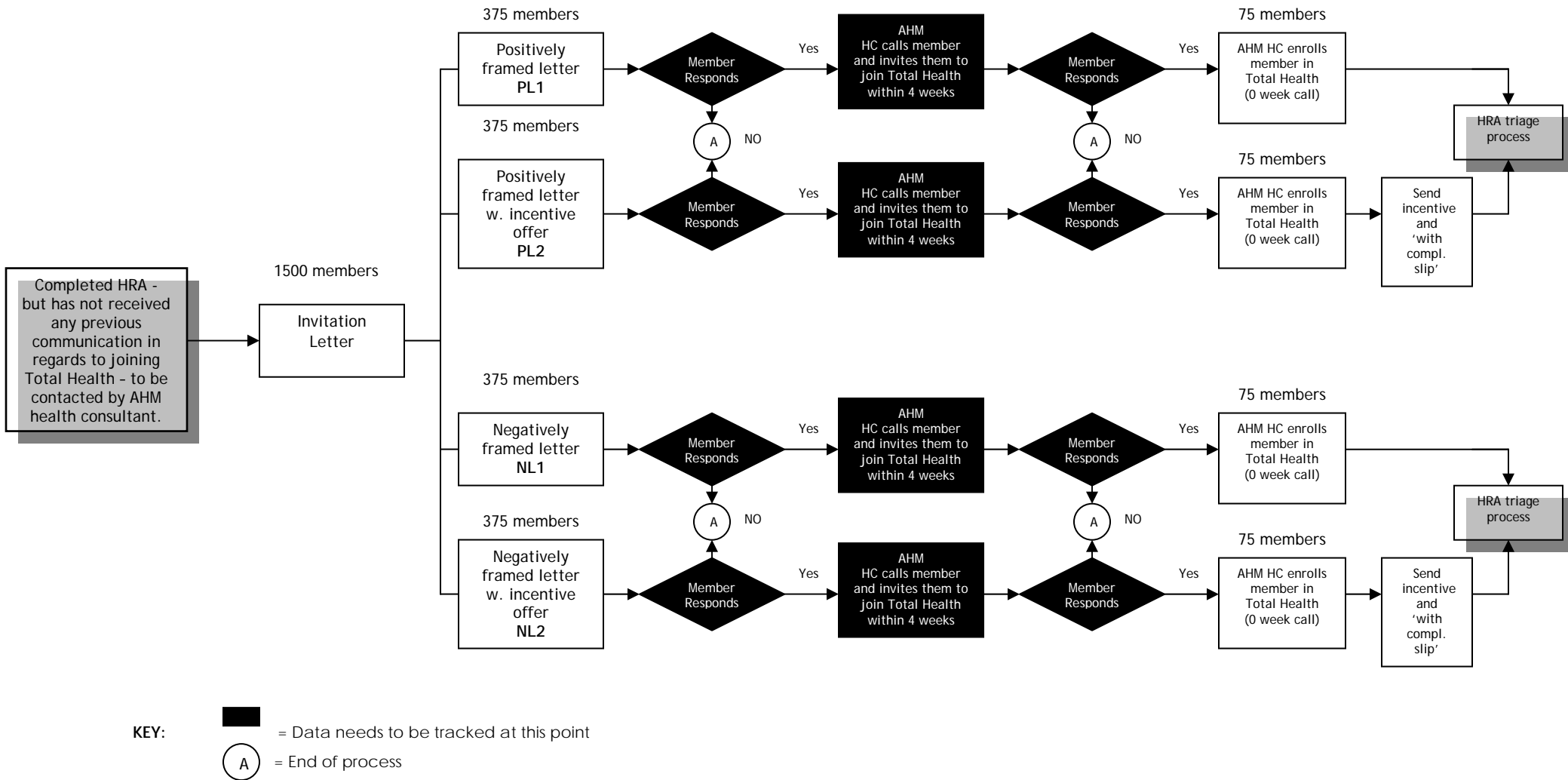
All data was analysed using SPSS v.11.5. Statistical tests were performed using chi-square analysis.

Figure 7.2: Overview and rationale of the invitation letters



Please see print copy for Figure 7.2

Figure 7.3: Experiment one: Invitation letter process map



7.1.4 Results

Overall, 1500 members received an invitation letter. Of these, 671 (45 percent) were male and 829 (55 percent) were female, with an age range of 19-92 years (mean= 55 years, SD= 16 years) (Table 7.2).

Table 7.2: Age distribution – letter condition

	N	%
Age		
< 25	105	7.0
25-30	35	2.3
31-40	124	8.3
41-50	263	17.5
51-60	362	24.1
61-70	387	25.8
71-80	195	13.0
> 80	29	1.9
Total	1500	100

7.1.4.1 Message frame

In total, 750 members received a negatively framed letter (of which 375 included an incentive offer) and 750 members received a positively framed letter (of which 374 included an incentive offer). More members who received the positive letter joined Total Health than the negative letter (10 percent versus 9.5 percent of enrolments) (Table 7.3); however, this was not statistically significant ($p = 0.369$, $\chi^2 = 1.992$).

Table 7.3: Influence of message frame

		Did the member join Total Health?					
		No		Yes		Total	
		N	%	N	%	N	%
Frame	Negative	679	90.5	71	9.5	750	100
	Positive	675	90	75	10	750	100
Total		1354	90.3	146	9.7	1500	100

7.1.4.2 Incentive

Overall, 749 members were offered an incentive and 751 members were not offered an incentive to enrol in the Total Health program. The results showed no main effect for the use of an incentive, with fewer members in the incentive condition joining the program compared to the non-incentive condition (9.1 percent versus 10.4 percent of enrolments; $p=0.224$, $\chi^2=0.204$) (Table 7.4). Hence, for the invitation letters, the use of an incentive was deemed ineffective in increasing response rates.

Table 7.4: Influence of an incentive

		Did the member join Total Health?					
		No		Yes		Total	
		N	percent	N	percent	N	percent
Incentive		681	90.9	68	9.1	749	100
No incentive		673	89.6	78	10.4	751	100
Total		1354	90.3	146	9.7	1500	100

7.1.4.3 Message framing and incentive

The combined results for message framing and the offer of an incentive were also examined. Table 7.5 shows that overall more members who received a negative message with an incentive offer joined Total Health than those who received a positive message with

an incentive offer (8.2 percent versus 6.6 percent of enrolments). However, this was not statistically significant ($p = 0.369$, $\chi^2 = 1.992$).

Table 7.5: Influence of message framing and an incentive offer

	Did the member join Total Health?					
	No		Yes		Total	
	N	%	N	%	N	%
Positive message with an incentive	337	93.4	24	6.6	361	100
Negative message with an incentive	344	91.8	31	8.2	375	100
Total	681	92.5	55	7.5	736	100

7.1.4.4 Overall results

Table 7.6 highlights the results for each of the four conditions tested. From Table 7.6 it can be seen that the negative letter without an incentive performed best with 10.7 percent of members enrolling in the Total Health program.

Table 7.6: Invitation letters results

	Did the member join Total Health?					
	No		Yes		Total	
	N	%	N	%	N	%
Negative Letter	335	89.3	40	10.7	375	100
Negative Letter with an Incentive	344	91.7	31	8.3	375	100
Positive Letter	338	89.9	38	10.1	376	100
Positive Letter with an Incentive	337	90.1	37	9.9	374	100
Total	1354	90.2	146	9.8	1500	100

7.1.5 Discussion

For the letter experiment, it was found that message framing did not have a statistically significant impact on motivating members to join the Total Health program despite the marginally higher response rates in the negative letter condition. Members in the sample population were therefore not persuaded to enrol in the Total Health program by the use of either positively or negatively framed messages. This is consistent with studies conducted by O'Connor, Pennie and Dales (1996) and Siminoff and Fetting (1989) who similarly found no framing effects in a health context.

Similarly, members in the sample population were not motivated by the incentive, with slightly higher participation rates seen in the non-incentive condition compared to the incentive condition. This suggests that the incentive was either not salient enough in the letters and thus went unnoticed or it was not attractive enough to members and, as a result, did not influence their decision in regards to joining the program.

7.1.6 Limitations

The letter condition did not have a control group, that is, a group that received a standard letter employing a neutral tone (neither positive nor negative); this was amended in stage two of the study.

7.1.7 Conclusion

When implementing invitation letters for the Total Health program, the use of message framing and the offer of a \$10 Rebel Sport voucher were found to be ineffective in motivating members who had completed their HRA to enrol in the Total Health program.

7.2 EXPERIMENT 2: INVITATION PHONE CALLS

7.2.1 Aim

The aim of this experiment was to test the relative effectiveness of positively and negatively framed invitation phone calls, coupled with the use of an incentive offer, upon uptake rates in Total Health.

7.2.2 Study Design

Experiment two employed a 3×2 study design between message frame (positive, negative, standard) and incentive (with incentive or without incentive) (Table 7.7). Six different types of calls were developed and tested for this part of the experiment and these were: positively framed call, positively framed call with an incentive offer, negatively framed call, negatively framed call with an incentive offer, standard call and standard call with an incentive offer (appendix 7F-7K).

Table 7.7: Study design

	Positively Framed Message	Negatively Framed Message	Standard Message
With Incentive	<i>Condition 1</i> Positive message with incentive	<i>Condition 3</i> Negative message with incentive	<i>Condition 5</i> Standard message with incentive
Without Incentive	<i>Condition 2</i> Positive message	<i>Condition 4</i> Negative message	<i>Condition 6</i> Standard message

7.2.3 Methodology

7.2.3.1 Sample population

The sample population comprised of 1490 ahm members who were randomly selected from ahm's database. These members had not been contacted by ahm since returning their HRA and this ensured they were not exposed to, or influenced by, any marketing communications or campaigns which had the potential to bias the results. Members were called by an ahm lifestyle consultant and invited to join Total Health. The calls were evenly distributed among the different message frames and incentive offer.

7.2.3.2 Development of the messages (framing)

The same messages that were developed for the invitation letters were applied to the invitation phone calls. This was for consistency purposes to help overcome any effects whereby one message would be considered more persuasive than the other.

7.2.3.3 Selection of the incentive

Likewise, the same incentive was employed for the phone calls as for the letter condition, that is, a \$10.00 Rebel Sport gift voucher. This ensured consistency between the two experiments and helped overcome any effects whereby one incentive would be considered more appealing or attractive than the other.

7.2.3.4 The invitation phone call

At ahm, lifestyle consultants are responsible for calling members and inviting them to join the Total Health program. A call guide is used to assist lifestyle consultants by listing the essential aspects that need to be addressed for each phone call, for example: the opening greeting; confirming the member's identity; inviting members to join the program; and attaining the member's consent to participate in the program.

Overall, five new call guides were developed for experiment two. These new call guides were developed by manipulating the current call guide employed by ahm (known as the standard call guide, which was used as the control group for the study) to incorporate either

a positive or negative message, with or without an incentive offer. Hence, the resulting five new call guides were: positively framed call, positively framed call with an incentive offer, negatively framed call, negatively framed call with an incentive offer and standard call with an incentive offer. These were used to guide the lifestyle consultants during the call process and were not considered call scripts; that is, the lifestyle consultants were encouraged to interact with the member and deliver the framed messages naturally without sounding as if they were reading from a script and/or making a sales pitch (Figure 7.4).

All lifestyle consultants involved in the study underwent a training session conducted by both a corporate trainer at ahm and the author. The training session was three hours in duration and consisted of four parts:

Part one: Background to the study

The first part of the training session provided lifestyle consultants with information on the background of the study, its purpose and significance. In addition, the lifestyle consultants were introduced to the main theoretical paradigms underpinning this study, that is, message framing and the use of incentives (appendix 7L).

Part two: Message framing

The second part of the training session examined message framing with examples from a variety of different contexts (such as health and marketing) presented to the lifestyle consultants to highlight the difference between positive and negative messages.

The lifestyle consultants then participated in two activities (appendix 7M). The first activity involved presenting the lifestyle consultants with a series of messages where they had to identify (individually) and discuss (as a group) whether the messages were positive or negative. The second activity presented the lifestyle consultants with either a positive or negative message and they were asked to construct its bi-polar opposite.

Finally, all the lifestyle consultants were presented with the new call guides (appendix 7F-7K). These were colour coded for easy reference, with the standard call guides printed on

white paper, the positive call guides on pink paper and the negative call guides on blue paper. Furthermore, a green dot in the top right hand corner of the call guide denoted that the call involved an incentive offer.

Part three: Systems training

The third part of the training session was conducted by ahm's corporate trainer and involved informing the lifestyle consultants of the new variations to the computer system to accommodate the different call types. The lifestyle consultants were then given 20 minutes to explore the new system and practice implementing the various call types, thus allowing them to become familiar with both the new program and the call guides.

Part four: Role plays

The fourth part of the training session involved the lifestyle consultants engaging in one-on-one role plays with the corporate trainer. This was designed to allow the lifestyle consultants to practice the different call types in a simulated environment.

The corporate trainer took on the role of an ahm member (both friendly and difficult) and interacted directly with the lifestyle consultants while they performed the various call types. This allowed the lifestyle consultants to deal with on the spot queries and questions that may arise during the course of a normal phone call.

The importance of delivering a purely positive or negative message to ensure the consistency of the phone calls and thus increase the validity of the results was emphasised to all lifestyle consultants.

Figure 7.5 is a process map highlighting the process that ahm followed from the initial phone call through to program enrolment.

7.2.3.5 Data management

The sample population was randomly selected from ahm's main database and placed into a new database which was specifically created for the purpose of this study. The sample population was therefore kept separate to prevent any contamination of the data.

Every member was then randomly assigned to a framing condition (negative, positive, standard) and an incentive condition (with or without); thus when a lifestyle consultant pulled up a member's details, a colour coded pop-up appeared notifying the lifestyle consultant of the call type and whether or not to offer the member an incentive. The pop-ups were colour coded to match the call guides for easy referencing.

The database worked on a queue system whereby if the member was unreachable on the first attempt, they were placed at the end of the queue and re-called at a later point. If the member was still unreachable after the third attempt then he/she was excluded from the study.

All phone calls were recorded by ahm; however, due to the logistical complexity, only 25 were made available and these were checked to ensure the lifestyle consultants complied with the given guidelines. Any phone calls that did not meet the guidelines were omitted from the study.

7.2.3.6 Methods of analysis

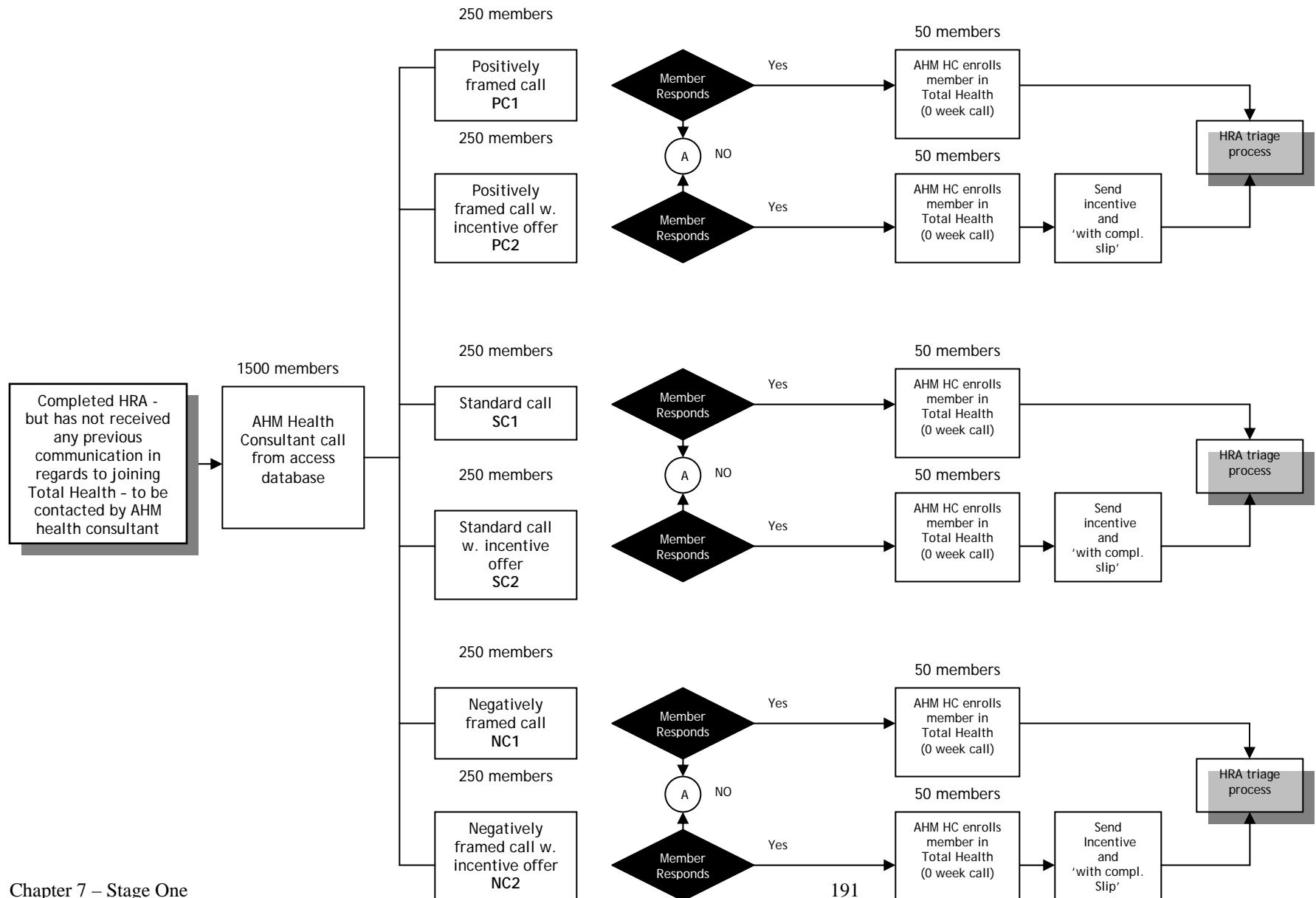
All data was analysed using SPSS v.11.5; the main statistical test performed was chi-square analysis.

Figure 7.4: Overview of the call guides

Please see print copy for Figure 7.4

Please see print copy for Figure 7.4

Figure 7.5: Experiment two: Invitation phone calls process map



7.2.4 Results

In total, 1460 members received an invitation phone call from an ahm lifestyle consultant. Of these, 636 (44 percent) were male and 824 (56 percent) were female, with an age range of 18-91 years (mean= 54 years, SD= 15 years) (Table 7.8).

Table 7.8: Age distribution

	N	%
Age		
< 25	68	4.7
25-30	55	3.8
31-40	186	12.7
41-50	282	19.3
51-60	360	24.7
61-70	299	20.5
71-80	179	12.3
> 80	31	2.1
Total	1460	100

7.2.4.1 Message frame

In total, 483 members received a negatively framed phone call (of which 244 included an incentive offer), 489 members received a positively framed phone call (of which 246 included an incentive offer) and 488 members received a standard phone call (of which 248 included an incentive offer). Table 7.9 shows that the standard phone call received the highest response rate (10.9 percent of enrolments; $p = 0.356$) and this was followed equally by the negative and positive phone call (7.2 percent of enrolments each). The results were statistically non-significant hence message framing (positive versus negative) was found to have no influence on members' decision to join the Total Health program for the call condition ($p = 0.786$, $\chi^2 = 0.483$).

Table 7.9: Influence of message frame

		Did the member join Total Health?					
		No		Yes		Total	
		N	%	N	%	N	%
Frame	Negative	448	92.8	35	7.2	483	100
	Positive	454	92.8	35	7.2	489	100
	Standard	435	89.1	53	10.9	488	100
Total		1337	91.6	123	8.4	1460	100

7.2.4.2 Incentive

Overall, 738 members were offered an incentive and 722 members were not offered an incentive upon enrolment in Total Health. The results showed that the incentive condition outperformed the non-incentive condition (10.4 percent versus 6.4 percent of enrolments) (Table 7.10). However, the results were not statistically significant ($p = 0.633$, $\chi^2 = 0.240$).

Table 7.10: Influence of an incentive

		Did the member join Total Health?					
		No		Yes		Total	
		N	%	N	%	N	%
Incentive		661	89.6	77	10.4	738	100
No incentive		676	93.6	46	6.4	722	100
Total		1337	91.5	123	8.5	1460	100

7.2.4.3 Message framing and incentive

The combined results for message framing and an incentive were then examined. Table 7.11 shows that the standard message with an incentive offer received the highest number of enrolments (10.9 percent). This was closely followed by the negative message with an incentive offer (10.6 percent) and finally, the positive message with an incentive offer (9.7

percent). Statistical analysis revealed the differences between the groups were non-significant ($p = 0.508$, $\chi^2 = 0.771$).

Table 7.11: Influence of message framing and an incentive

	Did the member join Total Health?					
	No		Yes		Total	
	N	%	N	%	N	%
Positive message with an incentive	222	90.3	24	9.7	246	100
Negative message with an incentive	218	89.4	26	10.6	244	100
Standard message with an incentive	221	89.1	27	10.9	248	100
Total	661	89.6	77	10.4	738	100

7.2.4.4 Overall results

Table 7.12 highlights the results for each of the conditions tested for the invitation phone calls.

Table 7.12: Invitation phone calls results

	Did the member join Total Health?					
	No		Yes		Total	
	N	%	N	%	N	%
Negative Call	230	96.2	9	3.8	239	100
Negative Call with an Incentive	218	89.4	26	10.6	244	100
Positive Call	232	95.5	11	4.5	243	100
Positive Call with an Incentive	222	90.3	24	9.7	246	100
Standard Call	214	89.2	26	10.8	240	100
Standard Call with an incentive offer	221	89.1	27	10.9	248	100
Total	1337	91.6	123	8.4	1460	100

From Table 7.12 it can be seen that the standard call, both with and without an incentive, performed best with 10.9 percent and 10.8 percent of enrolments in the Total Health program respectively.

7.2.5 Discussion

The results for the invitation phone calls show that the most persuasive condition was the standard condition which indicates that the use of positively and negatively framed health messages had no effect on uptake rates in the Total Health program. This is consistent with studies conducted by O'Connor, Pennie and Dales (1996) and Siminoff and Fetting (1989) who similarly found no framing effects in a health context for influenza immunisation and breast self examination respectively.

The finding of no effect could be due to the lack of tailoring of the message. Mann, Sherman and Updegraff (2004), for example, have demonstrated that tailoring a message based on motivation influences response to framed messages. However, in this study access to personal qualitative data was not allowed due to ahm policy. The finding of no effect could also be due to the delivery of the messages with the lifestyle consultants most familiar and comfortable with the standard message, thus potentially resulting in a more persuasive phone call. In addition, some of the lifestyle consultants were also hesitant about delivering the negative message because they were worried that it might upset some members and as a result, the negative message may have not been delivered as persuasively as the other two conditions tested (i.e. standard and positive).

Results for the incentive condition showed that participation rates in the Total Health program were greater among those in the incentive condition compared to the non-incentive condition by approximately 25 percent. In particular, when comparing the incentive and non-incentive conditions for both the positively framed and negatively framed phone call, it can be seen that enrolment rates more than doubled in the incentive condition compared to the non-incentive condition. The result is consistent with B.F. Skinner's operant conditioning theory. Thus, the use of an incentive functioned as a positive reinforcement

for joining the Total Health program. Thus, despite the results being statistically non-significant, it does signify the potential for incentives to motivate members to join Total Health. Future studies should examine different types and levels of incentives to determine the most optimal.

7.2.6 Limitations

The invitation phone calls were implemented by three different lifestyle consultants; this has the potential to bias the results because each lifestyle consultant has their own personal style of interacting with the member. In addition, some lifestyle consultants were hesitant and/or not comfortable with delivering the negative message and as a result, did not interact with the member as confidently or comfortably as they did for the positively framed and standard phone calls.

7.2.7 Conclusion

When implementing invitation phone calls for the Total Health program, the use of message framing and the offer of a \$10 Rebel Sport gift voucher were found to be ineffective in motivating members who have completed their HRA to enrol in the program.

7.3 STAGE ONE (COMBINED RESULTS)

This section examines Stage One of the study as a whole, that is, the combined results for both the invitation letters (experiment one) and phone calls (experiment two).

7.3.1 Sample Population

Overall, 2960 members were randomly selected for Stage One of the study. Of these, 1307 (44 percent) were male and 1653 (56 percent) were female, with an age distribution of 18-92 years (mean= 55 years, SD=16 years) (Table 7.13).

Table 7.13: Summary of sample population

	Male		Female	
	N	%	N	%
Gender	1307	44	1653	56
Age				
< 25	56	1.49	117	4.35
25-30	37	1.25	53	1.79
31-40	122	4.12	188	6.35
41-50	225	7.60	320	10.81
51-60	318	10.74	404	13.65
61-70	318	10.74	368	12.43
71-80	210	7.09	164	5.54
> 80	21	0.71	39	1.32

The majority of the sample population (72 percent) were aged between 41-70 years (Figure 7.6) and 56 percent were female (Figure 7.7).

Figure 7.6: Age distribution of sample population

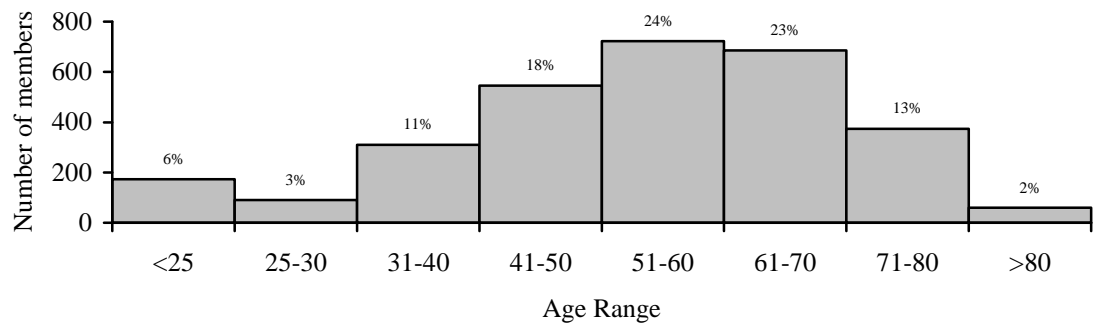


Figure 7.7: Gender distribution of sample population

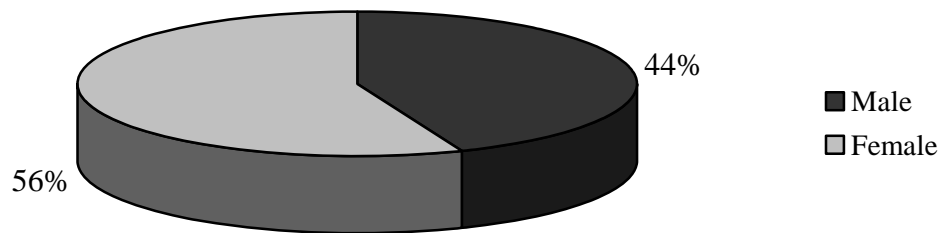


Table 7.14 shows the breakdown of the sample population by type of call or letter (negative, positive or standard; with or without an incentive offer). Overall, 1230 members received a negatively framed message, 1236 members received a positively framed message and 488 members received a standard message – half of which contained an incentive offer. Unfortunately, the letter group did not have a standard letter (also known as the control group); this was amended in stage two of the study.

Table 7.14: Breakdown of sample population by type of letter or call

Type of call or letter	N	%
Negative letter	375	12.67
Negative letter with incentive	375	12.67
Positive letter	376	12.70
Positive letter with incentive	374	12.64
Negative call	239	8.88
Negative call with incentive	244	8.24
Positive call	243	8.21
Positive call with incentive	246	8.31
Standard call	240	8.11
Standard call with incentive	248	8.38
Total	2960	100

7.3.2 Hypotheses

Overall, seven hypotheses were developed and tested for Stage One of the study.

H_1 : *Members in the sample population will be more responsive to a negatively framed message inviting them to join Total Health than a positively framed message.*

This is based on the rationale that if the HRA is considered a risk, that is, by completing the HRA individuals could find out that they have a chronic disease or a risk factor for the development of a chronic disease, then those who complete the HRA are considered risk-takers while those who do not complete the HRA are considered risk-averse. If we couple this with the underlying foundations of prospect theory which posits that people tend to be risk-averse when exposed to positively framed information and risk-taking when exposed to negatively framed information, then it can be hypothesised that people who complete the HRA will be more responsive to negatively framed information.

H₂: The use of message framing (either positive or negatives message frames) will be more effective in increasing Total Health enrolment rates than the use of an unframed message (i.e. standard message).

It is hypothesised that positively and negatively framed messages encouraging participants to join Total Wellbeing will be more persuasive than unframed (neutral) messages. This is based on the premise that the framing of a decision problem often influences the type of decision that people make and furthermore, the way in which a message is framed has the potential to affect the amount of persuasion it elicits (McElroy and Seta, 2003; Smith and Petty, 1996).

H₃: A greater proportion of members who receive the incentive offer will join Total Health than those who do not receive the incentive offer.

This is based on B.F. Skinner's theory of operant conditioning which postulates that incentives act as positive reinforcers for the desired behaviour, and behaviour that is positively reinforced is more likely to occur than non-reinforced or negatively reinforced behaviour (Kardes, 2002; Bénabou and Tirole, 2003; Rothschild and Gaidis, 1981). The use of an incentive is based on the assumption that people who are rewarded for a behaviour are more likely to engage in that behaviour (Wirtz and Chew, 2002: 143). It is therefore hypothesised that a greater proportion of members who received the incentive offer would join Total Health than those who did not receive the incentive offer.

H₄: Invitation phone calls will be more effective at increasing enrolment rates in Total Health than invitation letters

Telephone invitations enable lifestyle consultants to interact directly with members and address any concerns or questions they may have. Furthermore, telephone communication is considered more personal and salient compared to the use of an invitation letter which

does not necessarily get read due to the high volume of clutter and junk mail. Hence, it was hypothesised that a greater proportion of members who received the invitation phone call would enrol in the Total Health program compared to the invitation letter.

H₅: More females will join Total Health than males

It is well-documented that women engage in formal health services more readily than men (Parslow, Jorm, Christensen, Jacomb and Rodgers 2004; Woods, Macdonald and Campbell, 2000; Tudiver and Talbot 1999; Corney 1990) with research showing that Australian men visit the doctor less frequently than women (Australian Bureau of Statistics, 1998). Men tend only to use health services when they have physical, tangible conditions, while women tend to proactively seek medical advice for issues that affect their overall health and well-being (Woods, Macdonald and Campbell, 2000, Tudiver and Talbot, 1999; Corney, 1990; Denner, 2005). Hence, it was hypothesised that more females would join Total Health than males.

H₆: A greater number of older members will join Total Health than younger members of the sample population.

It was hypothesised that a greater proportion of older members would join Total Health compared to younger members. This was based on the notion that young people tend to consider themselves invincible and as a result, have different risk perceptions than older people. Younger people are therefore more likely to engage in risk-taking behaviour (for example: drink driving, smoking and insufficient consumption of fruit and vegetables), with health screening and check-up behaviours increasing with age (Liang, Shediach-Rizkallah, Celentano and Rohde, 1999).

H₇: Members who are exposed to chronic illness(es) are more likely to join Total Health than those members who are not exposed to chronic illness (es).

Research shows that exposure to a chronic illness often provides individuals with the motivation needed to change health behaviour (Lemon, Zapka and Clemow, 2004; Schilling, Conaway, Wingate, Atkins, Berkowitz, Clamon, DiFino and Vinciguerra, 1997). It was therefore hypothesised that members of ahm who were exposed to a chronic illness (either personally or through a family member) would be more likely to join Total Health than those members who were not exposed to a chronic illness.

7.3.3 Methods of Analysis

All data was analysed using SPSS v.11.5; the main statistical test performed was chi-square analysis.

7.3.4 Results

Table 7.15 shows the overall results for Stage One of the study. From this it can be seen that the standard phone call condition (both with and without an incentive offer) achieved the highest uptake rates in the Total Health program (10.9 percent and 10.8 percent of enrolments respectively).

Table 7.15: Stage One results by type of letter or call

Type of Call or Letter	Did the member join Total Health?					
	No		Yes		Total	
	N	%	N	%	N	%
Negative letter	335	89.3	40	10.7	375	100
Negative letter with incentive	344	91.7	31	8.3	375	100
Positive letter	338	89.9	38	10.1	376	100
Positive letter with incentive	337	90.1	37	9.9	374	100
Negative call	230	96.2	9	3.8	239	100
Negative call with incentive	218	89.3	26	10.7	244	100
Positive call	232	95.5	11	4.5	243	100
Positive call with incentive	222	90.3	24	9.7	246	100
Standard call	214	89.2	26	10.8	240	100
Standard call with incentive	221	89.1	27	10.9	248	100
Total	2691	90.9	269	9.1	2960	100

7.3.4.1 Hypotheses

H_1 : *Members in the sample population will be more responsive to a negatively framed message inviting them to join Total Health than a positively framed message.*

H_2 : *The use of message framing (either positive or negatives message frames) is more effective in increasing Total Health enrolment rates than the use of no message frames (i.e. standard message).*

The results of the study showed that message framing did not influence a member's decision to join Total Health (Table 7.16) with all p-values greater than 0.05. Hence, a negative phone call or letter was no more influential than a positive phone call or letter when it came to having ahm members join the program. Thus H_1 and H_2 were rejected.

Table 7.16: Influence of message frame on Total Health enrolments

		Did the member join Total Health?					
		No		Yes		Total	
		N	%	N	%	N	%
Frame	Standard	441	89.3	53	10.7	494	100
	Negative	1124	91.4	106	8.6	1230	100
	Positive	1126	91.1	110	8.9	1236	100
Total		2691	91	269	9	2960	100

H₃: A greater proportion of members who receive the incentive offer will join Total Health than those who did not receive the incentive offer.

The results of the study showed that more members who received the incentive offer enrolled in the Total Health program (9.7 percent compared to 8.4 percent of enrolments) (Table 7.17). However, this was not statistically significant ($p=0.224$, $\chi^2= 1.591$).

Table 7.17: Influence of an incentive on Total Health enrolments

		Did the member join Total Health?					
		No		Yes		Total	
		N	%	N	%	N	%
Incentive	No Incentive	1346	91.6	124	8.4	1470	100
	Incentive	1345	90.3	145	9.7	1490	100
Total		2691	90.9	269	9.1	2960	100

H₄: Invitation phone calls will be more effective at increasing enrolment rates in Total Health than invitation letters.

Interestingly, the results of the study showed the reverse with more members in the letter condition joining the program than in the phone call condition (9.7 percent versus 8.4 percent of enrolments) (Table 7.18). Thus H₄ was not supported. However, the results were not statistically significant ($p = 0.225$, $\chi^2 = 1.534$).

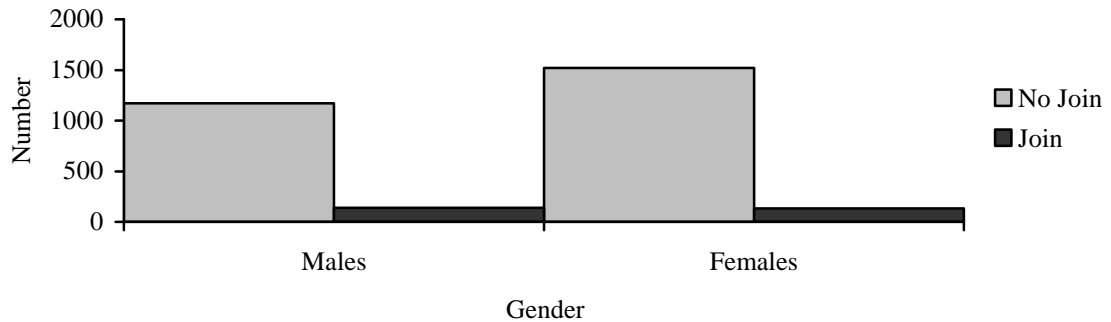
Table 7.18: Influence of communication source on Total Health enrolments

		Did the member join Total Health?					
		No		Yes		Total	
		N	%	N	%	N	%
Source	Call	1337	91.6	123	8.4	1460	100
	Letter	1354	90.3	146	9.7	1500	100
Total		2691	91.0	269	9.0	2960	100

H₅: More females will join Total Health than males.

The results showed that more males joined Total Health than females (4.7 percent versus 4.4 percent of enrolments) and this was statistically significant ($p = 0.01$, $\chi^2 = 6.127$), hence H₅ is not supported. Thus, gender does impact on participation rates (Figure 7.8).

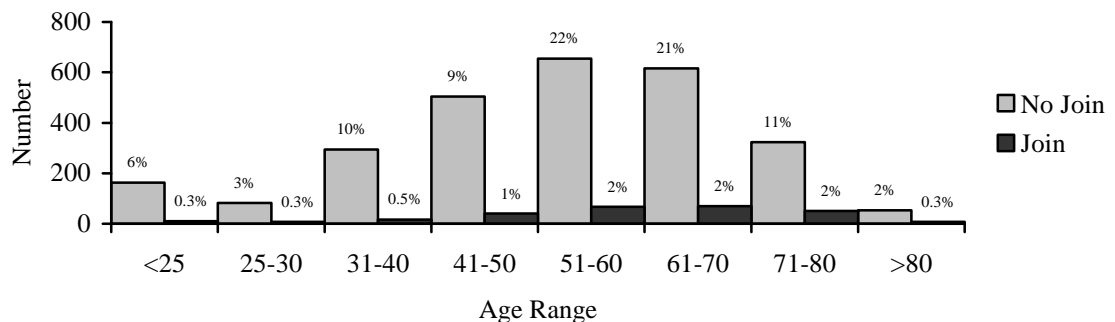
Figure 7.8: Gender distribution of Total Health participants



H₆: A greater number of older members will join Total Health than younger members of the sample population.

The results of the study indicate that members in the sample population over the age of 50 were more likely to join Total Health and this was statistically significant ($p = 0.007$, $\chi^2 = 19.542$). Furthermore, if 60 years of age was the value used to split older and younger members then the difference becomes more significant ($p = 0.001$, $\chi^2 = 11.054$). H_6 was therefore supported meaning that older members of ahm were more likely to join than younger members (Figure 7.9).

Figure 7.9: Age distribution of Total Health participants



H₇: Members who are exposed to chronic illness(es) are more likely to join Total Health compared to members who are not exposed to chronic illness(es).

The results of the study revealed that exposure to a chronic illness (either personally or through a family member) did not influence a member's decision to join Total Health. All p-values were above 0.05, thus H₇ was rejected.

7.3.4.2 Health Risk Assessment (HRA)

Table 7.19 presents the HRA data for members of the sample population. Chi-square analysis of the data revealed the following:

BMI: A person's BMI influenced their willingness to join Total Health ($p= 0.02$, $\chi^2= 9.733$), with overweight members being more likely to join and set a goal than members whose BMI was categorised as underweight, normal or obese.

Risk factors: One of the most common risk factors for a chronic illness is high blood pressure, which affects 6.6 percent of the sample population. However, this did not influence a member to join Total Health ($p= 0.356$, $\chi^2= 0.854$). Similarly, the results also found that having high cholesterol ($p= 0.535$, $\chi^2= 0.384$) and being a smoker ($p= 0.42$, $\chi^2= 0.650$) did not influence a member's decision to join.

The majority of the sample population consumed less than the recommended daily intake of fruit and vegetable (2 serves of fruit and 5 serves of vegetable) with 59 percent of members in the sample population consuming three serves or less on an average day. However, this did not influence their decision to join the program ($p= 0.783$, $\chi^2= 0.076$).

Stress: Forty-six percent of the sample population felt anxious or depressed, with 5.4 percent being classified as high-risk for stress. This was shown to influence a member's decision to join Total Health. Hence, more than the expected number of members in the high-risk stress category joined the Total Health program ($p= 0.016$, $\chi^2= 5.571$).

Sleep: Sixty percent of members in the sample population slept less than eight hours per night. However, the number of hours slept per night did not influence their willingness to join Total Health ($p=0.628$, $\chi^2=0.235$).

Family history of chronic illness: Having a family history of diabetes, heart problems, high cholesterol and high blood pressure did not influence a member's decision to join Total health with all p-values above 0.05.

Health perception: Similar to the 2002 National Health Survey, the majority of members in the sample population perceived themselves to be in good health, with only 1.2 percent rating their health as poor. A member's perception of their physical health did not influence uptake rates in Total Health ($p=0.189$, $\chi^2=6.140$).

Regular screening: The HRA data revealed that members in the sample population engaged in regular screening, with the majority reporting having had their blood pressure measured (78 percent), cholesterol measured (50 percent) and skin checked for cancer (55 percent) within the last year. In addition, 70 percent of women reported having a pap smear in the last two years, 56 percent have had a mammogram and 81 percent had a breast examination by a doctor or nurse; this is in line with the recommended Australian guidelines for these screening behaviours. However, only 35 percent of the sample male population reported that they had a digital rectal examination in the last two years.

Of the various screening tests examined, pap smear and breast examination were the only two found to be associated with program participation ($p=0.04$, $\chi^2=3.686$ and 0.012 , $\chi^2=6.333$ respectively), with all the other screening tests returning p-values above 0.05. Thus, women who engaged in regular pap smear and/or breast examination screening were more likely to join the Total Health program than women who did not regularly engage in these two types of screening.

Regular doctor visits: The majority of the sample population indicated that they had visited the doctor an average of 1-5 times in the past 12 months. However, this had no influence on program participation ($p= 0.237$, $\chi^2=1.969$).

Chronic illness(es): Of all the chronic conditions tested, the results indicate that having asthma influenced a member's decision to join the Total Health program ($p= 0.03$, $\chi^2= 6.603$). Hence, more than the expected number of members with asthma joined the program, while all the other chronic illnesses (heart problems, diabetes, cancer, bronchitis/emphysema, stroke, allergies and back pain) were found to be non-significant with p-values above 0.05.

Hospital emergency room visit: The majority of the sample population had not visited a hospital emergency room (89 percent) or stayed overnight in hospital (86 percent) in the past 12 months. As a result, it can be assumed that these members have not suffered any major illness in the past year. These factors were found to have no influence on a member's decision to join Total Health ($p= 0.418$, $\chi^2= 0.619$ and $p= 1.000$, $\chi^2= 0.032$ respectively).

Table 7.19: HRA results

		Members (%)	Join Total Health (%)
BMI category	Underweight	2.0	3.3
	Normal	34.7	6.5
	Overweight*	30.3	11.7
	Obese	12.5	7.4
What is your blood pressure?	High	6.6	
	Normal or low	83.6	
	Not sure	9.8	
Are you on blood pressure medication?	Does not apply	11.5	
	Yes	19.9	
	No	68.6	
Blood pressure risk	High risk	6.6	10.3
	Lower risk	93.4	7.4
Cholesterol risk (>5.5 mmol/L)	High risk	27.3	7.9
	Lower risk	72.7	25.4
Smoking status (cigarettes)	Still smoke	7.0	
	Used to smoke	32.7	
	Never smoked	60.3	
Smoking risk	High risk	7.0	5.9
	Lower risk	93.0	8.2
Do you use drugs to relax? (OTC or prescribed)	Almost everyday	7.8	
	Sometimes	5.8	
	Rarely or never	87.2	
Medication Risk	High risk	7.8	10.6
	Lower risk	92.2	7.8
How many servings of fruit and vegetables do you eat on a typical day?	None	0.8	
	1 serve	17.8	
	2-3 servings	42.7	
	4-6 servings	31.8	
	7+ servings	6.9	
Fruit and vegetable risk	High risk	61.4	7.8
	Lower risk	38.6	8.2
How often do you eat fast food?	Never or a few times a year	35.7	
	Once a month	33.4	
	Several times a month	10.3	
	Once a week	16.6	
	Few times a week	3.5	
	Once a day	0.4	
	More than once a day	0.1	

		Members (%)	Join Total Health (%)
Fast food risk	High risk	4.0	5.1
	Lower risk	96.0	8.0
How often do you engage in physical activity per week?	Less than once	15.4	
	1-2 times	26.0	
	3-4 times	32.8	
	5 or more times	25.7	
Physical activity risk	High risk	41.4	8.6
	Lower risk	58.6	7.5
Overall physical health (Self rating)	Excellent	15.2	4.9
	Very good	39.5	8.0
	Good	34.9	9.4
	Fair	9.3	8.7
	Poor	1.2	8.0
How many hours of sleep do you usually get per night?	6 or less hours	19.3	
	7 hours	41.0	
	8 hours	34.4	
	9 hours or more	5.3	
Sleep risk	High risk	19.3	7.3
	Lower risk	80.7	8.1
How often do you feel tense, anxious or depressed?	Often	5.4	
	Sometimes	41.4	
	Rarely	42.9	
	Never	10.2	
Stress-related risk	High risk*	5.4	14.8
	Lower risk	94.6	7.4
In the past year, how many days of personal illness have kept you from your normal activities?	0	27.3	
	1-2 days	31.6	
	3-5 days	22.0	
	6-10 days	9.4	
	11-15 days	2.3	
	16 or more days	7.4	
Absent day risk	High risk	9.7	7.6
	Lower risk	90.3	8.0
Family history of high blood pressure	Yes	36.4	8.3
	No	49.4	8.1
	Unsure	14.3	7.7
Family history of heart problems	Yes	40.0	7.8
	No	50.3	8.4
	Unsure	9.7	7.8
Family history of diabetes	Yes	24.6	7.6
	No	67.9	8.7
	Unsure	7.4	3.7

		Members (%)	Join Total Health (%)
Family history of cancer	Yes	40.5	8.3
	No	53.0	8.1
	Unsure	6.5	6.4
Family history of high cholesterol	Yes	22.4	9.6
	No	53.8	6.7
	Unsure	23.8	9.6
Have you had heart problems?	Yes	9.5	8.6
	No	88.9	8.0
	Unsure	1.6	4.3
Have you got diabetes?	Yes	4.6	7.6
	No	94.6	8.1
	Unsure	0.8	8.3
Have you had cancer?	Yes	8.5	10.5
	No	90.6	7.9
	Unsure	0.9	7.7
Have you had bronchitis/ emphysema?	Yes	4.0	10.3
	No	94.7	8.1
	Unsure	1.3	5.3
Have you had a stroke?	Yes	1.7	4.0
	No	97.3	8.0
	Unsure	1.0	13.3
Have you had asthma?	Yes	12.5	12.0
	No	86.4	7.3
	Unsure	1.1	12.7
Have you had arthritis?	Yes	24.7	8.0
	No	71.6	7.8
	Unsure	3.7	11.1
Have you had allergies?	Yes	28.0	9.2
	No	69.4	7.6
	Unsure	2.6	7.9
Have you had back pain?	Yes	50.1	7.7
	No	48.5	7.9
	Unsure	1.4	20.0
When was the last time you had a flu shot?	Less than a year ago	37.1	8.7
	1-2 years ago	6.1	6.7
	2-3 years ago	2.8	17.5
	3-4 years ago	1.9	7.4
	5 or more years ago	5.6	8.5
	Never	44.1	7.2
	Don't know	2.4	2.9

	Members (%)		Join Total Health (%)
When was the last time you had your blood pressure checked?	Less than a year ago	77.8	8.3
	1-2 years ago	8.5	10.5
	2-3 years ago	2.3	6.1
	3-4 years ago	1.8	7.7
	5 or more years ago	1.8	3.7
	Never	4.9	6.9
	Don't know	2.9	2.3
When was the last time you had your cholesterol check	Less than a year ago	50.0	8.4
	1-2 years ago	13.0	7.4
	2-3 years ago	6.0	8.0
	3-4 years ago	3.8	7.3
	5 or more years ago	4.6	4.5
	Never	15.8	9.2
	Don't know	6.8	4.1
When was the last time you had a colon screen?	Less than a year ago	16.8	
	1-2 years ago	7.2	
	2-3 years ago	2.9	
	3-4 years ago	2.4	
	5 or more years ago	3.4	
	Never	53.1	
	Don't know	14.3	
When was the last time you had a skin cancer check?	Less than a year ago	41.1	8.6
	1-2 years ago	13.4	7.7
	2-3 years ago	5.7	6.1
	3-4 years ago	3.2	3.4
	5 or more years ago	3.9	8.8
	Never	28.7	8.4
	Don't know	4.0	5.2
When was the last time you had a pap smear?	Less than a year ago*	42.6	5.4
	1-2 years ago*	27.4	8.0
	2-3 years ago*	5.3	11.4
	3-4 years ago	4.5	8.1
	5 or more years ago	12.4	9.8
	Never	6.3	11.5
	Don't know	1.5	8.3

		Members (%)	Join Total Health (%)
When was the last time you had a mammogram	Less than a year ago	36.7	8.2
	1-2 years ago	20.5	6.5
	2-3 years ago	4.9	4.9
	3-4 years ago	1.6	7.7
	5 or more years ago	4.5	2.7
	Never	31.2	8.5
	Don't know	0.7	0
When was the last time you had a breast exam (by doctor or nurse)?	Less than a year ago*	40.9	5.7
	1-2 years ago*	20.4	5.4
	2-3 years ago*	5.8	19.1
	3-4 years ago	4.8	5.1
	5 or more years ago	7.5	9.8
	Never	18.2	8.7
	Don't know	2.4	10.0
When was the last time you had a digital rectal exam?	Less than a year ago	23.4	6.7
	1-2 years ago	11.7	16.0
	2-3 years ago	7.0	4.4
	3-4 years ago	4.2	3.7
	5 or more years ago	7.9	9.8
	Never	43.5	8.2
	Don't know	2.3	6.7
In the past 12 months, how many times have you visited a doctor as a patient	0	6.4	4.2
	1-2	39.2	7.4
	3-5	33.2	9.5
	6 or more	21.3	7.9
In the past 12 months, how many times have you gone to a hospital emergency department	0	89.1	8.1
	1-2	10.1	6.8
	3-5	0.7	0.0
	6 or more	0.1	0.0
In the past 12 months, how many times have you stayed overnight in hospital?	0	85.5	8.1
	1-2	10.6	6.5
	3-5	1.8	7.7
	6 or more	1.9	14.8

* Statistically significant results at the 0.05 level.

7.3.5 Discussion

Stage One of the study aimed to investigate the effectiveness of message framing and the offer of an incentive upon uptake rates in Total Health among members of ahm who had completed their HRA. No main effects were found for either manipulation.

A relatively healthy sample population

The HRA data revealed that members in the sample population were relatively healthy compared to the Australian population and have a comparatively lower chronic disease rate for conditions such as cancer, diabetes and heart problems. The majority of members have also not visited a hospital emergency room or stayed overnight in a hospital in the past 12 months and most have visited their doctor at least once in the past year (mean = three visits). Furthermore, the majority of women in the sample population have engaged in regular screening with most having had a pap smear or breast examination within the last two years. This suggests that members of ahm who complete their HRA are:

- relatively health conscious
- responsive to health information and communications from ahm
- more likely to place a higher priority on their health than members who do not complete the HRA.

The lack of response towards the framed messages and incentive offer could merely be a case of healthy members completing the HRA as a potential means of reaffirming their health. Thus members who do not perceive themselves as healthy (or in optimum health) or who are not health conscious do not complete the HRA. This could potentially be due to two reasons. Firstly, these members could be disinterested in their health and therefore not motivated to complete the HRA. Secondly, these members could be hesitant about divulging their personal health information to their private health insurer because they are concerned that it will be used against them in the future, despite assurances from ahm – through a disclaimer on the HRA – that this is not the case.

Message framing: Positive versus negative

ahm members were not motivated to join Total Health when presented with either a positive or negative message in relation to diabetes and heart disease. This could potentially be due to the delivery of the messages in the phone call experiment and/or the overall health status of members.

Delivery of the message: In the phone call experiment, the lifestyle consultants were not as comfortable delivering the positive and negative messages compared to the standard message, for reasons mentioned earlier in the chapter, and this in turn has the potential to bias the results.

Health status of members: The HRA data revealed that members in the sample population were relatively healthy compared to the Australian population and have a comparatively lower chronic disease rate for conditions such as diabetes, heart problems and cancer. As a result, members may deem the program irrelevant. This supports our initial assumptions that members who complete the HRA are a) more responsive to health information and communications from ahm, b) place a high priority on their health and c) are more aware and conscious of their health than those members who do not completed their HRA. This was further reinforced by the HRA data which found that factors such as BMI, age, gender and regular screening for cervical and breast cancer – among women – were found to influence uptake rates in Total Health.

Body Mass Index (BMI)

Overweight members were more likely to join the program compared to members whose BMI was classified as underweight or normal. Despite the lack of framing effects, this could potentially be in response to the *actual* health messages employed in the study which focused on weight, diet and exercise. For example:

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Age and gender

Both age and gender were found to significantly influence the decision to join the Total Health program with the majority of members joining over 50 years of age; supporting research that shows people tend to become more health conscious as they get older (Liang, Shediak-Rizkallah, Celentano and Rohde, 1999). Thus, it is recommended that future studies examine the use of message framing tailored at a person's age and gender because young adults often do not perceive heart disease and diabetes to be a problem, despite evidence showing an increasing number of young Australians developing late onset type 2 diabetes (Limb, 2004). Hence, for young adults, messages relating to health issues such as regular physical activity (to lose weight and boost self-esteem) may be perceived as more relevant and thus more persuasive, appealing and motivating.

Regular pap smear and breast examination

Regular pap smears and breast examinations were found to significantly influence participation in Total Health. Research has found that women who engage in regular screening for cervical and breast cancer tend to be more knowledgeable and informed about the cancers, believe they have a greater sense of control over their health and regularly visit a physician for a check-up (Fajardo et al., 1992). These women are therefore considered relatively health conscious and, as a result, are more responsive to health information from ahm; this may explain a) their completion of the HRA and b) their enrolment in the Total Health program.

Incentive

In relation to the incentive, a greater proportion of members in the incentive condition enrolled in the Total Health program compared to the non-incentive condition, despite the results being statistically non-significant. This could possibly be due to the fact that members of the sample population were considered relatively health conscious and, as a result, may already have preconceived notions about whether or not they would benefit from joining the Total Health program – thereby reducing the effectiveness of the incentive. In addition, the results also showed a greater number of members in the call group who received an incentive offer joined Total Health compared to the letter group; highlighting

the potential advantage associated with using invitation phone calls, that is, the ability to directly communicate with the member and make the incentive offer more salient than invitation letters otherwise can. This result may be due to the voice being a very powerful instrument that can pull people in or push them away. Furthermore, “a capable voice is loud enough to be heard, clear enough to be understood, and expressive enough to be interesting” (Lynn, 1999).

7.3.6 Limitations

A primary limitation associated with Stage One of the study was the lack of qualitative data, which could have provided insight into why members chose to participate or not participate in the Total Health program. Qualitative research was not conducted due to the complexities associated with its collection from an ahm point-of-view. In particular, ahm was not comfortable with researchers interviewing their members on sensitive matters such as their health.

7.3.7 Conclusion

It can be concluded from Stage One of the study that among ahm members who have completed their HRA, the use of positively and negatively framed health messages were ineffective in persuading them to join Total Health. Furthermore, the use of a \$10 Rebel Sport gift voucher was also deemed ineffective. Instead, factors such as gender, age, BMI and regular screening for cervical and breast cancer were found to play a significant role. This suggests that future studies should examine the use of tailored health messages as a potential means of motivating people to enrol in disease and risk management programs.

7.4 SUMMARY

This chapter examined the first stage of a two stage study on message framing and incentives with members of ahm who had completed their HRA. The main findings from this stage of the study indicate that both message framing and the offer of an incentive were

ineffective in increasing uptake rates in the Total Health program; this could potentially be a result of the positive health status of members of the sample population. Analysis of the HRA data revealed that the sample population had lower rates of diabetes, heart problems and cancer compared to the Australian population and this suggests that people who complete the HRA are relatively healthy and/or highly health conscious. Hence, completion of the HRA may be considered a means of *reaffirming* one's health.

Stage two of the study was developed with the aim of replicating the first stage of the study on ahm members who had not completed their HRA in an effort to determine whether or not the HRA itself acts as an impediment to program participation – that is, *are members who would otherwise be willing to join Total Health deterred from doing so because they have to complete the HRA prior to participation?*

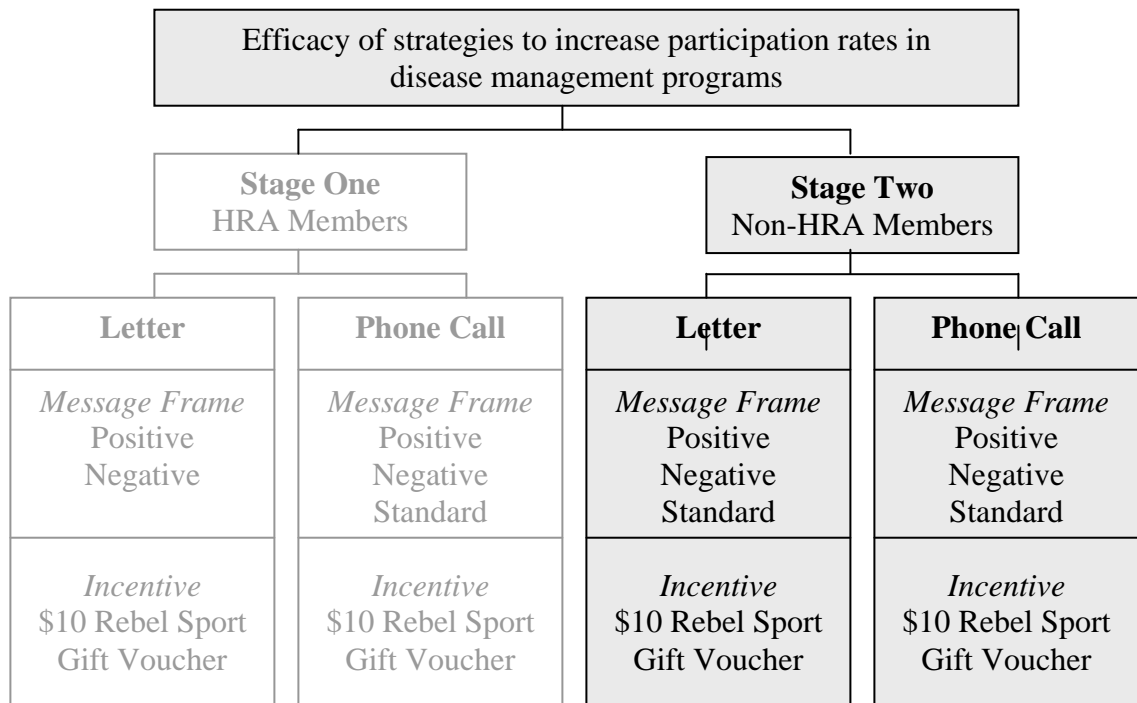
Chapter 8 will focus on stage two of the study.

8.

STAGE TWO

This chapter replicates the study reported in the previous chapter with a different population (that is, ahm members who have decided to not complete their HRA) and as a result, this chapter mirrors chapter seven in many ways. As per Stage One (reported in chapter seven), two experiments were conducted for Stage Two of the study – one involving an invitation letter and the other an invitation phone call (Figure 8.1). Both of these interventions were designed to investigate the effectiveness of message framing and the offer of an incentive upon uptake rates in ahm’s Total Health program. Currently at ahm, only members who have completed their HRA are invited to join Total Health. However, Stage Two offered members who have voluntarily chosen not to complete their HRA (referred to as non-HRA members) the opportunity to enrol. Thus a primary intent of Stage Two of the study was to determine whether or not the HRA acts as an impediment to program enrolment.

Figure 8.1: Study outline: (Stage Two)



8.1 EXPERIMENT ONE: INVITATION LETTERS

8.1.1 Aim

The aim of this experiment was to test the relative effectiveness of positively and negatively framed invitation letters, coupled with the use of an incentive offer, on uptake rates in Total Health among members of ahm who have decided not to complete their HRA.

8.1.2 Study Design

This experiment employed a 3×2 factorial design between message frame (positive, negative and standard) and incentive (with incentive and without incentive) (Table 8.1). Six different conditions were developed and tested for this part of the experiment and these were: positively framed invitation letter, positively framed invitation letter with an incentive offer, negatively framed invitation letter, negatively framed invitation letter with an incentive offer, standard invitation letter and standard invitation letter with an incentive offer (Appendix 8A-8F).

Table 8.1: Study design (invitation letters)

	Positive Framed Message	Negatively Framed Message	Standard Message
With Incentive	<i>Condition 1</i> Positive message with incentive	<i>Condition 3</i> Negative message with incentive	<i>Condition 5</i> Standard message with an incentive
Without Incentive	<i>Condition 2</i> Positive message	<i>Condition 4</i> Negative message	<i>Condition 6</i> Standard message (control group)

8.1.3 Methodology

8.1.3.1 Sample population

The sample population was comprised of 1500 ahm members who were sent an invitation letter encouraging them to join the Total Health program; the invitation letters were evenly distributed among the six message frames and incentive conditions.

8.1.3.2 Development of the messages (framing)

Similar to Stage One, this experiment employed prospect theory through the use of message framing. However, unlike Stage One, the messages developed were not disease specific and instead focused on general health issues such as body weight and diet. This approach was used because members in the sample population had not completed their HRA and, as a result, their health background was unknown. ahm management therefore made the decision to omit any specific disease-related information that may offend or upset any of its members.

Three messages were developed:

1. A positive message that focused on what members can expect to *gain* by joining Total Health
2. A negative message that focused on what members can expect to *lose* by not joining Total Health
3. A neutral message inviting members to join Total Health that did not employ a positive or negative statement.

The neutral message (commonly referred to as the standard message) functioned as the control group. This was developed after it was acknowledged that Stage One lacked a control group for the invitation letters because it was not ahm's usual business practice to send its members a letter inviting them to join the Total Health program.

The specific positively framed, negatively framed and neutral messages employed in the study were:

Positively Framed Message:

Did you know?

- Maintaining a healthy weight can reduce your risk of developing disease
- Eating a healthy diet can provide you with increased energy
- Regular exercise can lead to improvements in overall health

Take this opportunity to join Total Health and you will be provided with the support and motivation needed to meet your important health goals. Taking action can have a positive effect on your quality of life.

Negatively Framed Message:

Did you know?

- Being overweight can increase your risk of developing disease
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to poor overall health

Miss this opportunity to join Total Health and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can have a negative effect on your quality of life.

Neutral Message:

Australian Health Management would like to introduce to you Total Health, a personal health program exclusive to ahm.

Total Health is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to all ahm members.

The same positively framed and negatively framed messages were applied to both experiments for consistency. Furthermore, the messages were direct bi-polar opposites of each other in order to increase the validity of the results by counteracting any effects whereby one message was considered stronger or more appealing than the other.

8.1.3.3 Selection of the incentive

The incentive employed was a \$10 Rebel Sport gift voucher. The incentive was kept the same for both Stages of the study (and for both experiments within each stage) to enable comparisons between the experiments. In addition, the use of the same incentive across both stages of the study counteracted any effects whereby one incentive was considered more appealing or attractive than the other.

The \$10 Rebel Sport gift voucher was sent to eligible members with an accompanying “with compliments” slip (appendix 7E) congratulating the member on joining the Total Health program.

8.1.3.4 The invitation letter

The invitation letters were mailed out on August 15, 2005 and contained an October 1 cut-off date – giving members approximately six weeks to respond. Members interested in joining the Total Health program were asked to complete and return the reply coupon located at the bottom of each letter. Upon receipt of this coupon, an ahm lifestyle consultant contacted the member and enrolled them in the program.

All letters were produced in-house by ahm as this made it easier to monitor and track the various letter conditions.

Figure 8.1 is a sample letter which highlights the difference between the positive and negative letter, while Figure 8.2 is a sample standard letter that was used as the control group for the experiment.

Figure 8.3 is a process map visually depicting the implementation of the invitation letters from the moment they were sent until program enrolment.

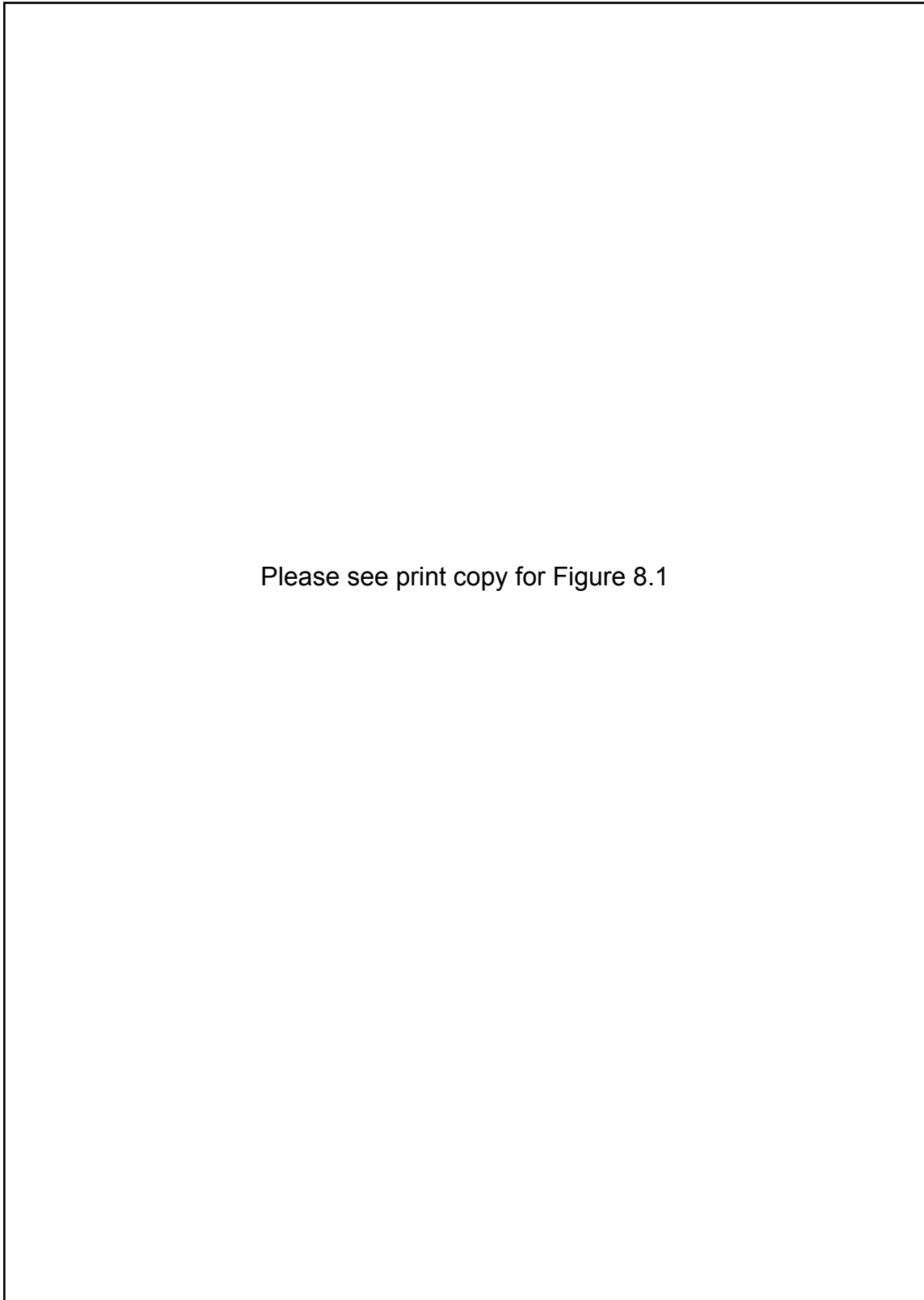
8.1.3.5 Data management

All the invitation letters sent to members were coded, as per Stage One of the study, to enable the member and the type of letter they received to be easily monitored and identified. When members returned the reply coupon their details (member number and the type of letter they received) were recorded in an Excel database which was later transferred to SPSS along with general demographic information about the member (for example age, gender and postcode) for analysis.

8.1.3.6 Methods of analysis

All data was analysed using SPSS v.11.5; the main statistical test performed was chi-square analysis.

Figure 8.1: Overview of the framed invitation letter



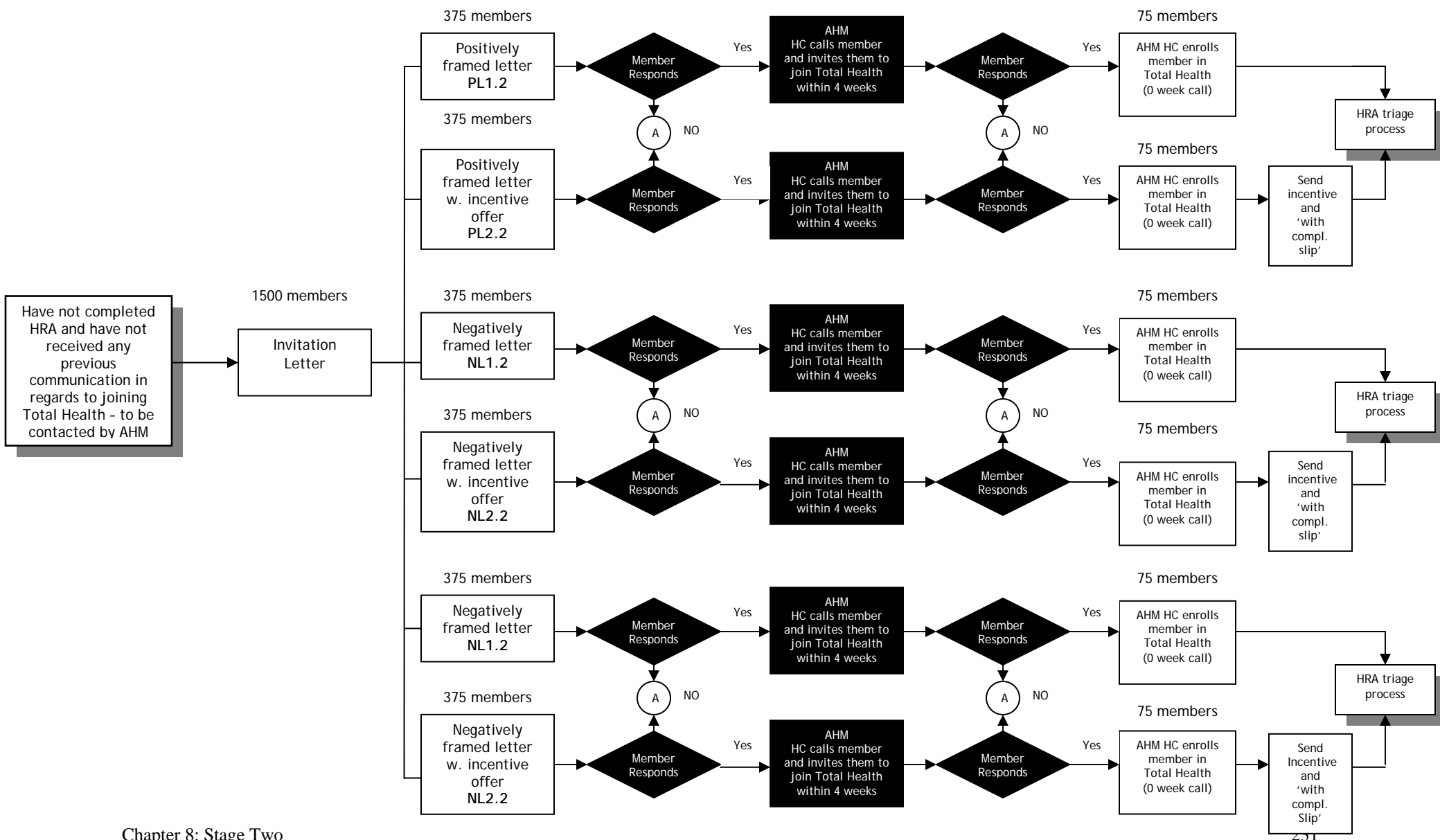
Please see print copy for Figure 8.1

Figure 8.2: Overview of the standard invitation letter

Please see print copy for Figure 8.2

Please see print copy for Figure 8.2

Figure 8.3: Invitation letter process map



8.1.4 Results

Overall, 1500 members were sent an invitation letter encouraging them to join the Total Health program. Of these, 772 were male (51.5 percent) and 728 were female (48.5 percent) with an age range of 19-66 years (mean= 47 years, SD= 11 years) (Table 8.2).

Table 8.2: Age Distribution – Letter Condition

	N	%
Age		
< 25	52	3.5
25-30	83	5.5
31-40	285	19.0
41-50	462	30.8
51-60	138	29.2
61-70	180	12.0
Total	1500	100

8.1.4.1 Message framing

The three different types of message frames (negative, positive and standard) were evenly distributed among the 1500 members in the sample population, with exactly half in each condition being offered an incentive. The results revealed no significant differences between the conditions in uptake rates in Total Health and, as a result, there were no main effects for message framing ($p= 0.746$, $\chi^2= 5.85$).

Table 8.3: Influence of message frame

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Frame	Negative	475	95	25	5	500	100
	Positive	471	94.2	29	5.8	500	100
	Standard	472	94.4	28	5.6	500	100
Total		1418	94.5	82	5.5	1500	100

8.1.4.2 Incentive

Overall, 750 members were offered an incentive and 750 were not offered an incentive upon enrolment in the Total Health program. The results indicated that the incentive was ineffective and statistically non-significant in increasing participation rates with 5.5 percent of members joining the program ($p = 0.914$, $\chi^2 = 0.12$) (Table 8.4).

Table 8.4: Influence of an incentive

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Incentive		709	94.5	41	5.5	750	100
No incentive		709	94.5	41	5.5	750	100
Total		1418	94.5	82	5.5	1500	100

8.1.4.3 Message framing and incentive

A third of the sample population ($n = 474$) received a letter that contained both a framed message and an incentive offer. The results showed no main effects for message framing coupled with an incentive offer, with only 5.2 percent of members taking the opportunity to join the Total Health program ($p = 0.624$, $\chi^2 = 0.240$) (Table 8.5).

Table 8.5: Influence of message frame and an incentive

	Did the member join Total Health and set a goal?					
	No		Yes		Total	
	N	%	N	%	N	%
Positive letter with an incentive	236	94.4	14	5.6	250	100
Negative letter with an incentive	238	95.2	12	4.8	250	100
Total	474	31.6	26	5.2	500	100

8.1.4.4 Overall results

Table 8.6 highlights the results for each of the conditions tested for the letter condition.

Table 8.6: Invitation letters results

	Did the member join Total Health and set a goal?					
	No		Yes		Total	
	N	%	N	%	N	%
Positive letter	235	94	15	6	250	100
Positive letter with an incentive	236	94.4	14	5.6	250	100
Negative letter	237	94.8	13	5.2	250	100
Negative letter with an incentive	238	95.2	12	4.8	250	100
Standard letter	237	94.8	13	5.2	250	100
Standard letter with an incentive	235	94	15	6	250	100
Total	1418	94.5	82	5.5	1500	100

From Table 8.6 it can be seen that there is minimal difference in uptake rates between the various conditions with each condition's enrolment rate around 5 percent, and an overall enrolment rate of 5.5 percent.

8.1.5 Discussion

The results of the letter experiment revealed that both the use of message framing and the offer of an incentive were ineffective in increasing participation rates in Total Health; indicating that members who had not completed the HRA are, in general, relatively unresponsive to mail communications from ahm. This could be due to two reasons. Firstly, members in the sample population could have viewed the letter as merely unsolicited promotional material and thus did not pay close attention to it. This is quite possible with the high volume of junk mail Australian households are exposed to on a regular basis. Secondly, these members may be disinterested in engaging in any health initiatives (such as completing the HRA or joining Total Health) offered by their private health insurer and, as a result, viewed the Total Health program as irrelevant to their personal needs.

8.1.6 Conclusion

For the letter condition, no main effects were found for either message framing or the use of an incentive on uptake rates in the Total Health program. Hence, it can be concluded that members who do not complete the HRA are rather unresponsive to mail communications from ahm.

8.2 EXPERIMENT 2: INVITATION PHONE CALLS

8.2.1 Aim

The aim of this experiment was to test the relative effectiveness of positively and negatively framed phone calls, with or without an incentive offer, inviting ahm members who had not completed their HRA to join the Total Health program.

8.2.2 Study Design

The invitation phone calls employed a 3×2 factorial design between message frame (positive, negative and standard) and incentive (with incentive vs. without incentive) (Table 8.7). This resulted in six different types of invitation phone calls that were developed and tested and they were: positive invitation call, positive invitation call with an incentive offer, negative invitation call, negative invitation call with an incentive offer, standard invitation call and standard invitation call with an incentive offer (Appendix 8G-8L).

Table 8.7: Study Design

	Positive Message	Negative Message	Standard Message
With Incentive	<i>Condition 1</i> Positive message with incentive	<i>Condition 3</i> Negative message with incentive	<i>Condition 5</i> Standard message with an incentive
Without Incentive	<i>Condition 2</i> Positive message	<i>Condition 4</i> Negative message	<i>Condition 6</i> Standard message (control group)

8.2.3 Methodology

8.2.3.1 Sample population

The sample population comprised 1500 ahm members who were contacted by an ahm lifestyle consultant and invited to join the Total Health program. The 1500 members were randomly assigned to one of the six conditions tested.

8.2.3.2 Development of the messages (framing)

The same messages developed for the invitation letters were applied to the invitation phone calls to ensure consistency and help overcome any effects whereby one message is considered more persuasive than the other.

8.2.3.3 Selection of the incentive

Similarly, the same incentive was employed across both experiments and both study stages, that is, a \$10 Rebel Sport gift voucher. This was done for consistency purposes and to overcome any effects whereby one incentive was considered more appealing or attractive than the other.

8.2.3.4 The invitation phone call

The same lifestyle consultants (as employed in Stage One of the study) were assigned to conduct the phone calls for this experiment; a brief training session was conducted to introduce the new messages and call guides. The training session consisted of two parts, with a large majority of the material covered in the initial training session for Stage One considered assumed knowledge.

Part One: Message Framing: The first part of the training session involved a brief review of message framing before introducing the lifestyle consultants to the new call guides. Each lifestyle consultant was given 30 minutes to familiarise themselves with the new messages.

Part Two: Role Plays: The second part of the training session involved the lifestyle consultants engaging in role-plays with each other. This enabled the lifestyle consultants to practice the various call types in a simulated environment and address any concerns or problems they may have. The importance of delivering a purely positive or negative message was emphasised to guarantee the validity of the results.

Figure 8.4 is a sample call guide reflecting the new messages developed for this stage of the study while figure 8.5 is a process map visually highlighting the process ahm followed from the initial phone call through to program enrolment.

8.2.3.5 Data management

The sample population was randomly selected from ahm's database and placed into a separate database created solely for the purpose of this study to prevent data contamination. All members in the sample population were then randomly assigned a message type (positive, negative or standard) and an incentive type (with or without an incentive). This information popped up on the screen when a lifestyle consultant retrieved a member's details.

The database worked on a queue system whereby if the member was unreachable after the third attempt they were excluded from the study.

Unfortunately ahm was unable to record each phone call, as was done in Stage One, because it was considered too time-consuming. As a result, it was decided that a live sit-in would be the most efficient option and the best method to satisfy all parties involved. However, this meant only a selected number of calls could be monitored each day.

8.2.3.6 Methods of analysis

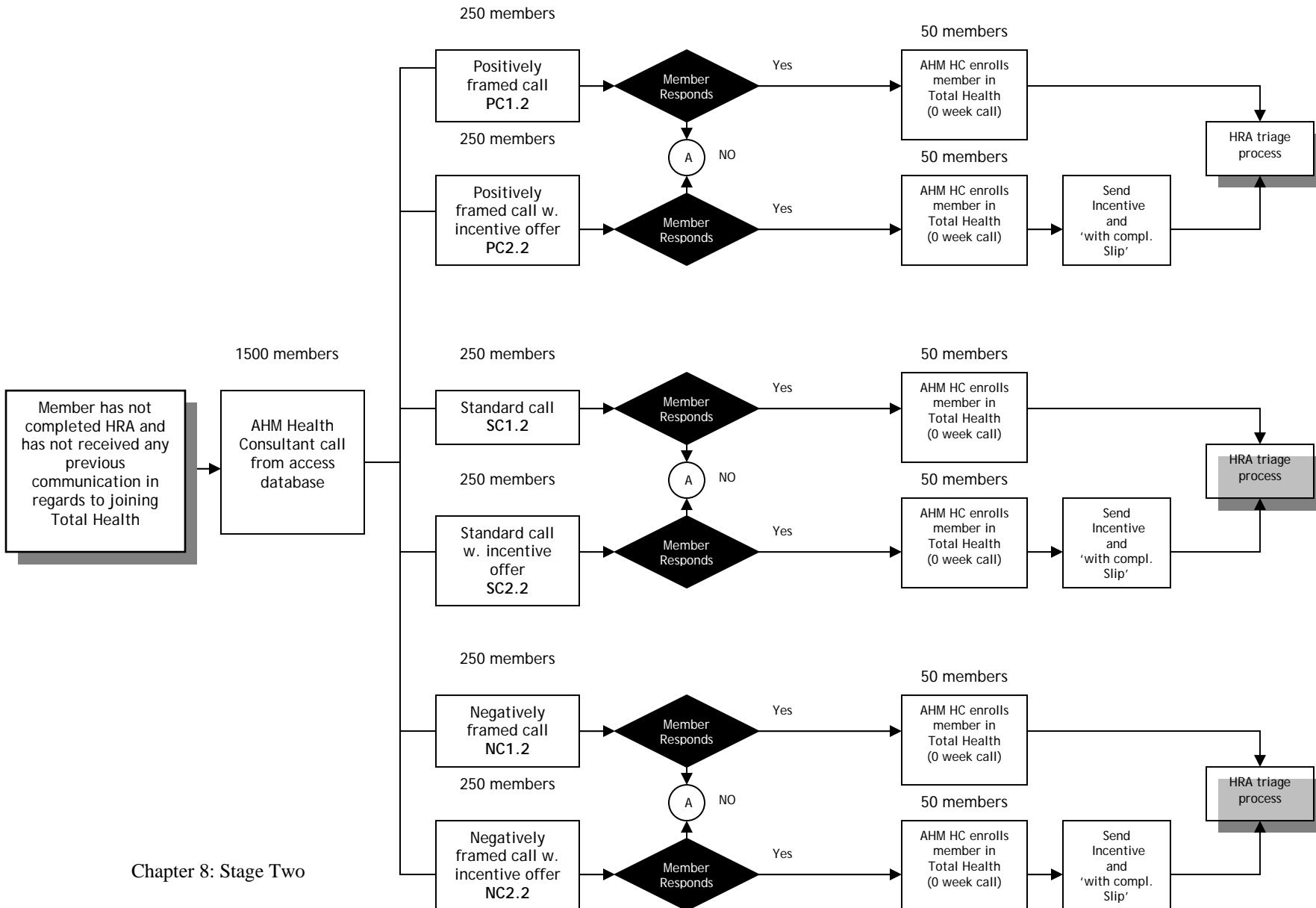
All data was analysed using SPSS v.11.5; the main statistical test performed was chi-square analysis.

Figure 8.4: Overview of the call guide

Please see print copy for Figure 8.4

Please see print copy for Figure 8.4

Figure 8.5: Invitation phone call process map



8.2.4 Results

Overall, 1497 members received a phone call inviting them to join the Total Health program. Of these, 855 were male (57.1 percent) and 642 were female (42.9 percent), with an age range of 19-80 years (mean= 51 years, SD= 13 years) (Table 8.8)

Table 8.8: Age Distribution

	N	percent
Age		
< 25	41	2.7
25-30	58	3.9
31-40	234	15.6
41-50	389	26.0
51-60	370	24.7
61-70	286	19.1
71-80	119	7.9
Total	1497	100

8.2.4.1 Message frame

Overall, 500 members in the call condition received a positively framed phone call (250 of which included an incentive offer); 500 received a negatively framed phone call (250 of which included an incentive offer); and 497 received a standard phone call (250 of which included an incentive offer) (Table 8.9). The results showed no framing effects ($p= 0.786$, $\chi^2= 0.483$) with an overall enrolment rate of only 2.1 percent.

Table 8.9: Influence of message frame

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	percent	N	percent	N	percent
Frame	Negative	491	98.2	9	1.8	500	100
	Positive	490	98.0	10	2.0	500	100
	Standard	485	97.6	12	2.4	497	100
Total		1466	97.9	31	2.1	1497	100

8.2.4.2 Incentive

Table 8.10 shows the results for the incentive condition. From this, it can be seen that 750 members in the call condition were offered an incentive and 747 members were not. While more members who were not offered an incentive joined the Total Health program compared to those who were offered an incentive (2.4 percent compared to 1.7 percent of enrolments), data analysis revealed that there were no main effects for an incentive ($p=0.347$, $\chi^2=0.156$).

Table 8.10: Influence of an incentive

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Incentive		737	98.3	13	1.7	750	100
No incentive		729	97.6	18	2.4	747	100
Total		1466	97.9	31	2.1	1497	100

8.2.4.3 Message framing and incentive

This section examines the combined results for message framing and an incentive. Table 8.11 shows that the negative message with an incentive had the highest enrolment rate (2.4

percent) and this was closely followed by the positive message with an incentive (1.6 percent). There was no main effect between message framing (positive and negative) and the use of an incentive ($p = 0.846$, $\chi^2 = 0.335$), with a mere two percent of members taking up the offer to join the Total Health program.

Table 8.11: Influence of message framing and an incentive offer

	Did the member join Total Health and set a goal?					
	No		Yes		Total	
	N	%	N	%	N	%
Positive call with an incentive	246	98.4	4	1.6	250	100
Negative call with an incentive	244	97.6	6	2.4	250	100
Total	490	32.7	10	2.0	500	100

8.2.4.4 Overall results

Table 8.12 shows the results for each of the six conditions tested for this part of the experiment. As indicated in Table 8.12 there are no meaningful differences between the various conditions tested with all enrolments being less than four percent and an overall uptake rate of only 2.1 percent.

Table 8.12: Invitation phone calls results

	Did the member join Total Health and set a goal?					
	No		Yes		Total	
	N	%	N	%	N	%
Positive call	244	97.6	6	2.4	250	100
Positive call with an incentive	246	98.4	4	1.6	250	100
Negative call	247	98.8	3	1.2	250	100

Negative call with an incentive	244	97.6	6	2.4	250	100
Standard call	238	96.4	9	3.6	247	100
Standard call with an incentive	247	98.8	3	1.2	250	100
Total	1466	97.9	31	2.1	1497	100

8.2.5 Discussion

The results of the phone call experiment found no effect for the use of message framing or the offer of an incentive on uptake rates in the Total Health program. This could potentially be due to the delivery of the framed messages with the lifestyle consultants being hesitant to deliver the negative phone calls because the health background of members was unknown. The lifestyle consultants were concerned about upsetting any members who may possess a chronic condition; this was a major factor behind why the messages employed for this stage of the study were modified to omit any disease-specific information. Despite this, the lifestyle consultants were still not overly comfortable with the negative phone calls compared to the other two conditions tested (positive and standard) and this has the potential to influence the results.

8.2.6 Limitations

There were two main limitations associated with this experiment. Firstly, the lifestyle consultants were hesitant about conducting the negatively framed calls because the health background of the members was unknown. Secondly, the use of a live sit-in to monitor the calls had the potential to bias the results because the lifestyle consultants may have felt uncomfortable and thus, not carried out the calls as naturally and confidently as they otherwise would.

8.2.7 Conclusion

The use of message framing and the offer of an incentive had no effect on enrolment rates in the phone condition among members of ahm who had not completed their HRA.

8.3 STAGE TWO (COMBINED RESULTS)

This section examines Stage Two of the study as a whole, that is, the results for the invitation letter and invitation phone calls combined.

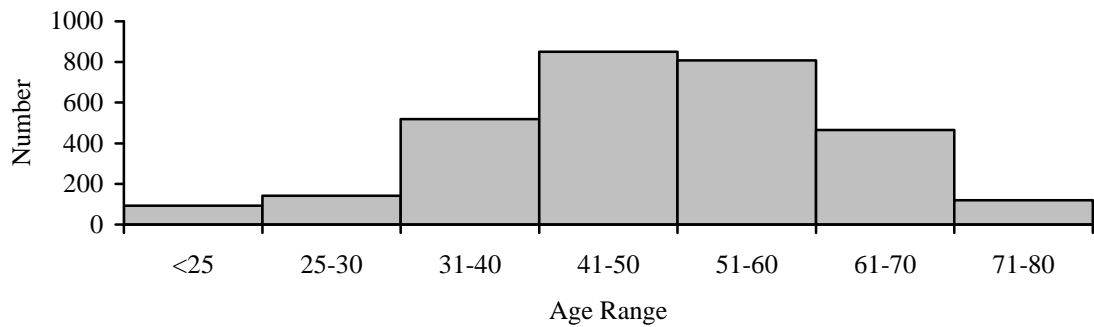
8.3.1 Sample Population

Overall, 2997 people were randomly selected for Stage Two of the study. Of these, 1627 (54 percent) were male and 1370 (46 percent) female with an age distribution of 19-80 years (mean= 49 years, SD= 13 years) (Table 8.13).

Table 8.13: Summary of sample population

	Male		Female	
	N	%	N	%
	1627	54	1370	46
Age				
< 25	53	1.8	40	1.3
25-30	67	2.2	74	2.5
31-40	257	8.6	262	8.7
41-50	452	15.1	399	13.3
51-60	480	16.0	328	10.9
61-70	256	8.5	210	7.0
71-80	62	2.1	57	1.9

Figure 8.6: Age distribution of sample population



The majority (55 percent) of the sample population was aged between 41-60 years (Figure 8.6) with 54 percent being male (Figure 8.7).

Figure 8.7: Gender of sample population

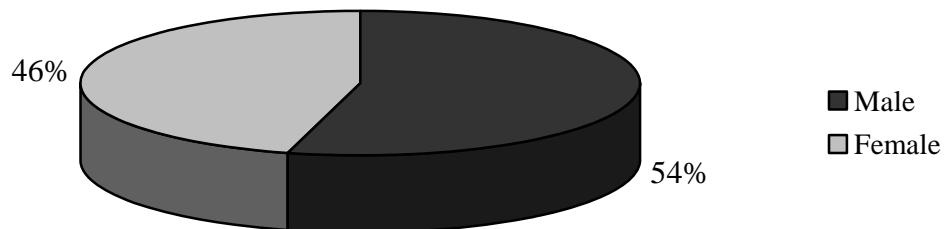


Table 8.14 shows the breakdown of the sample population by type of call or letter received (negatively framed, positively framed, standard; with or without an incentive). Overall, 1000 members received a negatively framed message, 1000 members received a positively framed message and 997 members received a standard message – half of each group contained an incentive offer (1500 members).

Table 8.14: Breakdown of sample population by type of call or letter

Type of call or letter	N	%
Negative letter	250	8.3
Negative letter with incentive	250	8.3
Positive letter	250	8.3
Positive letter with incentive	250	8.3
Standard letter	250	8.3
Standard letter with incentive	250	8.3
Negative call	250	8.3
Negative call with incentive	250	8.3
Positive call	250	8.3
Positive call with incentive	250	8.3
Standard call	247	8.2
Standard call with incentive	250	8.3
Total	2997	100

8.3.2 Hypotheses

In total, five hypotheses were developed and tested for Stage Two of the study. These hypotheses mirrored those tested in Stage One and, as a result, their rationales are the same. Hence, this section will state the hypotheses tested (see section 7.3.4.1 explanations).

H₁: The use of message framing (either positive or negative) is more effective in increasing Total Health enrolment rates than the use of no message frame (that is, the standard message).

H₂: A greater proportion of members who receive the incentive offer will join Total Health than those who do not receive the incentive offer.

H₃: Invitation phone calls will be more effective in increasing enrolment rates in Total Health than invitation letters.

H₄: More females will join Total Health than males.

H₅: A greater number of older members will join Total Health than younger members of the sample population.

8.3.3 Results

Table 8.15 shows the overall results for Stage Two of the study. Enrolment rates in Total Health were low across all conditions tested with only 3.7 percent of members taking up the offer. However, the letter condition performed better with higher uptake rates (average five percent enrolment rate) compared to the call condition (average two percent enrolment rate).

Table 8.15: Stage two results by type of call or letter

Type of Call or Letter	Did the member join Total Health and set a goal?					
	No		Yes		Total	
	N	%	N	%	N	%
Negative letter	237	94.8	13	5.2	250	100
Negative letter with incentive	238	95.2	12	4.8	250	100
Positive letter	235	94.0	15	6.0	250	100
Positive letter with incentive	236	94.4	14	5.6	250	100
Standard letter	237	94.8	13	5.2	250	100
Standard letter with incentive	235	94.0	15	6.0	250	100
Negative call	247	98.8	3	1.2	250	100
Negative call with incentive	244	97.6	6	2.4	250	100
Positive call	244	97.6	6	2.4	250	100
Positive call with incentive	246	98.4	4	1.6	250	100
Standard call	238	96.4	9	3.6	247	100
Standard call with incentive	247	98.8	3	1.2	250	100
Total	2884	95.9	113	3.7	2997	100

8.3.3.1 Hypotheses

H₁: The use of message framing (either positive or negative) is more effective in increasing Total Health enrolment rates than the use of no message frames (that is, the standard message).

Table 8.16 shows there is little difference in uptake rates between the framed and unframed condition and as a result, no framing effects were found for Stage Two of the study ($p=0.746$, $\chi^2=0.585$). A framed message is therefore no more influential in persuading ahm members to join Total Health than an unframed message. H_1 is rejected.

Table 8.16: Influence of message framing on enrolment rates

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Frame	Positive	961	96.1	39	3.9	1000	100
	Negative	966	96.6	34	3.4	1000	100
	Standard	957	96.0	40	4.0	997	100
Total		2884	96.2	113	3.8	2997	100

H₂: A greater proportion of members who receive the incentive offer will join Total Health than those who did not receive the incentive offer.

The results for Stage Two revealed that more members in the non-incentive condition enrolled in Total Health compared to the incentive condition (Table 8.17). No main effects were found for the use of an incentive; that is, an incentive did not influence a member's decision to join Total Health. H₂ is rejected ($p = 0.633$, $\chi^2 = 0.240$).

Table 8.17: Influence of an incentive on members' decision to join Total Health

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Incentive	No Incentive	1438	96.1	59	3.9	1497	100
	Incentive	1446	96.4	54	3.6	1500	100
Total		2884	96.2	113	3.8	2997	100

H₃: Invitation phone calls will be more effective in increasing enrolment rates in Total Health than invitation letters.

It was hypothesised that an invitation phone call would be more effective in persuading members to join Total Health than an invitation letter due its interactive nature. However, more members in the letter condition enrolled in Total Health compared to the call condition (5.5 percent compared to 2.1 percent of enrolments); this was a significant difference with a p-value of 0.00. This was also tested by gender with results indicating that both males ($p = 0.002$, $\chi^2 = 9.435$) and females ($p = 0.024$, $\chi^2 = 5.154$) were more responsive to an invitation letter than an invitation phone call.

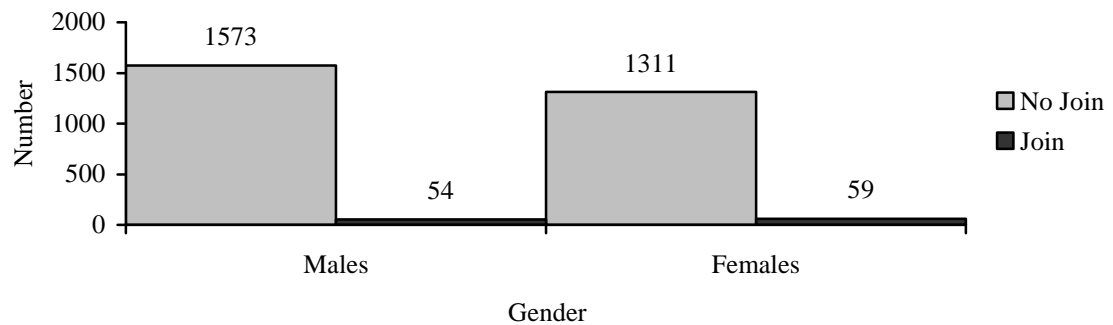
Table 8.18: Influence of communication source on enrolment

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Source	Call	1466	97.9	31	2.1	1497	100
	Letter	1418	94.5	82	5.5	1500	100
Total		2884	96.2	113	3.8	2997	100

H₄: More females will join Total Health than males.

As hypothesised, more females joined Total Health than males (52.2 percent versus 47.8 percent of enrolments) (Figure 8.8); however, the results were statistically non-significant ($p = 0.178$, $\chi^2 = 1.999$). Thus gender did not influence a member's decision to join Total Health. H_4 was rejected.

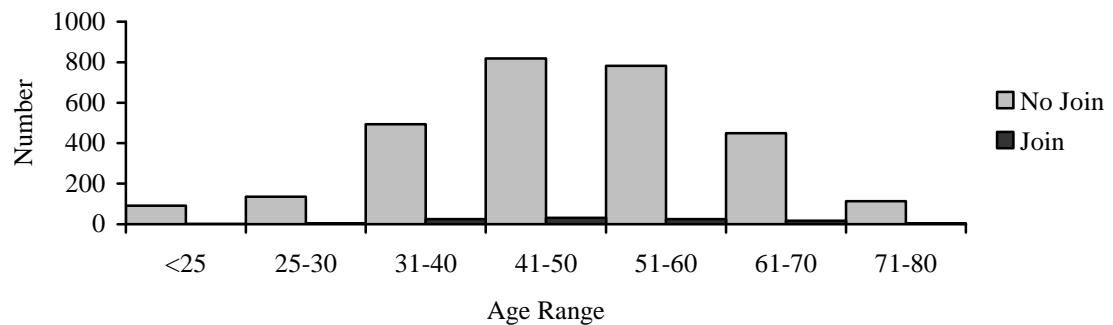
Figure 8.8: Gender distribution of Total Health participants



H₅: A greater number of older members will join Total Health than younger members of the sample population.

The results of the study indicate that age did not influence a member's decision to join Total Health ($p = 0.724$, $\chi^2 = 3.649$) (Figure 8.9). H₅ was rejected.

Figure 8.9: Age distribution of Total Health participants



8.3.4 Discussion

The use of message framing and the offer of an incentive were both deemed ineffective in increasing uptake rates in the Total Health program among members of ahm who had not completed the HRA. This could be explained by three potential rationales:

1. Members of the sample population could not relate to the framed messages

2. The incentive was not attractive enough to motivate members to participate in the Total Health program
3. The perceived costs associated with joining the program outweighed the perceived benefits.

Sample population could not relate to the framed messages: The framed messages employed in the second stage of the study focused on general health issues such as: weight management and the development of disease, diet and energy, and exercise and overall health. However, the findings were statistically non-significant. This could potentially signify that the messages were considered neither persuasive nor motivating enough by members of the sample population. This could be due to a variety of reasons, including:

- Members may consider themselves to be healthy
- Members may not be health conscious and/or do not actively think about their health
- The use of general health messages was not influential in swaying members to join

Unfortunately, the health background of members in this stage of the study is unknown and as a result none of the above mentioned possibilities could be tested to determine causation; this was a major limitation associated with Stage Two.

Incentive was not attractive enough: The results of the study revealed that the sample population was not motivated by the incentive, that is, a \$10 Rebel Sport gift voucher. Hence, the incentive could potentially be viewed as not attractive enough to motivate participation; this issue is further discussed in the subsequent chapter as it was a common theme across both stages of the study.

Cost outweighed benefits: It can be assumed that by not completing the HRA, members of the sample population were already displaying a disinterest in health initiatives from ahm. These members could potentially view the cost associated with joining Total Health, that is the time and commitment needed to set and achieve long term health goals, as far outweighing the benefits that would be reaped, that is, the ability to maintain or improve one's health and/or receive the incentive offered.

Method of communication: The method of communication (mail vs. telephone) was found to significantly influence participation rates with the use of an invitation letter considered more effective than an invitation phone call. This suggests that the decision to join Total Health was a high-involvement decision. Members therefore preferred a written letter whereby they could absorb and process the information at their own pace as opposed to a telephone call whereby they were asked to immediately indicate their preference in relation to joining Total Health.

Furthermore, it has also been acknowledged that the results of the telephone group could be influenced by the actual execution of the phone calls. The lifestyle consultants were hesitant about conducting the negative calls with the sit-in monitoring revealing that the consultants tended to just read out the messages and then ask members if they were interested in joining. Hence, there was a lack of communication between the lifestyle consultants and members with most of the phone calls discontinued if the member declined to join, thus there was no further probing or addressing of members' concerns.

8.3.5 Limitations

The main limitation associated with Stage Two of the study was lack of person-specific data, namely personal health information such as their cholesterol and blood pressure level. As a result, the framed messages developed for this stage of the study had to be modified, hence, the same messages were not utilised across both stages of the study. Furthermore, the lack of health information also limited the amount of data analysis that could be performed. For example, the correlation between members' health status and participation rates in Total Health could not be ascertained.

8.3.6 Conclusion

The experiments in Stage Two revealed that message framing and the offer of an incentive had no influence on uptake rates in Total Health. However, main effects were found for the method of communication (mail vs. telephone) with members who received an invitation

letter being more responsive than those who received an invitation phone call. This suggests that the decision to join Total Health could potentially be a high-involvement decision.

8.3.7 SUMMARY

Stage Two of the study examined the effect of message framing and the offer of an incentive among members of ahm who had not completed the HRA. This aimed to determine whether or not the HRA acted as an impediment to program participation. No effects were found for either method and as a result, it can be concluded that the HRA does not act as an impediment to program participation. Instead, the HRA could potentially act as a predictor of Total Health participation with members who have not completed the HRA being less likely to participate than members who have completed the HRA; this is further examined and discussed in chapter 9.

9.

DISCUSSION

This chapter examines all stages of the study collectively in order to comment on the overall efficacy of framed messages and the use of an incentive in encouraging participation in disease management programs, in particular, the Total Health program. This chapter brings together and reflects upon the two pilot studies, Stage One and Stage Two of the main study. The findings are discussed in terms of factors that could potentially be transferred to other disease and risk management programs to address the common problem of low participation rates.

9.1 OVERVIEW OF FINDINGS

9.1.1 Highlights of Results

The first pilot study was conducted with ahm and aimed to test the efficacy of offering members a non-monetary incentive upon re-enrolment in either the ‘Living with Arthritis’ or ‘HealthCheck’ program. The results indicated that re-enrolment rates were significantly higher in the incentive condition than the non-incentive condition across both programs tested.

However, this was contradicted by the second pilot study, which was conducted with a sample of university students. The second pilot study found no effects for the use of an incentive in encouraging students to enrol in a health program offered by one of three sources: their health insurer, employer or local area health service. However, unlike the first pilot study, this pilot study was hypothetical and this could potentially have effected the results. The second pilot study also tested a series of framed evidence-based health messages; no framing effects were found. This suggests that positively and negatively

framed messages could potentially be non-persuasive in encouraging participation in health programs, or that young adults (mean= 20 years) may not have related to the health issues presented and were thus not influenced by them. This issue was further explored in the main study with ahm members (Stage One and Two of the study).

The first stage of the main study with ahm (Stage One) aimed to test the effects of framed evidence-based health messages and the offer of an incentive on uptake rates in the Total Health program among members of ahm who had completed their Health Risk Assessment (HRA). Stage One of the study found no significant effects for either manipulation. However age, BMI, stress and regular breast examination and cervical cancer screening in women were found to be positively associated with enrolment rates.

Similarly, the second stage of the study with ahm (Stage Two) aimed to test the effect of general evidence-based health messages and the offer of an incentive on uptake rates in the Total Health program among members of ahm who had not completed their HRA. This stage of the study also found no effect for the use of message framing or the offer of an incentive.

9.1.2 Message Framing and Incentives: Are they Effective?

The research project focused on examining the influence of message framing and the offer of an incentive on uptake rates in the Total Health program.

Table 9.1 provides an overview of the results for stages one and two of the study in relation to the effectiveness of message framing and the use of an incentive.

Table 9.1: Summary of results – invitation letter condition

	Stage One		Stage Two	
	Join (%)	Did not Join (%)	Join (%)	Did not Join (%)
<i>Without an incentive</i>				
Positive message	10.1	89.9	6.0	94.0
Negative message	10.7	89.3	5.2	94.8
Neutral message	-	-	5.2	94.8

	Stage One		Stage Two	
	Join (%)	Did not Join (%)	Join (%)	Did not Join (%)
<i>With an incentive</i>				
Positive message	9.9	90.1	5.6	94.4
Negative message	8.3	91.7	4.8	95.2
Neutral message	-	-	6.0	94.0

Table 9.2: Summary of results – invitation phone call condition

	Stage One		Stage Two	
	Join (%)	Did not Join (%)	Join (%)	Did not Join (%)
<i>Without an incentive</i>				
Positive message	4.5	95.5	2.4	97.6
Negative message	3.8	96.2	1.2	98.8
Neutral message	10.8	89.2	3.6	96.4

	Stage One		Stage Two	
	Join (%)	Did not Join (%)	Join (%)	Did not Join (%)
<i>With an incentive</i>				
Positive message	9.7	90.3	1.6	98.4
Negative message	10.7	89.3	2.4	97.6
Neutral message	10.9	89.1	1.2	98.8

9.1.2.1 Message framing

The use of positively and negatively framed messages did not influence participation in the health programs tested and this was consistent across all three experimental studies in which framing was manipulated: Pilot Study Two, Stage One and Stage Two.

For the telephone invitations, the lack of framing effect could potentially be due to message delivery bias with the lifestyle consultants responsible for conducting the framed telephone calls for both Stage One and Stage Two of the study hesitant to deliver the negatively framed phone calls. This may be because they were afraid of upsetting any members who were suffering from a chronic condition; especially in Stage Two of the study where the member's health profile was unknown. Consequently, the lifestyle consultants seemed most comfortable delivering the standard (neutral) message, which is the current method employed at ahm.

For the mail invitations, the lack of framing effect could potentially be because the sample population viewed the letter as merely unsolicited promotional material and thus did not pay close attention to it. In this instance, the letter may not have been salient enough and this could be due to the high volume of junk mail Australian households are exposed. Research shows that in 2004 Australian households received a total of 8.2 billion pieces of junk mail (Needham, 2005).

In addition, the results of the research support the contention that message framing makes no difference in persuading people to join disease management programs. As highlighted in Chapter 4, the literature on message framing is highly disparate and this largely reflects the inconsistency associated with the development of the messages. There is currently widespread confusion in relation to message framing with studies not developing their messages uniformly. Hence, some studies have compared the positive benefits gained with performing a given health behaviour with the positive benefits forgone by not performing the health behaviour, while others have compared the positive benefits gained by performing a given health behaviour with the negative costs incurred by not performing the health behaviour (see section 4.3.2). As a result, framing effects are often overstated; the majority of studies that have found significant results have generally utilised messages that are not equally balanced. This research, on the other hand, used messages that were of equal valence. The messages were direct bi-polar opposites of each other and implemented in a carefully controlled setting. No framing effects were ascertained; this is consistent with

other carefully controlled studies which have generally found either no framing effects or relatively small framing effects.

9.1.2.2 Incentives

Unlike message framing, the results for incentives were contradictory with the first pilot study (Pilot Study One) finding an effect and the other three studies no effect. In the first pilot study, conducted with ahm, incentives were found to significantly influence re-enrolment rates in both the Living with Arthritis (LWA) and HealthCheck (HC) program. Two types of incentives were tested as part of this pilot study: a non-monetary gift (which differed depending on the program) and the chance to enter a competition prize draw. The pilot study found that both types of incentives were equally effective. Hence, the probability of winning a larger prize (that is, \$500 towards sports related equipment) was just as attractive as the sure option of gaining a small gift (that is, a heat pack for members in the LWA program and a backpack for members in the HC program).

Conversely, the second pilot study (Pilot Study Two) did not find any effect for the use of an incentive. In this pilot study, the offer of a \$10 Rebel Sport gift voucher did not influence students to join the hypothetical health and wellbeing program, Total Wellbeing.

This finding is similar to the results for both Stage One and Stage Two of the main study conducted with ahm which also found no effects for the use of a \$10 Rebel Sport gift voucher on enrolment in the Total Health program ($p = 0.459$, $\chi^2 = 0.430$). However, the combined results for both stages of the study found that more members in the incentive condition joined the Total Health program than in the non-incentive condition (Table 9.1). Even more interesting was the finding that participation rates in the incentive condition for the telephone call group in Stage One of the study was double that of the non-incentive condition and equal to that of the standard condition. This suggests that despite the non-significant results, incentives did show potential.

Table 9.3: Influence of an incentive on enrolment rates

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Incentive	No Incentive	2784	93.8	183	6.2	2967	100
	Incentive	2785	93.3	199	6.7	2984	100
Total		5569	93.6	382	6.4	5951	100

It can therefore be assumed that in relation to the main study, members of the sample population were not persuaded nor motivated by a \$10 Rebel Sport gift voucher. This could be due to two reasons. Firstly, when people are posed with a decision they tend to weigh up the pros and cons associated with each course of action, and incentives have the potential to tip people's decisional balance (Hall, 2006). However, in this instance it did not, which may indicate that the incentive utilised in the study was not perceived as attractive by the sample population. This could be due to its small monetary value; unfortunately, \$10 does not enable members to redeem much at Rebel Sport without having to pay additional money. Hence, the gift voucher could not be used by members to buy outright sportswear or sports-related equipment to help them achieve their lifestyle goals on the Total Health program.

Secondly, the sample population may have perceived the incentive as being an inadequate reward in exchange for their participation in the Total Health program, which requires long-term effort and commitment. People tend to trade off between the probability and magnitude of the rewards that they could earn for investing effort (Kivetz, 2003). This is in line with Social Exchange Theory whereby individuals seek to maximise the rewards and minimise the costs when engaging in a particular behaviour.

9.1.3 Secondary Findings

Analysis of the results revealed some interesting secondary findings related to message framing and incentives not associated with the original study design.

9.1.3.1 HRA

The overall enrolment rate in the Total Health program across both stages of the main study (chapters 7 and 8 respectively) was 6.4%. Stage was found to be an influencing factor with significantly more members in Stage One enrolling in the Total Health program than in Stage Two (9.2 percent vs. 3.8 percent, $p=0.00$, $\chi^2=0.00$) (Table 9.2).

Table 9.4: Influence of stage on enrolment rates

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Stage	Stage one	2691	90.8	269	9.2	2960	100
	Stage two	2884	95.9	113	3.8	2997	100
Total		5575	93.6	389	6.4	5957	100

The main difference between the two stages of the study was the composition of the sample population, notably the completion of the HRA. Members who completed the HRA were more likely to join the Total Health program than members who had not completed the HRA. This could be associated with a person's level of interest in their own health with evidence finding that the HRA tended to attract healthy members who were assumed to be relatively health conscious. This is consistent with Linnan et al. (2001) who found that only the healthiest employees tended to participate in workplace health promotion programs. From this, it can be assumed that members who complete an HRA are likely to be more conscious of their health and thus more interested in and/or responsive to health communications from ahm. This, in turn, makes the Total Health program more appealing

to members who complete the HRA. Hence, completion of the HRA can also act as a predictor of program participation.

9.1.3.2 Mode of communication: Mail vs. telephone

The method of communication used to contact members and invite them to join the Total Health program was found to significantly influence participation rates, with more members who received an invitation letter than an invitation phone call joining the program (7.6 percent vs. 5.2 percent, $p = 0.001$, $\chi^2 = 0.00$) (Table 9.3). This was most significant for Stage Two of the study ($p = 0.00$, $\chi^2 = 0.00$), suggesting that the sample population preferred to have the information presented to them in a written format whereby they could process it and make an informed decision at their own pace. Members were not as receptive when telephoned and asked to decide on the spot whether or not they would be interested in joining the program. The decision to join the Total Health program could potentially be considered a high-involvement decision because of the long-term commitment involved; the program is one year in duration and during that time members are required to make positive health changes, for example, exercise regularly or eat a healthier diet.

Table 9.5: Influence of communication source on enrolment rates

		Did the member join Total Health and set a goal?					
		No		Yes		Total	
		N	%	N	%	N	%
Source	Phone	2803	94.8	154	5.2	2957	100
	Letter	2775	92.4	228	7.6	3003	100
Total		5578	93.6	382	6.4	5960	100

9.1.3.3 Age

The sample population varied in age from 18-80 years. The low uptake rates among young adults could potentially be due to the fact that they could not relate to the health issues highlighted and were thus not influenced by them. This was reflected in the second pilot study whereby the majority (53 percent) of students sampled (mean= 20 years) felt that the

Total Wellbeing program would most benefit their mother rather than themselves. Similarly, Stage One of the study found that age was a significant factor with those aged 50 and over more likely to join the Total Health program ($p=0.007$, $\chi^2=0.684$). Thus the use of diabetes and heart disease to promote the Total Wellbeing and Total Health program could have created the perception that the programs were designed for middle-aged adults. This is consistent with statistics showing that diabetes and heart disease is most prevalent in people aged 45 years and over (Diabetes Australia NSW, 2007; Australian Bureau of Statistics, 2006).

9.1.3.4 Skepticism over program provider

In the second pilot study (Pilot Study Two) students were invited to join the Total Wellbeing program from one of three hypothetical sources; their health insurer (CHBCR), their employer or their local area health service. The pilot study found the source of the invitation influenced uptake rates in the Total Wellbeing program with students invited to join the program by their health insurer being less likely to indicate willingness to do so than students who were invited to join by either their employer or local area health service. This suggests that students may have been skeptical and viewed the provision of a health program offered by a health insurer as purely for the health fund's own gain, that is, to reduce health care costs in the long-run. Thus, in relation to ahm, the low participation rates may be due to members questioning the health insurer's motive in offering the Total Health program.

9.2 RECOMMENDATIONS

9.2.1 Message framing: Consider tailoring instead

Message framing was consistently found to have no effect in motivating ahm members to join the Total Health program. However, other factors such as age, gender, overweight, stress and regular breast examination and cervical cancer screening in women were found to play a significant role. It is therefore recommended that less emphasis be placed on message framing with more emphasis being directed towards the actual messages themselves. In particular it is recommended that the effectiveness of using tailored

messages, especially those that appeal directly to different age and gender groups be tested. Tailoring refers to information intended to appeal to a specific person based on characteristics unique to that person and generally derived from an individual assessment, such as a HRA (Kreuter and Strecher, 1996). This will hopefully make the messages more appealing to individuals and in turn more persuasive in encouraging uptake rates in the health programs. Thus, members who complete a HRA would receive health messages specific to their HRA results; for example, a member whose HRA revealed that he/she does not consume enough fruit and vegetables might receive a letter inviting them to join the Total Health program to learn how to make fruit and vegetables a part of everyday life in an effort to reduce the risk of cancer. On the other hand, members who do not complete the HRA may receive messages specifically tailored to their age and gender; for example, females in their 20's may receive messages on the benefits of regular exercise in helping them to look and feel good about themselves, while men in their 50's might receive messages on regular exercise to prevent cardiovascular disease.

9.2.2 Incentives

Similarly, incentives were found to be ineffective in increasing enrolment rates; however, only one type and denomination of incentive was tested in the main study. It is therefore recommended that future studies experiment with a variety of different types and denominations of incentives to determine the most optimal, especially since the use of non-monetary incentives in the first pilot study was found to significantly influence re-enrolments rates in two ahm health programs.

Test different monetary values: Firstly, it is recommended that different monetary values be tested. As mentioned earlier, the \$10 Rebel Sport gift voucher does not enable members to redeem much; hence, monetary values that will enable members to redeem sporting goods to meet their new health goals should be tested. This may also make the incentive more meaningful to members as “the perceived value of an incentive lies in the extent to which it supports an individual's goals” (Shah, Higgins and Friedman, 1998: 285).

Test non-monetary incentives: Non-monetary incentives showed considerable potential in Pilot Study One. In particular, these incentives were carefully selected to compliment the health programs they were aiding. It is therefore recommended that health programs consider testing a variety of different non-monetary incentives in the future which support and are inline with the focus of the health program; for example, a pedometer for an exercise/weight loss program. This is because incentives are most meaningful and effective when they are “closely tied to the behaviors they intend to reinforce” (Hall, 2006: 19).

Test prepaid incentives: Health programs should also consider the use of a prepaid incentive to invoke the Norm of Reciprocity, that is, when people feel obliged to give back to others the behaviour that was first given to them (Gershaw, 1994).

9.2.3 Provide information brochures

Members who received a mail invitation were more likely to join the Total Health program than those who received a telephone invitation. This suggests that members preferred to have the information provided to them in a written format. It is therefore recommended that health programs send prospective members information brochures on the health programs, including testimonials from past participants. In particular, members should receive an information pack prior to being contacted by a lifestyle consultant as this will give members time to familiarise themselves with the program prior to being put on the spot by a lifestyle consultant about whether or not to join the program.

9.3 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

9.3.1 Limitations

There were limitations associated with this research as outlined in the preceding chapters (see section 6.1.8, 6.2.8, 7.1.6, 7.2.6, 8.2.6 and 8.3.5). The main limitation was the lack of knowledge about the health status of members in the second stage of the study – that is, members who did not complete the HRA. This limited the analysis that could be conducted to compare data across the two stages of the main study, especially in relation to the characteristics of members who completed/did not complete the HRA and joined/did not

join the Total Health program. In addition, the messages utilised in the second stage of the study had to be altered to omit any disease specific information because ahm did not want to upset any members who may currently suffer from a chronic condition. Hence, the messages implemented across Stage One and Stage Two of the study were not equal and this could have potentially affected the results.

In addition, lack of access to qualitative data presented an examination of the reasons why a member chose to join or not join the Total Health program. The quantitative data, therefore, only addresses behaviour (joining or not joining) and does not provide any psychological insight into the decision making process.

There were also some logistical difficulties associated with monitoring the invitation phone calls to ensure they complied with the given framing guidelines. In Stage One, the phone calls were recorded but only 25 were made available to assess because the process of transferring the calls to CD was extremely time-consuming. As a result, it was decided that a live sit-in would be more practical for Stage Two of the study. However, this also had the potential to affect the results by making the lifestyle consultants uncomfortable and thus, they may have not carried out the phone calls as naturally and confidently as they otherwise would.

And lastly, the selection of the incentive in Stage One and Stage Two of the study was limited by ahm's management. It would have been ideal to test a larger incentive value; however, ahm was concerned that this may be perceived by members as a bribe to enrol in the Total Health program and this goes against the company's values. It was therefore agreed to test a \$10 Rebel Sport gift voucher despite the limitations associated with such a small monetary value – namely, the inability for members to redeem goods without having to incur any additional out-of-pocket expenses.

9.3.2 Directions for future research

Disease and risk management programs continue to grow in importance and play a central role in helping people prevent and/or manage their chronic conditions. This is particularly

beneficial in Australia where modern lifestyle factors continue to adversely affect health. The next section examines potential factors that should be further explored to determine the most effective ways to increase participation rates in disease and risk management programs.

Tailored Messages: The lack of framing effects suggests that the use of a generic message, whether framed or not framed, across a broad sample population was ineffective in part because it did not appeal to all members of the sample population. Thus, the use of tailored messages by age and gender is recommended. Future studies should develop tailored messages based on age because research shows that young adults view themselves as not vulnerable, thus messages relating to diseases and disease prevention are deemed ineffective. However, data from this study suggest that these types of messages were effective among older adults. Messages should also be tailored by gender as older adults are more responsive to disease specific messages – particularly where the risk increases with age, for example, breast cancer and prostate cancer.

Incentives: The type of incentives tested in this study was particularly limited due to ahm policy. Future studies should therefore examine different types and levels of incentives, both monetary and non-monetary, to determine the most optimum. In particular, future studies should focus on incentives that support the behaviours they intend to promote, for example, the provision of a pedometer to encourage people to lead a more active lifestyle. Furthermore, the timing of the incentive should also be examined to determine whether an incentive provided before or after the desired behaviour is more effective.

Qualitative research: This study primarily used quantitative research due to ahm policy and logistical difficulties. As previously mentioned, the use of quantitative data only relates to behaviour (that is, whether a member joins or does not join Total Health) and does not provide any psychological insight into the decision making process. This is essential to fully understand why a member has chosen to join or not join the Total Health program. Future studies should therefore incorporate qualitative research to delve into the main reasons effecting people's decision to join a health program, and to better understand the

barriers to participation. This could involve in-depth interviews with both participants and non-participants in health programs. Alternatively, exit interviews could also be conducted with people who do not re-enrol in a health program to determine if there are any specific aspects that act as a deterrence.

There are clearly numerous areas to be explored in relation to increasing participation and retention rates in disease and risk management programs. Future studies should therefore aim to further focus on these areas and add to the literature which at present is largely disparate.

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APPENDICES: CHAPTER 3

- Appendix 3A: Different disease and risk health programs offered by ahm.
- Appendix 3B: Health Risk Assessment.
- Appendix 3C: Sample personalised health report.

Appendix 3A: Different disease and risk health programs offered by ahm.

Please see print copy for Appendix 3A

Appendix 3B: Health Risk Assessment.

Please see print copy for Appendix 3B

Appendix 3C: Sample personalised health report.

Please see print copy for Appendix 3C

APPENDICES: CHAPTER 4

Appendix 4a: Categorising message framing studies

Appendix 4a: Categorising message framing studies

Author(s): Meyerowitz and Chaiken (1987)

Health Behaviour: Breast self examination (BSE) and breast cancer detection

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>Research show that women who do BSE have an increased chance of <u>finding a tumour in the early, more treatable stage of the disease</u></i>	<i>Research shows that women who do not BSE have a decreased chance of <u>finding a tumour in the early, more treatable stage of the disease</u></i>
Negative		

Note:

Due to the complexity of message framing, some may view the above message as positive while others may view it as negative, i.e. doing BSE and finding a tumour in its *early and more treatable stage* is considered positive, however, doing BSE and *finding a tumour* in general is often viewed as negative.

Author(s): Lalor and Hailey (1990)

Health Behaviour: Breast self-examination and susceptibility to breast cancer

Message Framing:

Actual messages employed in the study not stated in the article.

	Engage in behaviour	Do not engage in behaviour
Positive		
Negative		

Author(s): Maheswaran and Meyers-Levy (1990)

Health Behaviour: Heart disease

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>By taking this diagnostic blood test, you can find out your current cholesterol level. And by taking this test, you'll acquire important information pertinent to a major risk factor leading to heart attacks because your current cholesterol level can significantly affect your health both today and later in life. You'll obtain important information about the status of your health if you take advantage of this opportunity to find out what your cholesterol level is. <u>Remember that you stand to gain important health</u></i>	<i>By not taking this diagnostic blood test, you fail to find out your current cholesterol level. And by not taking this test, you'll fail to acquire important information pertinent to a major risk factor leading to heart attacks, because your current cholesterol level can significantly affect your health both today and later in life. You'll fail to obtain important information about the status of your health if you do not take advantage of this opportunity to find out what your cholesterol level is. <u>Remember that you stand to lose important health</u></i>
Negative		

Author(s): Rothman, Salovey, Antone, Keough and Drake Martin (1993)

Health Behaviour: Preventing and detecting skin cancer.

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<p><i>The earlier it is detected, the better the person's chances are for full recovery</i></p> <p><i>If they are detected early, most of these cancers are curable, and will not be fatal</i></p> <p><i>People who have never had blistering sunburn in the past are less likely to get skin cancer during their life than those who have had a blistering sunburn</i></p> <p><i>You can significantly decrease your chances of ultimately getting skin cancer by not exposing your skin to the sun without protection.</i></p>	
Negative		<p><i>The later it is detected, the poorer the person's chances are of full recovery</i></p> <p><i>Unless they are detected and treated early, most of these cancers are not curable, and will be fatal</i></p> <p><i>People who have had a blistering sunburn in the past are more likely to get skin cancer during their life than those who have never had a blistering sunburn</i></p> <p><i>You can significantly increase your chances of ultimately getting skin cancer by exposing your skin to the sun without protection.</i></p>

Author(s): Steffen, Sternberg and Teegarden (1994)

Health Behaviour: Testicle self-exam for cancer (TSE)

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>By doing TSE regularly now, you will learn what your normal, healthy testicles feel like so that you will be well-prepared to notice any small, abnormal changes that might occur.</i>	
Negative		<i>By not doing TSE regular now, you will not learn what your normal, healthy testicles feel like so you will be ill prepared to notice any small, abnormal changes that might occur.</i>

Author(s): Tykocinski, Higgins and Chaiken (1994)

Health Behaviour: Eating breakfast

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<u><i>Eat breakfast and be successful</i></u>	
Negative		<u><i>Don't eat breakfast and you might fail</i></u>

Notes:

The use of the word 'might' denotes uncertainty and weakens the message in comparison to the positive message, which states with conviction that if you eat breakfast, you will be "successful".

Author(s): Banks, Salovey, Greener, Rothman, Moyer, Beauvais and Epel
(1995)

Health Behaviour: Mammography

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>When you get a mammogram, <u>you are taking advantage of the best method</u> for detecting breast cancer early</i>	<i>When you avoid getting a mammogram, <u>you are failing to take advantage of the best method</u> for detecting breast cancer early</i>
Negative		

Author(s): Block and Keller (1995)

Health Behaviour: Two studies: Study 1: Sexually transmitted disease
Study 2: Skin cancer

Message Framing:

Study 1: Sexually transmitted disease (Human Papilloma Virus - HPV)

	Engage in behaviour	Do not engage in behaviour
Positive	<i>If you use the following precautions, you will be able to <u>avoid</u> contracting HPV. If you do have HPV, using these same precautions may help <u>control</u> the development of lesions.</i>	
Negative		<i>If you don't use the following precautions, you will <u>not be able to avoid</u> contracting HPV. If you do have HPV, not using these precautions may help <u>speed the development</u> of lesions.</i>

Study 2: Skin cancer

	Engage in behaviour	Do not engage in behaviour
Positive	<i>By using a sunscreen with a Sun Protection Factor (SPF) of 15 or higher, and wearing wide-brimmed hats and protective clothing as much as possible, you will <u>avoid</u> ultraviolet rays</i>	<i>By not using a sunscreen with a Sun Protection Factor (SPF) of 15 or higher, and not wearing wide-brimmed hats and protective clothing as much as possible, you will <u>not avoid</u> ultraviolet rays.</i>
Bad		

Author(s): O'Connor, Pennie and Dales (1996)

Health Behaviour: Influenza immunisation

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive		
Negative		

Note:

The messages employed in this study use attribute framing and as a result, do not fit the categories above.

Positive message:

60 percent do not have a problem with this side effect – that is, out of 100 people who get the vaccine, 60 remain free of side effects such as a sore arm.

Negative message:

40 percent get a sore arm – that is, out of 100 people who get the vaccine, 40 will get a sore arm.

Author(s): Detweiler, Bedell, Salovey, Pronin and Rothman (1999)

Health Behaviour: Sunscreen use

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<p><u>Protect</u> yourself from the sun and you will help yourself <u>stay healthy</u></p> <p>If you use sunscreen with SPF 15 or higher, you increase your chances of keeping your skin healthy and your life long</p> <p>Using sun-screen increases your chances of maintaining healthy, young-looking skin</p> <p>The higher the SPF you use, the more you will be protected from the sun's rays</p> <p>Protecting yourself from the sun is the surest way to prevent skin cancer</p> <p>You are in the sun right now – are you protecting yourself and ensuring that your skin stays healthy?</p>	<p><u>Don't protect</u> yourself from the sun and you <u>won't</u> help yourself <u>stay healthy</u></p> <p>If you don't use sunscreen with SPF 15 or higher, you decrease your chances of keeping your skin healthy and your life long</p> <p>Not using sunscreen decreases your chances of maintaining healthy, young-looking skin</p> <p>The lower the SPF you use, the less you will be protected from the sun's rays</p> <p>Failing to protect yourself from the sun is the biggest obstacle to preventing skin cancer</p> <p>You are in the sun now – are you not protecting yourself and not ensuring that your skin stays health?</p>
Negative	<p><u>Don't expose</u> yourself to the sun and you <u>won't</u> risk <u>becoming sick</u></p> <p>If you use sunscreen with SPF 15 or higher, you decrease your chances of damaging your skin and of bringing on an early death</p> <p>Using sunscreen decreases your risk for skin cancer and prematurely aged skin</p> <p>The higher the SPF you use, the less you will be harmed by the sun's rays</p> <p>Not exposing yourself to the sun is the surest way to avoid getting skin cancer</p> <p>You are in the sun right now – are you protecting yourself and preventing skin damage?</p>	<p><u>Expose</u> yourself to the sun and you will risk <u>becoming sick</u></p> <p>If you do not use sunscreen with SPF 15 or higher, you increase your chances of damaging your skin and of bringing on an early death</p> <p>Not using sunscreen increases your risk for skin cancer and prematurely aged skin</p> <p>The lower the SPF you use, the more you will be harmed by the sun's rays</p> <p>Exposing yourself to the sun is the surest way to get skin cancer</p> <p>You are in the sun right now – are you not protecting yourself and causing damage to your skin?</p>

Author(s): Rothman, Martino, Bedell, Detweiler and Salovey (1999)

Health Behaviour: Letrolisis virus (hypothetical) and gum disease

Message Framing:

Study One: Letrolisis virus (hypothetical)

Students were informed the following about the virus:

“The Letrolisis virus is a highly contagious illness that is transmitted in much the same way as the common flu, but has much more damaging consequences, the initial symptoms include mild to severe congestion in the nose, throat, and lungs along with difficulty in breathing. Over time, the condition gradually gets worse, resulting in chronic lung problems and in some cases death.

	Engage in behaviour	Do not engage in behaviour
Positive	<i>If you detect the letrolisis virus early, you can get treatment to eliminate the infection without delay.</i>	<i>If you detect the letrolisis virus too late, you greatly reduce the potential for effective treatment.</i>
Negative		

Study Two: Health and gum disease

	Engage in behaviour	Do not engage in behaviour
Positive	<i>People who use a mouth rinse daily are taking advantage of a safe and effective way to reduce plaque accumulation.</i>	<i>People who do not use mouth rinse are failing to take advantage of a safe and effective way to reduce plaque accumulation.</i>
Negative		

Author(s): Arora (2000)

Health Behaviour: Dental examination

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>Detect any cavity, determine if your gums are healthy and free of gingivitis, detect any build up of plaque on your teeth and keep your original teeth for as long as you live.</i>	<i>Will not be able to detect any cavity...</i>
Negative		

Author(s): Donovan and Jalleh (2000)

Health Behaviour: Child immunisation

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>90% of children do not develop the side effect</i>	
Negative	<i>10% of children do develop a side effect</i>	

Note:

The messages employed in this study use attribute framing and as a result, do not fit the categories above.

Positive:

90% of children do not develop the side effect

Negative:

10% of children do develop a side effect

Author(s): Blanton, Stuart and VandenEijnden (2001)

Health Behaviour: Flu immunisation

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive		
Bad		

Notes:

The actual messages employed in the study were not presented in the article. However, it was stated that “In the positive condition, participants read about the positive attributes of people who get flu shots. This message was designed in such a way that getting flu shots was associated with positive attributes (e.g. considerate and responsible) and with the absence of an equal number of negative attributes (e.g., neither self centres or careless). In the negative-frame condition, participants read about the negative attributes of people who do not get shots (e.g., self-centered/careless and not considerate/ not responsible). The content of the two messages was identical, with the only difference being the way in which the information was framed” (Blanton, Stuart and VandenEijnden, 2001: 850).

Author(s): Farrell, Ferguson, James and Lowe (2001)

Health Behaviour: Blood transfusion

Message Framing:

Participants were asked to imagine that: *“You are about to undergo surgery and your physician has informed you that during surgery, you will require a blood transfusion. Donated blood from the local blood bank will be used...”*

	Engage in behaviour	Do not engage in behaviour
Positive		
Negative		

Note:

The messages employed in this study use attribute framing and as a result, do not fit the categories above.

Positive:

“Blood donors and units of blood are carefully screened to prevent the transmission of infection via transfusion. Blood transfusion has a long history of safe use. The risk of infections are extremely small. It is estimated, that for every 2 million units transfused, 1,999,999 people will not contract HIV and (that), for every 200,000 units transfused, 1,999,999 will not be infected with [HCV]. Careful checks are carried out to ensure that blood correctly matched to your own is transfused, and, consequently, in all but extremely rare circumstances, mismatching does not occur”

Negative:

“Although all donors and units of blood are carefully screened, it is recognised that some risk of infection remains. For every 2 million units of blood transfused, it is estimated that 1 person will contract HIV; for every 200,000 units transfused (it is estimated that) 1 person will be infected with [HCV]. Careful checks are carried out to ensure that blood correctly matched to your own type is transfused, and only in extremely rare instances does mismatching occur”

Author(s): Mitchell (2001)

Health Behaviour: Genital herpes

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>The earlier genital herpes are detected the better the chances of effectively treating the disease, and not spreading it to others.</i>	
Negative		<i>The later genital herpes are detected the worse your chances are for effectively treating the disease, and spreading it to others.</i>

Author(s): Schneider, Salovey, Apanovitch, Pizarro, McCarthy, Zullo and Rothman (2001)

Health Behaviour: Mammography screening.

- Two messages:
1. Multicultural message
 2. Latina message

Message Framing:

Multicultural message:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>Breast cancer is the most common cancer found in women... <u>detecting breast cancer early can save a women's life</u>. When a woman gets regular mammograms, she is doing the best to detect breast cancer early. And, detecting breast cancer can save her life.</i>	
Negative		<i>Breast cancer is the most common cancer found in women... <u>failing to detect breast cancer early can cost a woman her life</u>. When a woman does not get regular mammograms, she is not doing her best to detect breast cancer early. And, failing to detect breast cancer early can cost her life.</i>

Latina message:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>Breast cancer is the most common cancer found in Latinas... <u>detecting breast cancer early can save your life.</u> When you get regular mammograms, you are doing your best to detect breast cancer early. And, detecting breast cancer can save your life.</i>	
Negative		<i>Breast cancer is the most common cancer found in Latinas... <u>failing to detect breast cancer early can cost your life.</u> When you do not get regular mammograms, you are not doing your best to detect breast cancer early. And, failing to detect breast cancer can cost your life.</i>

Author(s): van Assema, Martens, Ruiter and Brug (2001)

Health Behaviour: Nutrition and healthy diet.

Two messages: 1. Fat message
2. Fruit and vegetable message

Message Framing:

1. Fat message:

	Engage in behaviour	Do not engage in behaviour
Positive	<p><i>More chance of good health by eating a low-fat diet.</i></p> <p><i>People who eat a low-fat diet:</i></p> <ul style="list-style-type: none">▪ <i>have more chances of staying healthy</i>▪ <i>probably have less chance of getting cancer</i>▪ <i>have less chance of getting a cardiovascular disease</i>▪ <i>have less chance of getting arteriosclerosis and therefore a heart attack</i>▪ <i>have less chance of feeling bad about themselves</i>▪ <i>have more chances of staying fit or feeling more energetic</i>▪ <i>have more chance of losing weight and therefore – more chance of having a normal weight – more chance of having normal blood pressure – more chance of keeping a healthy heart – less chance of getting cardiovascular diseases.</i>	
Negative		<p><i>More chance of disease by eating too much fat.</i></p> <p><i>People who eat too much fat:</i></p> <ul style="list-style-type: none">▪ <i>have more chance of becoming ill</i>▪ <i>probably have more chance of getting cancer</i>▪ <i>have more chance of getting a cardiovascular disease</i>▪ <i>have more chance of getting arteriosclerosis and therefore a heart attack</i>▪ <i>have more chance of feeling bad</i>

	<p><i>about themselves</i></p> <ul style="list-style-type: none"> ▪ <i>have more chance of feeling unfit of feeling less energetic</i> <p><i>have less chance of losing weight and therefore – more chance of being overweight – more chance of having high blood pressure – more chance that their heart will be damaged – more chance of getting cardiovascular diseases.</i></p>
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2. Fruit and vegetable (F&V) message:

	Engage in behaviour	Do not engage in behaviour
Positive	<p><i>More chance of good health by eating enough F&V</i></p> <p><i>People who do eat enough F&V:</i></p> <ul style="list-style-type: none"> ▪ <i>have more resistance against diseases, such as flu and cold</i> ▪ <i>have less chance of getting cancer</i> ▪ <i>often have an adequate intake of dietary fibres and therefore more chance of healthy bowels</i> ▪ <i>often have an adequate intake of vitamins which protect the body against cardiovascular diseases</i> ▪ <i>have more chance of feeling good about themselves</i> ▪ <i>have more chance to stay healthy</i> ▪ <i>often have an adequate intake of important nutrients and therefore more chance that their body will continue to function normally</i> 	
Negative		<p><i>More chance of disease by not eating enough F&V:</i></p> <p><i>People who do not eat enough F&V:</i></p> <ul style="list-style-type: none"> ▪ <i>have less resistance against disease, such as flu and cold</i> ▪ <i>have more chance of getting cancer</i> ▪ <i>often have an inadequate intake of dietary fibers and therefore more chance of bowel problems</i> ▪ <i>often have an inadequate intake of vitamins which can cause cardiovascular diseases</i> ▪ <i>have more chance of feeling bad about themselves</i> ▪ <i>have more chance of becoming ill</i>

	<i>often have an inadequate intake of important nutrients and therefore more chance that their body will not continue to function normally</i>
--	--

Author(s): Broemer (2002)

Health Behaviour: Health risk behaviours and overall wellbeing

Message Framing:

Study One:

Actual messages utilised in the study not stated

	Engage in behaviour	Do not engage in behaviour
Positive		
Negative		

Study Two: Health risk behaviours and wellbeing

	Engage in behaviour	Do not engage in behaviour
Positive	<i>Performing healthy behaviours significantly increases well-being.</i>	<i>Not performing healthy behaviours reduces well-being.</i>
Negative		

Study Three: Safe sex

	Engage in behaviour	Do not engage in behaviour
Positive	<i>The risk of contracting HIV decreases significantly when using condoms.</i>	
Negative		<i>If you do not use condoms, the risk of HIV increases significantly.</i>

Author(s): Finney and Iannotti (2002)

Health Behaviour: Mammography screening

Message Framing:

Actual messages employed in the study not presented

	Engage in behaviour	Do not engage in behaviour
Positive		
Negative		

Author(s): Apanovitch, McCarthy and Salovey (2003)

Health Behaviour: HIV testing

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>There are many benefits, or good things, you may experience if you get <u>tested for HIV</u>. If you decide to get HIV tested you may feel the <u>peace of mind</u> that comes with knowing about your health.</i>	<i>There are many benefits, or good things, you may not experience if you don't get tested for HIV. If you decided <u>not to get HIV tested</u> you <u>won't feel the peace of mind</u> that comes with knowing about your health.</i>
Negative	<i>There are many problems, or bad things, you may not experience if you get tested for HIV. If you decide to get <u>HIV tested</u>, you may <u>feel less anxious</u> because you won't wonder if you're ill.</i>	<i>There are many problems, or bad things your may experience if you don't get tested for HIV. If you <u>decide not to get HIV tested</u>, you may <u>feel more anxious</u> because you may wonder if you're ill.</i>

Author(s): Keller, Lipkus and Rimer (2003)

Health Behaviour: Mammography and women's health

Message Framing:

Study One: Mammography

	Engage in behaviour	Do not engage in behaviour
Positive	<ul style="list-style-type: none">▪ <i>You can <u>feel confident</u> and have the peace of mind that you are doing the best you can to find breast cancer early.</i>▪ <i>If breast cancer is found early, it is <u>more likely to be curable</u>.</i>▪ <i>By finding breast cancer early, women have more treatment options and may <u>need less extreme medical procedures</u>, for example, women whose breast cancers are found early usually have the choice of surgery that spares the breast.</i>▪ <i>If you have a mammogram, you are <u>using the best method</u> to find out if your breasts are healthy.</i>	<ul style="list-style-type: none">▪ <i>You <u>cannot feel confident</u> nor have the peace of mind that you are doing the best you can to find breast cancer early.</i>▪ <i>If breast cancer is not found early, it is <u>less likely to be curable</u>.</i>▪ <i>By not finding breast cancer early, women have fewer treatment options and may <u>need more extreme medical procedures</u>. For example, women whose breast cancers are not found early usually do not have the choice of surgery that spares the breast.</i>▪ <i>If you do not have a mammogram, you are <u>not using the best method</u> to find out if your breasts are healthy.</i>
Negative		

Study Two: Women's health issues

Participants received the same messages as in experiment one.

	Engage in behaviour	Do not engage in behaviour
Positive	<ul style="list-style-type: none">▪ You can <u>feel confident</u> and have the peace of mind that you are doing the best you can to find breast cancer early.▪ If breast cancer is found early, it is <u>more likely to be curable</u>.▪ By finding breast cancer early, women have more treatment options and may <u>need less extreme medical procedures</u>, for example, women whose breast cancers are found early usually have the choice of surgery that spares the breast.▪ If you have a mammogram, you are <u>using the best method</u> to find out if your breasts are healthy.	<ul style="list-style-type: none">▪ You <u>cannot feel confident</u> nor have the peace of mind that you are doing the best you can to find breast cancer early.▪ If breast cancer is not found early, it is <u>less likely to be curable</u>.▪ By not finding breast cancer early, women have fewer treatment options and may <u>need more extreme medical procedures</u>. For example, women whose breast cancers are not found early usually do not have the choice of surgery that spares the breast.▪ If you do not have a mammogram, you are <u>not using the best method</u> to find out if your breasts are healthy.
Negative		

Author(s): Stuart and Blanton (2003)

Health Behaviour: Safe sex

Message Framing:

Study One: Pilot Study

	Engage in behaviour	Do not engage in behaviour
Positive	<i>Practicing abstinence indicates responsibility, self-respect, and planning for the future</i>	
Negative		<i>Engaging in sex indicates irresponsibility, lack of self-respect, and poor planning for the future</i>

Study Two: Main study

	Engage in behaviour	Do not engage in behaviour
Positive	<p><i>I want people to think of me as a success. It's for that reason that I use condoms each and every time I have sex. Bottom line, using a condom when you have sex is smart. People who use condoms have thought about the responsibility of being sexually active. They think with their brains instead of their genitals. People who use condoms are usually those individuals who are goal orientated, conscientious, responsible and careful. I think people give their partners more respect when they use condoms. Using condoms means you have taken the time to think about AIDS, about pregnancy, about venerable diseases and all that and that you're going to be one of those people who keep your life on track. I'm clean now and have always used good judgment. I plan to stay clean and so I use condoms whenever I have sex. This isn't just the right decision, it's the smart choice.</i></p>	
Negative	<p><i>I don't want people to think of me as an irresponsible individual. It's for that reason that I never once have had sex without a condom. Bottom line, not using a condom when you have sex is stupid. People who don't use condoms haven't even thought about the responsibility of being sexually active. They think with their genitals instead of their brains. People who don't use condoms are usually people who just don't have any goals, are thoughtless about their person, are irresponsible, and are careless. I think people give their partners less respect if they have sex with them without a condom. Not using condoms means you haven't even thought about AIDS, about pregnancy, about venerable diseases or any of that and that you're not even to keep your life on track. I've never screwed up with this stuff or used bad judgment. I don't plan to get a disease and will never have unprotected sex. Having unprotected sex isn't just the wrong decision, it's stupid.</i></p>	

Notes:

Is the association between success and using a condom when having sex relevant and appropriate?

Author(s): Arora and Arora (2004)

Health Behaviour: Healthy eating (nutritional guidelines)

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>It has been conclusively shown that including fruits and vegetables in your diet gives you the <u>benefit of cancer-protective mechanisms</u> found in these foods...if you follow the lifestyle shown... you <u>reduce the risk of</u> cancer.</i>	
Negative		The negative message employed in the study was not stated. However, the article indicated that the negative message stressed the unfavourable outcomes associated with not engaging in the promoted behaviour, that is, by “not following the suggested guidelines you would increase the risk of cancer” (Arora and Arora, 2004: 42).

Author(s): Mann, Sherman and Updegraff (2004)

Health Behaviour: Dental flossing

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<p>Title:</p> <p><i>“Great breath, healthy gums only a floss away”</i></p> <p>Text:</p> <p><i>“Flossing your teeth daily <u>removes particles of food in the mouth</u>, avoiding bacteria, which promotes great breath”</i></p>	
Negative	×	<p>Title:</p> <p><i>“Floss now and avoid bad breath and gum disease” *</i></p> <p>Text:</p> <p><i>“If you don’t floss your teeth daily, <u>particles of food will remain in the mouth</u>, collecting bacteria, which causes bad breath”</i></p>

Notes:

* While the actual message is bi-polar, this title is not and should be categorised in the gain/bad category (denoted by a ×) because it states the negative consequences you will not gain when you do not floss.

Author(s): McCall and Martin Ginis (2004)

Health Behaviour: Exercise adherence

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<ul style="list-style-type: none">▪ <i>Regular exercise will help you <u>maintain a healthy</u> body weight.</i>▪ <i>Exercising regularly will <u>increase your chances of lowering your blood pressure</u>.</i>▪ <i>Regular exercise will help you <u>feel good</u> about yourself.</i>▪ <i>If you exercise regularly, you are more likely to <u>prevent your heart disease from becoming more severe</u>.</i>▪ <i>You will <u>brighten your mood</u> by exercising regularly.</i>▪ <i>Exercise <u>decreases the risk that your heart disease will progress</u>.</i>▪ <i>Regular exercise will give you <u>more energy</u>.</i>▪ <i>Exercise to help <u>prevent your heart disease from getting worse</u>.</i>▪ <i>You will <u>increase your strength</u> if you exercise regularly.</i>▪ <i>You have had heart surgery. Do you plan to exercise to help <u>prevent a progression</u> of your heart disease?</i>	<ul style="list-style-type: none">▪ <i>By not exercising regularly, you <u>decrease your chances of keeping a healthy body weight</u>.</i>▪ <i>You are <u>less likely to lower your blood pressure</u> if you don't exercise regularly.</i>▪ <i>If you don't exercise regularly, you <u>miss out on a chance to feel good</u> about yourself.</i>▪ <i>You are <u>less likely to prevent your heart disease from becoming more severe</u> if you don't exercise.</i>▪ <i>If you don't exercise regularly, you <u>miss out on the chance to brighten your mood</u>.</i>▪ <i>You <u>may not decrease the chances of progression of your heart disease</u> if you don't exercise regularly.</i>▪ <i>If you don't exercise regularly, you <u>miss out on the chance to feel more energetic</u>.</i>▪ <i>Your <u>heart disease may get worse</u> if you don't exercise.</i>▪ <i>If you don't exercise regularly, you <u>won't increase your strength</u>.</i>▪ <i>You have had heart surgery. Are you putting yourself at <u>risk for progression</u> of your heart disease by not exercising?</i>
Negative		

Author(s): Richardson, Milam, McCutchan, Stoyanoff, Bolan, Weiss,
Kemper, Larsen, Hollander, Weismuller, Chou and Marks (2004)

Health Behaviour: Safer-sex practices among HIV individuals

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>We encourage you to make choices that protect yourself and others. <u>Safer sex protects you</u> from other sexually transmitted diseases and from other strains of HIV.</i>	
Negative		<i>We encourage you to make choices that do not put yourself or others at risk. <u>Unsafe sex may expose you to</u> other sexually transmitted diseases and other strains of HIV.</i>

Author(s): O'Connor, Ferguson and O'Connor (2005)

Health Behaviour: Hormonal male contraception

Message Framing:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>If you use the male contraceptive pill or injection, <u>you will be able to</u> take advantage of an alternative, convenient method, which will provide reliable contraception, does not carry a significant risk of side effects and would allow for a more equal sharing of the responsibility for contraception.</i>	<i>If you do not use the male contraceptive pill or injection, <u>you will not be able to</u>...</i>
Negative		

Author(s): Rivers, Salovey, Pizarro, Pizarro and Schneider (2005)

Health Behaviour: Pap test utilisation.

Two types of behaviour

1. Prevention behaviour

2. Detection behaviour

Message Framing:

1. Prevention behaviour:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>If you get regular pap smears, you can prevent cervical cancer from developing... and preventing cervical cancer can <u>save your life</u>.</i>	
Negative		<i>If you don't get regular pap smears, you can't prevent cervical cancer from developing... and not preventing cervical cancer can <u>cost your life</u>.</i>

2. Detection behaviour:

	Engage in behaviour	Do not engage in behaviour
Positive	<i>If you get regular pap tests, you can detect cervical cancer early... and detecting cervical cancer early can <u>save your life</u>.</i>	
Negative		<i>If you don't get regular pap tests, you can't detect cervical cancer early... and not detecting cervical cancer early can <u>cost your life</u>.</i>

Author(s): Arora, Stoner and Arora (2006)

Health Behaviour: Exercise and fitness

Message Framing:

Seven health areas were targeted. Below is an example in relation to heart disease.

	Engage in behaviour	Do not engage in behaviour
Positive	<i>By regular exercise you will gain important benefits and <u>reduce the risk of heart disease</u> by improving circulation.</i>	
Negative		<i>By not exercising regularly you will not gain the important benefits and <u>increase the risk of heart disease</u> by not improving circulation.</i>

APPENDICES: CHAPTER 6

Appendix 6A:	Gift-incentive re-enrolment letter
Appendix 6B:	Competition-incentive re-enrolment letter
Appendix 6C:	No-incentive re-enrolment letter
Appendix 6D:	UoW pilot study (CHBCR, positive letter with an incentive)
Appendix 6E:	UoW pilot study (CHBCR, positive, no incentive)
Appendix 6F:	UoW pilot study (CHBCR, negative, incentive)
Appendix 6G:	UoW pilot study (CHBCR, negative, no incentive)
Appendix 6H:	UoW pilot study (CHBCR, neutral, incentive)
Appendix 6I:	UoW pilot study (CHBCR, neutral, no incentive)
Appendix 6J:	UoW pilot study (Employer, positive, incentive)
Appendix 6K:	UoW pilot study (Employer, positive, no incentive)
Appendix 6L:	UoW pilot study (Employer, negative, incentive)
Appendix 6M:	UoW pilot study (Employer, negative, no incentive)
Appendix 6N:	UoW pilot study (Employer, neutral, incentive)
Appendix 6O:	UoW pilot study (Employer, neutral, no incentive)
Appendix 6P:	UoW pilot study (Wollongong Health, positive, incentive)
Appendix 6Q:	UoW pilot study (Wollongong Health, positive, no incentive)
Appendix 6R:	UoW pilot study (Wollongong Health, negative, incentive)
Appendix 6S:	UoW pilot study (Wollongong Health, negative, no incentive)
Appendix 6T:	UoW pilot study (Wollongong Health, neutral, incentive)
Appendix 6U:	UoW pilot study (Wollongong Health, neutral, no incentive)

Appendix 6A: Gift-incentive re-enrolment letter

Please see print copy for Appendix 6A

Appendix 6B. Competition-incentive re-enrolment letter

Please see print copy for Appendix 6B

Appendix 6C: No-incentive re-enrolment letter

Please see print copy for Appendix 6C

Appendix 6D: UoW pilot study (CHBCR, positive letter with an incentive)



Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear valued member,

CHBCR is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all CHBCR members.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to CHBCR, and one of our health consultants will contact you.

Yours Sincerely,
The CHBCR Team

I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6E: UoW pilot study (CHBCR, positive, no incentive)



February 2006

Dear valued member,

CHBCR is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all CHBCR members.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

To join, simply detach the below coupon and return to CHBCR by April 1, and one of our health consultants will contact you.

Yours Sincerely,
The CHBCR Team

I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6F: UoW pilot study (CHBCR, negative, incentive)



Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear Member,

CHBCR is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all CHBCR members.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to CHBCR, and one of our health consultants will contact you.

Yours sincerely,
The Total Wellbeing Team

I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

Appendix 6G: UoW pilot study (CHBCR, negative, no incentive)



February 2006

Dear Member,

CHBCR is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all members of CHBCR.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

To join, simply detach the below coupon and return to CHBCR by the 1st April, and one of our health consultants will contact you.

Yours sincerely,
The CHBCR Team

I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6H: UoW pilot study (CHBCR, neutral, incentive)



Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear Member,

CHBCR would like to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to all CHBCR members.

Join Total Wellbeing by the April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to CHBCR by April 1, and one of our health consultants will contact you.

Yours Sincerely,
The Total Wellbeing Team

I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6I: UoW pilot study (CHBCR, neutral, no incentive)



February 2006

Dear Member,

CHBCR would like to introduce to you **Total Wellbeing**, a personal health program exclusive to CHBCR.

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to all CHBCR members.

To join, simply detach the below coupon and return to CHBCR by April 1, and one of our health consultants will contact you.

Yours Sincerely,

The Total Wellbeing Team

I'd like a CHBCR Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6J: UoW pilot study (Employer, positive, incentive)

Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear valued member of the organisation,

We are excited to introduce to you **Total Wellbeing**, a personal health program exclusive to the company.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all members of the organisation.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to Human Resources and one of our health consultants will contact you.

Yours Sincerely,

Mr. J. Smith

Human Resource Manager

I'd like a Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6K: UoW pilot study (Employer, positive, no incentive)

February 2006

Dear valued member of the organisation,

We are excited to introduce to you **Total Wellbeing**, a personal health program exclusive to the company.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all members of the organisation.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

To join, simply detach the below coupon and return to Human Resources by April 1, and one of our health consultants will contact you.

Yours Sincerely,

Mr. J. Smith

Human Resource Manager

I'd like a Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6L: UoW pilot study (Employer, negative, incentive)

Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear valued member of the organisation,

We are excited to introduce to you **Total Wellbeing**, a personal health program exclusive to the company.

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all members of the organisation.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to Human Resources, and one of our health consultants will contact you.

Yours Sincerely,

Mr. J. Smith

Human Resource Manager

I'd like a Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6M: UoW pilot study (Employer, negative, no incentive)

February 2006

Dear valued member of the organisation,

We are excited to introduce to you **Total Wellbeing**, a personal health program exclusive to the company.

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to all member s of the organisation.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

To join, simply detach the below coupon and return to Human Resources by the April 1, and one of our health consultants will contact you.

Yours Sincerely,

Mr. J. Smith

Human Resource Manager

I'd like a Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6N: UoW pilot study (Employer, neutral, incentive)

Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear valued member of the organisation,

We would like to introduce to you **Total Wellbeing**, a personal health program exclusive to the company.

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to all members of the company.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to Human Resources by April 1, and one of our health consultants will contact you.

Yours Sincerely,

Mr. J. Smith

Human Resource Manager

I'd like a Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6O: UoW pilot study (Employer, neutral, no incentive)

February 2006

Dear valued member of the organisation,

We would like to introduce to you **Total Wellbeing**, a personal health program exclusive to the company.

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to all members of the company.

To join, simply detach the below coupon and return to Human Resources by April 1, and one of our health consultants will contact you.

Yours Sincerely,
Mr. J. Smith
Human Resource Manager



I'd like a Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

Appendix 6P: UoW pilot study (Wollongong Health, positive, incentive)



Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear household,

Wollongong Health is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to Wollongong Health.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to everyone living in the Wollongong region.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to Wollongong, and one of our health consultants will contact you.

Yours Sincerely,
The Wollongong Health Team

I'd like Wollongong Health Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

Appendix 6Q: UoW pilot study (Wollongong Health, positive, no incentive)



February 2006

Dear household,

Wollongong Health is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to Wollongong Health.

Did you know?

- Maintaining a healthy weight can reduce your risk of developing diabetes
- Eating a healthy diet can provide you with increased energy
- Regular exercise can prevent heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all; the program is free to everyone living in the Wollongong region.

Take this opportunity to join Total Wellbeing and you will be provided with the support and motivation needed to meet your important health goals. Taking action can help you improve your quality of life.

To join, simply detach the below coupon and return to Wollongong Health by April 1, and one of our health consultants will contact you.

Yours Sincerely,
The Wollongong Health Team

I'd like a Wollongong Health Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

Appendix 6R: UoW pilot study (Wollongong Health, negative, incentive)



Find out how you
can receive a \$10.00
Rebel Sport Voucher

February 2006

Dear Household,

Wollongong Health is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to Wollongong Health.

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all; the program is free to everyone living in the Wollongong region.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

Join Total Wellbeing by April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to Wollongong Health, and one of our health consultants will contact you.

Yours sincerely,
The Wollongong Health Team

I'd like a Wollongong Health Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐

Appendix 6S: UoW pilot study (Wollongong Health, negative, no incentive)



February 2006

Dear household,

Wollongong Health is excited to introduce to you **Total Wellbeing**, a personal health program exclusive to Wollongong Health.

Did you know?

- Being overweight can increase your risk of developing diabetes
- Eating an unhealthy diet can make you feel tired and lethargic
- Lack of exercise can lead to heart disease.

Total Wellbeing can help you address these and other health areas. We will work with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and best of all, the program is free to everyone living in the Wollongong Region.

Miss this opportunity to join Total Wellbeing and you will pass up the chance to be provided with the support and motivation needed to meet your important health goals. Failing to take action can decrease your quality of life.

To join, simply detach the below coupon and return to Wollongong Health by the April 1, and one of our health consultants will contact you.

Yours sincerely,
The Wollongong Health Team

I'd like a Wollongong Health Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6T: UoW pilot study (Wollongong Health, neutral, incentive)



February 2006

Dear Household,

Wollongong Health would like to introduce to you **Total Wellbeing**, a personal health program exclusive to Wollongong Health.

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to everyone living in the Wollongong region.

Join Total Wellbeing by the April 1 and you will receive a \$10.00 Rebel Sport Voucher.

To join, simply detach the below coupon and return to Wollongong Health by April 1, and one of our health consultants will contact you.

Yours Sincerely,
The Wollongong Health Team

I'd like a Wollongong Health Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



Appendix 6U: UoW pilot study (Wollongong Health, neutral, no incentive)



February 2006

Dear Household,

Wollongong Health would like to introduce to you **Total Wellbeing**, a personal health program exclusive to Wollongong Health.

Total Wellbeing is designed to help you address your important health goals, such as exercise and diet. We will do this by working with you throughout the year to help you set a personalised goal and keep you on track. It's like having your own personal health coach over the phone and is available free of charge to everyone living in the Wollongong region.

To join, simply detach the below coupon and return to Wollongong Health by April 1, and one of our health consultants will contact you.

Yours Sincerely,
The Wollongong Health Team

I'd like a Wollongong Health Total Wellbeing consultant to contact me.

Preferred contact number _____

Preferred time:

Between 9am and 12 noon ☐ Between 12 noon and 5pm ☐ Between 5pm and 8pm ☐

Preferred weekday:

Mon ☐ Tues ☐ Wed ☐ Thurs ☐ Fri ☐



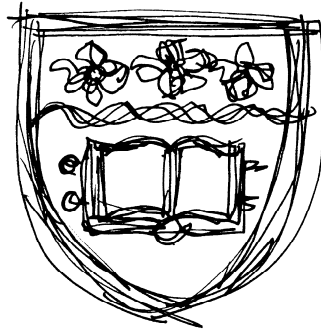
APPENDICES: CHAPTER 7

Appendix 7A:	Positively framed letter
Appendix 7B:	Positively framed letter with an incentive offer
Appendix 7C:	Negatively framed letter
Appendix 7D:	Negatively framed letter with an incentive offer
Appendix 7E:	“With compliments” slip accompanying gift vouchers
Appendix 7F:	Positively framed call guide
Appendix 7G:	Positively framed call guide with an incentive offer
Appendix 7H:	Negatively framed call guide
Appendix 7I:	Negatively framed call guide with an incentive offer
Appendix 7J:	Standard call guide
Appendix 7K:	Standard call guide with an incentive offer
Appendix 7L:	Lifestyle consultant training: Background to the study
Appendix 7M:	Training Guide

Please see print copy for Appendices: chapter 7A-7K

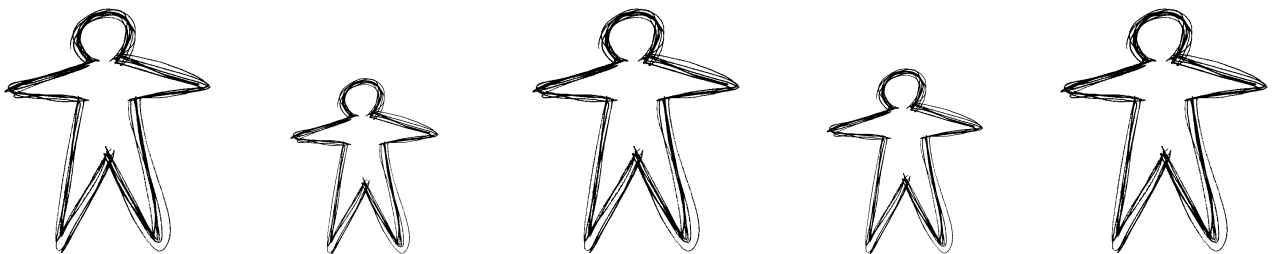
Appendix 7L: Lifestyle consultant training: Background to the study

Training Guide

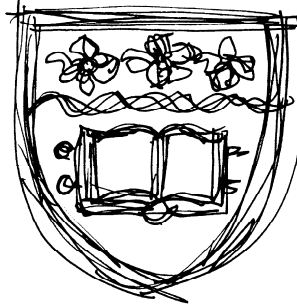


UNIVERSITY OF WOLLONGONG PROJECT:

MESSAGE FRAMING



Christina Hoang



LIFESTYLE CONSULTANT TRAINING

Friday 13 May 2005

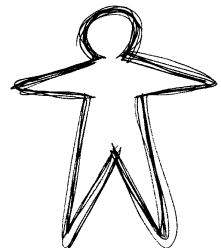
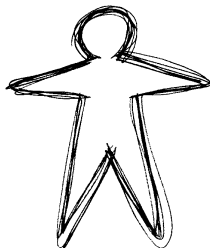
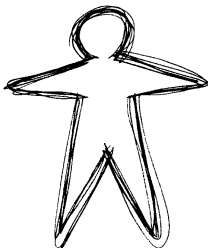
Welcome to today's training session!

Please find enclosed in your training pack the following:

- A copy of today's PowerPoint slides
- A message framing activity sheet
- Standard call guide
- Standards call guide (with incentive offer)
- A positive call guide
- A positive call guide (with incentive offer)
- A negative call guide
- A negative call guide (with incentive offer)
- Additional information on message framing

Kind regards,

Christina Hoang



MESSAGE FRAMING:
POSITIVE AND NEGATIVE MESSAGES

Are the following messages positive or negative?

Eating Red Meat

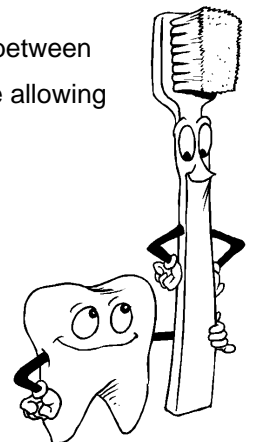
- 1) If you continue eating red meat you will not be able to reduce the level of cholesterol in your blood. Thus, you will fail to significantly decrease the likelihood of the early onset of heart disease.
 - a. Positive
 - b. Negative

- 2) If you discontinue eating red meat you will be able to reduce the level of cholesterol in your blood. Thus, you will significantly decrease the likelihood of the early onset of heart disease.
 - a. Positive
 - b. Negative

Flossing your teeth

- 1) Flossing helps clean teeth in the areas that brushing alone just cannot reach (between the teeth and under your gum line). By flossing your teeth regularly you are preventing plaque build-up and reducing your risk of gum disease and tooth decay.
 - a. Positive
 - b. Negative

- 2) Flossing helps clean teeth in the areas that brushing alone just cannot reach (between the teeth and under your gum line). By not flossing your teeth regularly you are allowing plaque build-up and increasing your risk of gum disease and tooth decay.
 - a. Positive
 - b. Negative



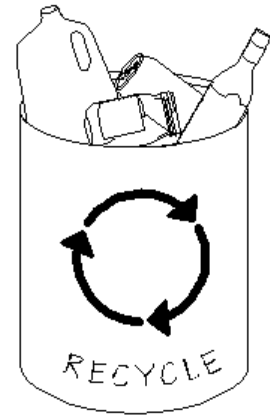
Constructing positive and negative messages

1) Recycling

Positive message:

By recycling you are saving the environment.

Negative message:



2) Safe Sex

Negative message:

If you do not use a condom when having sex you increase your risk of catching a sexually transmitted disease.

Positive message:

3) Mammograms

Positive message:

If you have regular mammograms you will increase your chances of finding a tumor in its early and more treatable stages.

Negative:

APPENDICES: CHAPTER 8

Appendix 8A:	Positively framed letter
Appendix 8B:	Positively framed letter with an incentive offer
Appendix 8C:	Negatively framed letter
Appendix 8D:	Negatively framed letter with an incentive offer
Appendix 8E:	Standard framed letter
Appendix 8F:	Standard framed letter with an incentive offer
Appendix 8G:	Positively framed call guide
Appendix 8H:	Positively framed call guide with an incentive offer
Appendix 8I:	Negatively framed call guide
Appendix 8J:	Negatively framed call guide with an incentive offer
Appendix 8K:	Standard call guide
Appendix 8L:	Standard call guide with an incentive offer

Please see print copy for Appendix 8