Using Formal Health Education Sessions to Increase Mammography use among women of Non-English Speaking Backgrounds in Rockhampton

By

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ABSTRACT

Although there has been an increasing incidence of breast cancer among Non-English speaking background (NESB) women in many developed countries, existing screening services are being underused by these women. Studies show that the barriers to the accessibility of breast cancer screening by NESB women include their lack of awareness, low level of education, low self-efficacy and lack of social interaction with other women. This study aimed to investigate the knowledge relating to breast cancer and mammography, self-efficacy and barriers to mammography use among NESB women in an Australian regional city before and after their attendance at a health education session. This health education session aimed to increase the awareness and use of mammography among these NESB women. Two widely used behaviour theories, 'Health belief model' and 'Social Cognitive Theory,' were applied as the theoretical framework for this study.

A quasi-experimental study was conducted in which the health education session was used as an intervention. Pre-test and post-test questionnaires were completed by study participants before and after the health education session. Their knowledge of breast cancer and mammography was assessed. In addition, their self-efficacy and barriers to the use of mammography were also analysed.

Results indicated that informal recruitment strategies were more effective with these NESB women. Initially 49 women were recruited. Of these, 23 women (47%) attended the health education session. As data showed tertiary educated and employed women who already had mammogram/s were more likely to attend the session. After attending the health education session, the women's knowledge relating to breast cancer and mammography was improved and the perceived barriers to the use of mammography were reduced. During a three month follow-up period, there was no change of mammogram use by the women. However, the results showed a trend of increased intention to use the mammogram over a period of two

years (41.7%) compared to six months (25.0%). Based on these results, further studies are recommended to explore the beneficial outcomes of health promotion programs targeting NESB women who are not in the workforce or have a low level of education.

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DECLARATION

I declare that the research project entitled, “Using Formal Health Education Sessions to Increase Mammography use among Women of Non-English Speaking Backgrounds in Rockhampton”, submitted for the award Master of Health Science is the result of my own research, except where otherwise acknowledged. This research project (or any part of it) has not been submitted for a higher degree to any other institution.

I also declare that to the best of my knowledge, any assistance I have received presented in this thesis and all sources of information used in this thesis have been acknowledged.

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Tabassum Ferdous

November, 2006

CHAPTER 1

1.1 Title

Using formal health education sessions to increase mammography use among women from non-English speaking backgrounds in Rockhampton

1.2 Background

Health promotion of migrants is a contemporary field of research in developed countries including Australia. In recent years breast cancer has been considered as one of the leading causes of death, not only among Anglo-Saxon women but also among migrants from Asian countries. Screening services are considered to be an effective means of early detection and reduction of morbidity and mortality due to many diseases among the target population. Several studies conducted in Australia, the UK and the USA identified barriers to the use of breast and cervical screening services among Non-English speaking background (NESB) women. Barriers to NESB women's participation in screening include the schedule of services, distance, and cost, and women's level of education, lack of awareness, low self-efficacy, beliefs and lack of social interaction with other women. This study has been conducted to assess whether a formal health education session provided to NESB women in a regional city in Australia would be effective in increasing the women's awareness of screening services and its relationship to the use of mammography.

1.3 Introduction of the Topic Area

This research has investigated the knowledge relating to breast cancer and mammography, self-efficacy of and barriers to mammography use among non-English speaking background (NESB) women living in an Australian regional city. This study also explored the use of formal and informal networks to recruit NESB women to participate in a health education session. Among women who participated in the health education session, their knowledge about breast cancer, self-efficacy of and barriers to mammography use have been assessed. The relationships between the changes in women's knowledge about breast cancer, barriers to mammography use and their use of mammography have been analysed.

Two theories widely used in preventive health behaviours have served as the theoretical framework of this study: Health Belief Model (HBM) (Becker 1974) and Social Cognitive Theory (Bandura 1986). The concept of HBM as related to preventive health behaviors such as participating in screenings includes: (1) a person's perceived susceptibility to a disease; (2) perceived severity of having the disease; (3) perceived benefit of being screened; (4) cues to action to seek screening; and (5) self-efficacy or the confidence in one's ability to perform the task. Social Cognitive Theory defines a human behavior as a triadic, dynamic and reciprocal interaction of personal factors, actions and the environment (Bandura 1986). People are more likely to engage in a certain behavior when they believe that they are capable of executing the behavior successfully and this is known as self-efficacy (Bandura 2001b). Therefore, knowledge about breast cancer and mammography services, barriers to having a mammography and self-efficacy has been assessed in this study.

1.4 Aim

The aim of this research was to assess: (1) relationships between the use of mammography by NESB women and their changing knowledge and barriers to the use of mammography, and (2) the relationship of use of mammography by NESB women and their self-efficacy in the use of mammography.

1.5 Objectives

Specific objectives of this study are to:

1. Explore the appropriateness of formal and informal networks to entice NESB women to attend group health education sessions.
2. Assess the knowledge relating to breast cancer and mammography and barriers to mammography use among NESB women in Rockhampton before attending a health education session.
3. Assess the change of knowledge relating to breast cancer and mammography among the participants after attending the health education session.
4. Assess the change of barriers to the use of mammography among the participants after attending the health education session.
5. Assess the self-efficacy of the participants for using mammography and explore a relationship between the use of mammography and their self-efficacy after their attendance at a health education session.

1.6 Summary

A quasi-experimental study design has been used in this study. In order to conduct the education sessions, a survey was conducted among the potential participants in Rockhampton, a regional city in Australia. Three different sources were used to approach the potential participants. Among these three sources, use of the researcher's personal contacts (previous acquaintances and opportunistic links) has been found to be the most successful method. Of 49 women approached, 33 (67.3%) agreed to attend the information session and 23 (69.7% of 33) participants attended the sessions and completed the pre-test questionnaire designed by the researcher.

These 23 participating women were followed up for a three-month period after attending at the formal health education sessions. They were then asked to complete a post-test questionnaire designed by the researcher and finally 17 participants (73.9% of 23) completed the post-test questionnaire. Their changes of knowledge, barriers to attending mammography and self-efficacy have been assessed and the relationships of these three aspects with their subsequent use of mammography have been analyzed.

Descriptive and analytical statistical methods have been used. Descriptive data have been presented in the following manner: number, percentage, mean and standard deviation, median and inter-quartile. A paired t-test has been used to assess a relationship between knowledge, self-efficacy, barriers and the use of mammography. Discussion has been based on the study results so that better understanding of the use of mammography among NESB women in Rockhampton can be drawn. Recommendations have been made to relevant health organizations, including the Queensland Cancer Fund and the Women's Health Centre in Rockhampton.

CHAPTER 2

Literature Review

2.1 Introduction

This section will briefly describe an increasing morbidity due to breast cancer among non-English speaking (NESB) women in developed countries. Their lack of awareness in regards to breast cancer screenings will be outlined. The literature review included in the following sections will be based on studies conducted in Australia, USA and UK. This review will firstly describe the relationship between breast cancer morbidity, ethnic minority women and their low use of breast cancer screenings. Secondly, it will discuss whether knowledge is an appropriate remedy to overcome this low use of screenings by NESB women. Thirdly, the theoretical background of this study will be briefly presented. The summary of key issues identified from this literature review will be presented to indicate gaps in this field of health promotion.

2.2 Breast cancer and non-English speaking women

Breast cancer is one of the leading causes of cancer deaths among women in the world. As estimated by Perkin et al (2001), using the 1988-1992 data, world wide new cases of breast cancer 1050300 and number of death was 373000 (within five years of diagnosis). Age standardized rates of all cancers in developed countries are about twice those in developing countries (Perkin et al 2001). Cautions need to be taken due to the different levels of data quality provided by 50 countries. The following chart shows the difference in mortality rates between Western countries and Far Eastern countries. Living in developed countries is considered as second highest risk factor for having breast cancer (McPherson, Steel & Dixon 2000).

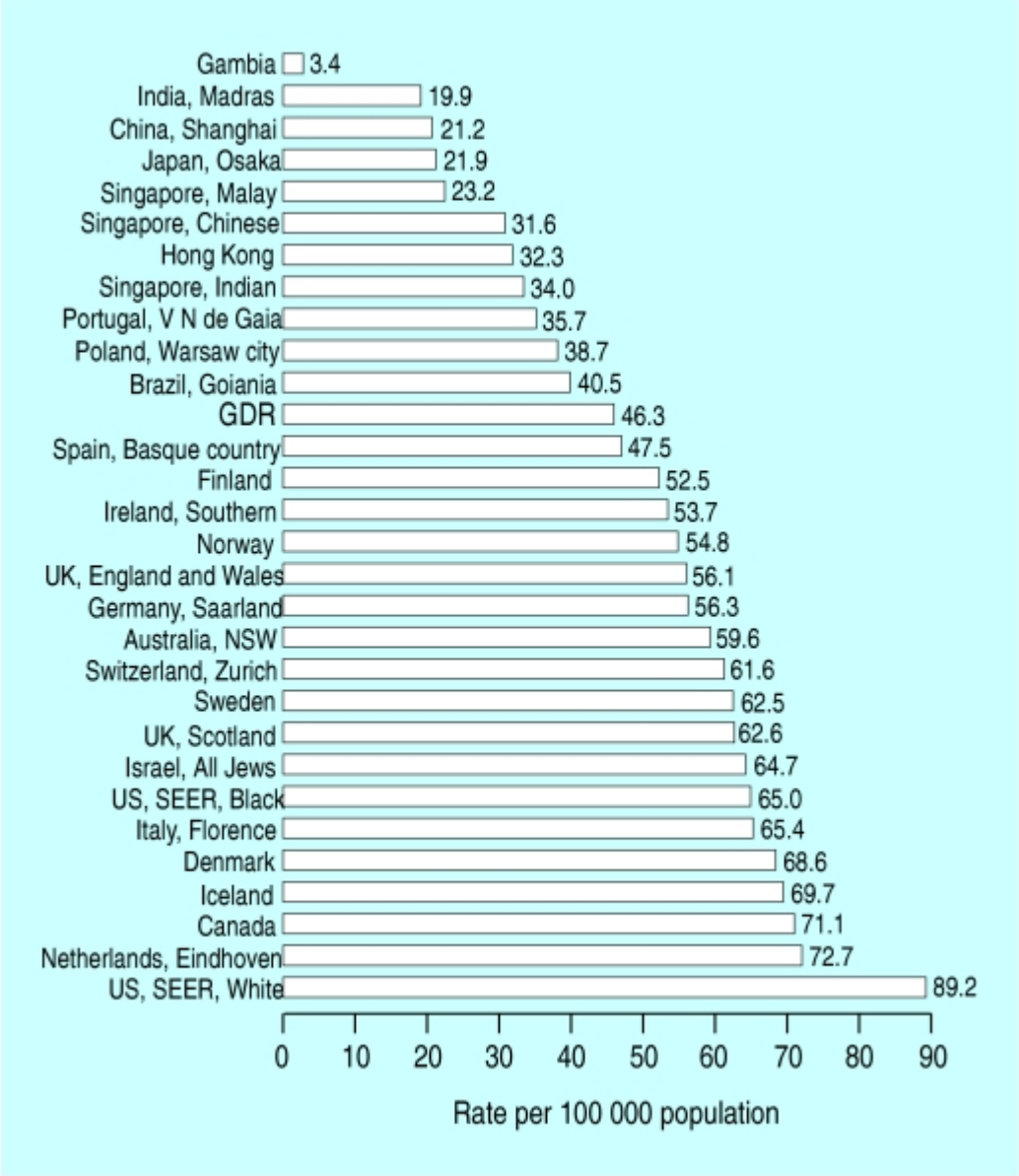


Figure 2.1 Difference in mortality rate between Western countries and Far Eastern countries

In a developed country like Australia, 2002 national statistics have shown that cancers most commonly causing female deaths were lung, breast and colorectal cancer of all female cancer deaths (Australian Bureau of Statistics (ABS 2004). However, 52% of net Australia's population growth in 2002-2003 was from overseas migration (ABS 2003). Kliewer and Smith (1995) found that regardless of the country of origin of immigrants, breast cancer mortality

rate shifted towards the recipient country as Australia and Canada. It occurs only quite sometime after migration rather than immediately after migration. After 30 years of migration the mortality rate of 83.3% immigrants had shifted towards the native–born Australians. In Australia, the mortality rate for 12 (75%) of 16 immigrant groups from lower rate countries and 10 (71.4%) of 14 groups from higher rate countries shifted towards the rate of native-born Australians (Kliewer & Smith 1995). Studies of migrants from Japan to Hawaii show that the rates of breast cancer in migrants assume the rate in the host country within one or two generations. The result indicates that environmental factors are of greater importance than genetic factors (McPherson et al.2000).Lifestyle change and self-selection of the migrants might contribute to these findings. The study of 2163 women attending a breast-screening clinic for a routine check-up indicated that certain types of coping strategies and personality dispositions predisposed some women to an increased risk of developing cancer (Cooper & Faragher 1993) following experiencing a major life event, for example, bereavement or other loss related event. The authors also found that single exposure to a major life event is much more damaging than experiencing regular stress situation particularly, when the individual is unable to express her emotions and to obtain help. Among Asian migrants, changes to a western life-style, including diet are associated with an increased risk of breast cancer (Ziegler et al. 1993).

2.3 Non-English speaking women and low uptake of mammography

Despite an increased risk of breast cancer among NESB women, it was noticed that the awareness of the benefit of cancer screening was lower among these migrant women. Australian Institute of Health & Welfare (AIHW 2000-2001) found that the participation rate in BreastScreen Australia was lower among women of NESB in all age groups compared to their counterparts from English speaking backgrounds. In 2000-2001, the participation rates in

BreastScreen Australia by NESB women aged 40 years or older and aged 50-69 years (target age group) were 30.7% and 48.9%. These percentages were lower than the rates of BreastScreen Australia participation by English speaking women of the same age groups which were 37.7% and 58.5%, respectively (AIHW 2003). According to the American Cancer Society (ACS) surveillance research conducted in 2002, the prevalence of mammography use among Anglo-Saxon women aged 40 years and older was 72.1% whereas among Asian Americans it was only 57.0% (ACS 2005, p.35).A study in the United Kingdom also showed the low uptake of mammography by women from NESB communities (Tucker et al. 1992 cited in Bell et al. 1999).

2.4 Reasons for the low uptake of mammography

According to the Queensland Health Multicultural policy Statement (March 2000), the diversity of people's background is not reflected in the health care delivery system. Consequently, the needs of people from NESB are not fully met. Some of the important issues are:

- Predominantly monolingual nature of health care provider,
- Lack of information available to NESB women regarding health system,
- Lack of knowledge and interest in cross cultural issues in health services,
- Lack of assistance for health agencies to develop appropriate programs for ethnic communities.

However, it is important not to overlook users' personal barriers, because rectifying the health care system alone is not sufficient to motivate these low participating women in the use of mammography unless they have reinforcement from within themselves.

Why is their internal motivation not sufficient to use available preventive health care services? The answers probably include other factors. For example the lack of information about breast cancer and the minimal use of breast cancer screening which is more pronounced among minority groups than for the English speaking majority. A cross sectional study among Thai migrant women in Brisbane conducted by Jirojwong and Manderson (1999 in ed. Rice) showed that social and cultural factors along with traditional beliefs acted as barriers to undertake regular cervical cancer and breast cancer screenings.

A large number of migrants in Australia are from developing and Middle East countries (ABS 2002) where most of the women are socially and economically disadvantaged and not able to express their health problems, particularly regarding breast and genitalia (Jirojwong and Manderson 2001). In some women this is due to their cultural barrier or lack of knowledge and awareness of health care resources (Sadler et al. 2001). Jirojwong and Manderson (2002) also found that their low use of preventive health services and delay of seeking behaviors are likely to be influenced by culture and beliefs inherent from their home country. After migrating to a developed country like Australia, most of the NESB migrant women may not be aware of how to access free preventive health care or other health services due to differences in the health service delivery between the home and the host country. Lack of English proficiency is another important factor for not attending these early disease detection and health promotion services (Jirojwong & Manderson 1999). The studies conducted in Australia, UK and USA identified some common barriers to the use of screening services (Kernohan 1996, Sadler et al. 2001& Jirojwong et al. 2002). These barriers include the schedule of services, distance, cost, and women's level of education. Lack of awareness, low self-efficacy beliefs and lack of social interaction with other women were also considered.

2.5 Knowledge and attitude toward breast cancer screening

Although breast cancer is the second most common cancer among Vietnamese-American women, a study in the USA showed that they were less likely to have ever had, and to be more often overdue for, clinical breast examinations (CBE) and mammograms than women in the general population. Over a two and a half year period, some intervention activities were targeted at both Vietnamese women and physicians in Alameda County, California (Nguyen et al. 2001). These activities were neighborhood based education, dissemination of health education materials, a media campaign and continuing medical education seminars for the physicians. There was no significant difference identified in the intervention group compared to the control group in terms of recognizing, receiving a plan and being up-to-date for Clinical breast examination (CBE) and mammograms. However, women who reported greater exposure to the various intervention elements were more likely to have heard of, have had mammograms, and to plan CBE than women with less exposure (Nguyen et al. 2001).

Another focus group study conducted in USA performed by telephone interviews revealed that women who had received regular mammograms were most commonly motivated by a desire to take care of their health and remain healthy (Simonian et al. 2004). The same study suggested that among recent immigrants, a lack of knowledge about breast cancer screening acted as a barrier. In the United Kingdom, the main barrier faced by the people of ethnic minority groups was lack of information about the availability and importance of screening services (Acheson 1998, Madhock et al. 1998 cited in Watts et al. 2004). Asian, Indian and Chinese women also showed their lack of knowledge of screening facilities and how to access these preventive health care services (Sadler et al. 2001). An evaluation of a pilot study conducted by Kernohan, E. from 1991 to 1993 for breast and cervical cancer screenings with Bradford's minority ethnic women showed a significant success of a 'Health Education

Strategy' among South Asian women who initially reported lowest level, of knowledge about cervical cancer during the pre-intervention stage (Kernohan 1996).

2.6 Is knowledge the remedy to overcome the low uptake of mammography?

Barratt and others (1998) suggested that if women are to participate, they need to know about mammography screening in general, and about the services provided by the national program in particular. This might suggest that, for using breast cancer screenings, providing knowledge may be the main precursor to overcome the previously discussed barriers.

However, researches in Australia, USA and UK provided conflicting results which indicated that the provision of information might not increase the use of cancer screenings. For example, an Australian study was conducted in 1996 to evaluate cancer prevention and detection services provided to women from culturally and linguistically diverse communities (Kelaher et al. 1999). According to the results of this evaluation, the services had limited success, possibly because most of the services only focused on health education about cancer screenings. In some communities, cancer was not considered as their health problem. In other communities, women were highly educated about cancer and required support to make appointments rather than gaining additional cancer screening knowledge.

Another intervention-based study among Vietnamese women in California showed that women from the intervention community also failed to show positive impact (Nguyen et al. 2001). The result of this study showed that at post-test the women of intervention community were significantly less likely to recognize, receive and plan mammograms than women in the control community (Nguyen et al. 2001).The researchers attributed the failure to a number of

reasons which were a less intense and less focused intervention delivered by volunteer lay health workers and the unanticipated breast cancer prevention activities occurred concurrently in the control community.

Some studies focused on barriers to the use of cancer screenings other than the lack of knowledge (O'Mally et al. 1999, Vezquez et al. 2002 & Jirojwong & MacLennan 2003). They recommended that a successful breast cancer screening program should include not only convincing information but also social support, communication with health care providers and promoting the perception of health care services as being successful and helpful. A recommendation from a general practitioner to undergo screening also might lead to an increased use of mammography. Although particular cultural beliefs were closely associated with a low screening rate among the Asian migrant women, an educational program alone was unlikely to overcome these barriers. Sadler and others (2001) suggested that providing information remained to be an important element in helping women to alter their risk of late stage detection and its consequences. Sadler et al. (2001) concluded that 'insufficient knowledge of breast cancer may contribute to the low screening adherence and also that a low screening rate might be improved by a focused educational intervention program'. The chances of success were likely to be improved if more attention was placed on issues related to the women themselves, such as their knowledge, their attitude and their beliefs as well as the issues related to the health care system (Vazquez et al. 2002).

Being a small scale study in terms of limited resource availability and shorter time frame, it is not feasible for this study to analyse policy components of health care delivery system in QLD regarding multicultural community. Therefore, this research will only focus on personal factors, i.e. women's knowledge, personal barriers and self-efficacy. On the basis of the above

literature, this current study will explore the outcomes of health education provided to NESB women, delivered by a community speaker of Queensland Cancer Fund relating to breast cancer and the importance of mammography. These outcomes will include mammography use by the women and their change of knowledge relating to breast cancer and mammography, self-efficacy of and barriers to mammography use.

CHAPTER 3

Theoretical background

3.1 Introduction

A number of studies have applied psychological theories including the Social Cognitive Theory, Health Belief Model and the Transtheoretical Model (Bandura 1998; Kelaher et al. 1999; Jirojwong & Manderson 2002) to explain why people behave in certain ways and how they make behavioral choices. Two theories, Health Belief Model and Social Cognitive Theory, have been selected to be applied in this study as they are suitable to the issues relating to cancer screenings by NESB women described in earlier sections.

3.2 Social Cognitive Theory

Social Cognitive Theory defines human behavior as a triadic, dynamic and reciprocal interaction of personal factors, action and the environment. Behavior can also be explained in terms of 'a response driven by stimulus' (Watson 1913, cited in Thomas 1990) with cognition playing a mediating role between stimulus and response (Tolman 1932, cited in Stone 1998). A person's expectations, beliefs, self-perceptions, goals and intentions give shape and direction to their behavior (Stone 1998). These complex relationships can be illustrated in the following figure.

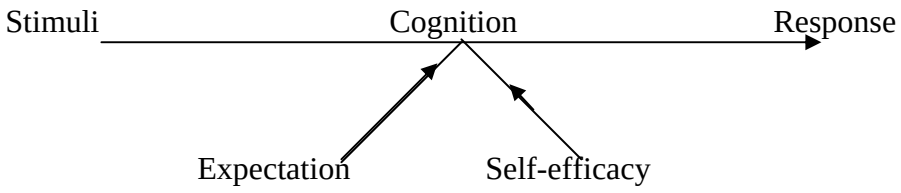


Figure 3.1: Interaction between stimuli, cognition, expectation and self-efficacy on a person's response

Based on the above illustration, this study proposed that in the case of promoting mammography among NESB women, “response” is considered for participation or non-participation in mammography, the “stimulus” is the knowledge related to breast cancer and mammography, the “self efficacy” is the women’s capability to use mammography, “expectation” is the women’s anticipation of remaining healthy or not suffering from breast cancer and “cognition” is the women’s mental process which influences their use of mammography (Slama 2004).

Bandura (2001a) stipulated that people are more likely to engage in a certain behavior when they believe they are capable of executing the behavior successfully and this is known as self-efficacy or belief in personal agency. Therefore, self efficacy has a significant influence on how people feel, think and act. While preparing for action, self related cognitions of individuals are a major ingredient of their motivation process (Scholz et al. 2002). A strong sense of personal efficacy is also related to better health status (Bandura 1998).

One means of increasing self efficacy is to provide information designed to improve the ability to construct, regulate, and evaluate potential courses of action. In health care, such information can include knowledge of one's state of health and the knowledge of the nature of the health care system and its associated treatment regimens. It is important that the knowledge enhances the individual’s capacity to participate in the process of setting goals and choosing the means of achieving them (Olson 1996).

It has been described above that knowledge is considered as stimuli for an individual’s preventive health action. According to Wikipedia (2005) knowledge is defined as the awareness and understanding of facts, truths or information gained in the form of experience

or learning (*a posteriori*), or through introspection (*a priori*). The awareness and expectation of future benefits are likely to have a major effect on the behavior that people exhibit. The knowledge relating to breast cancer and mammography has been recognized as stimuli to the use of mammography by NESB women. This current study has been designed to provide knowledge in a formal format of a health education session.

3.3 Health Belief Model

Kleier (2004, p.41) mentioned that language and culture differences between health care providers and consumers appear to have a negative impact on the level of consumer's knowledge. In recent years few researchers showed strong support for the application of Health Belief Model (HBM) as a framework to explain the use of screening among ethnic minority people (Sadler et al. 2001, Jirojwong & MacLennan 2003 & Kleier 2004). The HBM was also considered as a conceptual framework for educational intervention (Becker 1974 cited in Sadler et al. 2001) as this model can explain, predict and influence a person's preventive health behaviors (Kleier 2004). The concept of HBM as related to mammography screening includes: (1) perceived susceptibility to breast cancer; (2) perceived severity of having breast cancer; (3) perceived benefit of being screened; (4) cues to action to seek mammography screening and (5) self-efficacy or the confidence in one's ability to go for screening (Stein et al.1992). Based on this theory, individuals will take action to prevent illness on the perception that they are personally susceptible to the disease, consequences will be serious and the action will be benefited in reducing the risk (Prochaska 2000 cited in Kleier 2004).

The use of HBM in explaining preventive health behaviors has not provided conclusive results. A retrospective study was conducted by Kegels (1965 cited in Rosenstock 1974) who assessed a persons' perceived susceptibility to a variety of dental diseases, their perceived severity of these conditions, their belief about the benefit of preventive action and their perception of barriers to those actions. His study showed that the increase in a number of beliefs about the benefits of preventive action would increase their frequency of preventive dental visits. In 1969 the same researcher conducted a prospective study to follow-up his earlier study. He found that the perception of seriousness (alone or with other variables) and the perceptions of benefits (taken alone) were not related to preventive dental visits. Only one HBM factor, the perception of susceptibility correlated with subsequent preventive dental visits. Fink et al. (1972 cited in Rosenstock 1974) suggested that personal susceptibility to cancer and the perceived disease severity distinguished participants from non-participants in a breast cancer screening program. Following the conflicting results of HBM factors in explaining preventive health action these three study factors (knowledge relating to breast cancer and mammography, self-efficacy of and barriers to mammography use) will be considered by the researcher in explaining the use of mammography among the NESB women in Rockhampton.

CHAPTER 4

Research design

4.1 Study setting

This study was conducted in Rockhampton, a regional city in central Queensland, Australia. It is known as the Beef Capital of Australia. In the region of Central Queensland some of the best cattle in Australia are bred and raised to provide meat for the local, national and international market. Agriculture is also a big part of this region, where grain crops are grown not far from the machinery of the coal fields, which substantially contribute to Australia's economy.

The 2001 census reported that the population of Rockhampton was 62,845 (Australian Bureau of Statistics (ABS) 2001). Of the total population, approximately 88% were born in Australia, 6% were born overseas and 1% was overseas visitors. Responses for main language spoken at home found that English was the only language for 93% while 7% spoke in other languages at home. Regarding age, 11,284 (34.9% of the total female population) were 40-75 years old which was the target age group of this study (ABS, 2001). No definite data were found regarding what percentage of this age group were of non-English speaking backgrounds. Regarding its overseas born population, Rockhampton can be considered as a homogenous regional city with only 6% of its population born overseas compared with 17% in the State of Queensland and 21% in Brisbane city.

Table 4.1 Population characteristics of Queensland, Brisbane and Rockhampton (ABS 2001)

Characteristics	**Rockhampton** Percent	**Brisbane** Percent	**Queensland** Percent
Total overseas born	6.30	20.77	16.86
Female	50.45	50.57	50.59
Speaking English only	92.87	85.55	86.80
Speaking other language	7.13	14.45	13.19

In terms of its health service facilities, Rockhampton is quite a compact and well resourced city. One public hospital, two private hospitals, Breast Screening Australia, Community Health Department, Queensland Cancer Fund and The Women's Health Centre are all located on the south side of the city within 5-10 minutes' driving distance of each other.

In the last two years, due to the Australian migration policy, a lot of skilled overseas trained people are migrating to the regional cities of Australia. Skilled migrants accounted for 43% of all permanent arrivals to Australia in 2004–05. Of all the states and territories, Queensland recorded the largest net population gain due to net interstate migration in 2004-05 (Australian Bureau of Statistics (ABS) 2004-05). With the existence of the meat and mining industries in Central Queensland, this trend will likely continue in Rockhampton.

4.2 Study design

A quasi-experimental study design was used in this study. Quasi-experiments are research designs in which the experiments involve the introduction of an experimental treatment or intervention. Such designs are usually used to evaluate cause-and-effect relationships. The designs look like experiments but lack the control of the true experimental design, and thus are called 'quasi-experiments' (LoBiondo-Wood & Haber 1998). A health education session of

one hour delivered by a community speaker from the Queensland Cancer Fund was used as an intervention for this study. The participating women were asked to complete a pre-test questionnaire prior to attending the education session and after a follow-up of three months they were asked to complete a post-test questionnaire. The purpose of this study design was to assess these participating women's change of knowledge about breast cancer and mammography and barriers to the use of mammography as a result of attending the education session.

4.3 Information delivered by Queensland Cancer Fund

The Queensland Cancer Fund volunteer community speaker delivered the following information to the study participants who attended the health education session. The information was delivered by a data projector followed by an open discussion. The community speaker provided information on how to perform breast self-examination by practical instruction as well as a video recorded program. The community speaker also distributed information in the form of leaflet, fridge magnet and a booklet. This educational session has been developed and implemented by Queensland Cancer Fund. Therefore, these sessions have been used as an intervention in this study to improve knowledge and awareness about breast cancer and use of mammography among the target community.

4.3a Signs and symptoms of breast cancer

According to the Queensland Cancer Fund Volunteer training module, 1 in 12 Queensland women will develop breast cancer during their life time. Therefore, it is essential that, if any woman has noticed any of the following changes in and around her breast, they should be

checked by a doctor as soon as possible. The changes that may be detected by a woman, partner or a doctor are:

- Lumpiness
- Change in size and shape of the breast
- Changes in appearance of breast skin
- Dimpling or puckering of breast skin
- A lump or thickening inside the breast
- Discharge from the nipple
- Rash on the nipple or surrounding areas
- Inversion or ‘turning in’ of the nipple
- Swelling of the upper arm
- Swelling in the armpit
- Pain in the breast (Queensland Cancer Fund 2006).

4.3b Risk factors

There are four major risk factors associated with breast cancer: (1) being a woman, (2) age; risk increases steadily with age and 70% of cases occur in women over 50, (3) previous histories of breast cancer; women who have already had breast cancer have a slightly higher risk of developing breast cancer again and (4) family history; one or more first degree relatives with a history of breast cancer increases the chance of having breast cancer.

Other possible risk factors include**:** (1) early onset of menstruation: before the age of 12, (2) late menopause: after the age of 50, (3) delayed child bearing, including women who have never had children and (4) obesity in post menopausal women. It is noted that hormone replacement therapy (HRT) was not mentioned in the risk factor however; discussion about

HRT was added as a related topic at the end of the manual for the volunteer community speakers of Queensland Cancer Fund.

4.3c Early detection strategies

As primary prevention of breast cancer is not possible, the best means of reducing breast cancer mortality is to detect cancer in a very early stage. Some breast tumours are first detected by women themselves, so it is important for all women to be familiar with how their breasts usually feel and look at different times of the month by breast self examination. Clinical breast examination is recommended every year because a health professional can often detect smaller lumps in breast tissue than the average person, due to their experience with clinical breast examinations. Mammography can detect changes in the breast tissue before they develop into lump/s large enough to be felt with fingers. Mammography directly exposes the breast to a small dose of x-rays. The tiny risk of x-rays causing any harm is far outweighed by the benefits of detecting breast cancer early. This is the best method for detecting breast cancer early in women over the age of 50 years.

4.3d Free screening mammograms

Free screening mammograms are available to asymptomatic women between the ages of 50-69 and then every two years as a part of a national program. As a part of this program, women aged 40-49 years are also eligible for free screening but are not encouraged unless they have any symptoms or risk factors (in order to reduce false positive results). Women who are not in the national screening age group and who have a family history of this illness are advised to discuss this with their doctor.

Mammograms are not 100% accurate. Generally mammograms are more accurate in older women and in the case of pre menopausal women it is difficult because of their dense breast tissue. Therefore, the main target audience is women aged between 50-69 years, as 75% of breast cancer occurs in women over 50.

On the basis of the information given above, some of the research questionnaire items were prepared to assess knowledge of breast cancer and mammography among the study participants. In multiple choice questions some wrong answers were also included. Most of the questions related to knowledge were the same in the pre-test and post-test questionnaire and a few items were added later in the post-test to investigate how appropriately the women had received the right information delivered by the Queensland Cancer Fund.

4.4 Designing the questionnaire

The researcher designed the pre-test (Appendix B) and post-test (Appendix C) questionnaires comprised of open-ended and close-ended questions. Studies by Bandura (2001a), Coppe (2001), Jirojwong and MacLennan (2003) were used as a guide to design these questionnaires. Coppe (2001) investigated the appropriateness and impact of the Anti-Cancer council of Victoria's (ACCV) community Language Program (CLP) on Italian women. The study assessed their knowledge, belief about breast cancer and early detection, self-reported and intended breast cancer screening behavior. Coppe (2001) also examined the differences that exist between Italian women and Anglo-Australian women in relation to their health related beliefs. Whereas; Jirojwong and MacLennan (2003) investigated the health beliefs, perceived self-efficacy, and breast self-examination among Thai migrant women in Brisbane. The self-efficacy scale developed by Bandura (2001a) and a book by Bradburn (2004) were also used as guides for constructing questionnaires. The questionnaires were piloted with seven women

who did not take part in the study and were revised to improve their clarity and coherence after being piloted.

Studies suggested that acculturation appeared as an important variable to predict the adoption of screening behaviour among migrant communities (Meana et al. 2001; Gorin & Heck 2004; Guevarra et al. 2005). According to Barry (1980, in Guevarra et al. 2005, pp.191) "Acculturation refers to the process in which an individual adopts or adheres to attitudes, beliefs, practices or behaviour congruent with that of the dominant culture". The variables that are associated with acculturation are: English language skills, employment, education, length of residency, traditional rituals and practice, food preference and activity preference such as improved utilisation of health care services (Meana et al. 2001; Guevarra et al. 2005). These affect an immigrant woman's ability to acquire resources and establish social networks which support the exchange of information about health care (Peragallo et al. 1998, cited in Meana et al. 2001). Age has also been considered as one of the important factors for a low rate of participation in breast screening among the highest age related risk group which is 50 years and over (Burg, Lane & Polednak 1990).

In this study, three sets of questionnaires were used. On an initial survey, the questionnaires were prepared to investigate a few demographic characteristics of the potential participants and to find out whether or not they agreed to attend the health education session (Appendix A). The demographic characteristics that were included in the initial survey questionnaire were: age, English proficiency, employment status, having a family car and a suitable day of the week and time to attend the session. The participants who agreed to attend the health education session were asked to provide their mailing addresses so that they could be contacted later (Appendix A).

Meana et al (2001) found that the use of mammography by migrant women differed significantly in terms of their level of education, years living in the host country and their acculturation to life in that country. Other studies also identified lack of health insurance, lack of recent visits to a physician and the male sex of the general practitioner as barriers for obtaining breast screening services (Kernohan 1996; Coughlin & Uhler 2000; Welsh et al. 2005). The pre-test questionnaire comprised extra demographic questionnaires that included level of education, years living in Australia, whether or not they were seeing a general practitioner, gender of the general practitioner and having private medical insurance (Appendix B).

One of the theoretical frameworks of this study is the Health Belief Model (refer to Chapter 3). The Health Belief Model suggests that health actions are the result of a person's perceived susceptibility to any particular disease and perceived benefits or barriers to undertake an action to prevent the disease (Rosenstock & Baker 1998, cited in Rawl et al. 2000). The pre-test questionnaire included the items needed to examine the Health Belief Model subscale. Each subscale again consisted of a series of statements or multiple choice questions (Appendix B). In the pre-test questionnaire perceived susceptibility/ perceived severity/ perceived benefit /perceived barriers and cue to action subscale are measured with the item number of 20, 21/ 23/ 16/ 17, 30, 32 and 29 respectively. In item numbers 10, 11, 12, 20 and 23 (4 point) statements are anchored by a 5 point Likert scale. Knowledge about breast screen and mammogram were measured by the item numbers of 6, 7, 8, 9 and 26 (Appendix B). According to Australian Institute of Health and welfare (AIHW 2006), from 1988 to 2004 there were 9722 women aged 15 to 39 who had developed breast cancer among which there were 137 women below the age of 24 years. As the media and BreastScreen Australia

emphasise only the target age group of over 50, the researcher tried to assess if these migrant women had any knowledge of developing breast cancer at a younger age. In question 8, Appendix B the participants were asked in terms of their knowledge about the youngest age group for developing breast cancer.

Following the intervention of a health education session, all the participants were followed up after three months and were mailed a post-test questionnaire with a pre-paid envelope. This post-test questionnaire consisted of the same items to compare the HBM components that were used in the pre-test questionnaire. Item no.7 was added to the post-test questionnaire to investigate the participant's knowledge about recommended frequency for having a mammogram according to the Australian National Breast Screening guidelines (Appendix C).

A number of reasons that have been discussed earlier are responsible for low adherence to the Australian National Breast screening guidelines by ethnic minority women, including language, cultural barriers, time commitment, transport, monolingual service providers and lack of knowledge about the disease itself along with preventive service availability (refer to Chapter 2). It has been found that immigrants or refugees are likely to have low self-efficacy and external locus of control over health and other issues (Meana et al. 2001). Perceived self-efficacy has been identified as a strong predictor of health promotion behaviour (Wehrwein & Eddy 1993; Champion et al. 2005).

In the post-test questionnaire the self-efficacy scales were measured by the statements in item number 32. This self-efficacy measurement instrument has been adopted from a health behaviour (Nutrition, Alcohol, Physical exercise) self-efficacy scale by Schwarzer & Renner

(n.d). The items support Bandura's (2001a) guide for constructing a self-efficacy scale in which he argues that

> Efficacy items should accurately reflect the construct and the items should be phrased in terms of *can do* rather than *will do.* Scales of perceived self-efficacy must be linked to the factors that determine quality of functioning in the domain of interest. (pp.2 & 5)

The standard method to measure self-efficacy belief is asking people to rate the strength of their belief in their ability to execute the requisite activities. As suggested by Bandura (2001a), individuals are asked to record the strength of their belief on a 100-point scale, ranging in 10-unit intervals from 0 (Cannot do), through intermediate degrees of assurance, 50 (Moderately certain can do), to complete assurance, 100 (Highly certain can do). However, in this study the range of scales used was from 0 (cannot do at all) to 10 (Highly certain can do) because the pilot study reveals the women were not comfortable with 0-100 unit scale with 10 unit intervals. Items 28, 29, 30 and 31 were designed to examine the relationship between perceived self-efficacy and the degree to which the participants explain their current and future practice of mammography (Appendix C).

4.5 Pilot study

After designing both pre- and post-test questionnaires, they were pilot tested separately on two different occasions among four English speaking and three non-English speaking background women who were not approached to participate in the study. On the basis of their feedback and open comments a few changes were made. These changes consisted of: rewording and changing of scale. One of the sample responses from the pilot study is "Why not 1- 10". Accordingly in the post-test questionnaire for item number 32 which measured self-efficacy, scaling was changed from 0-100 to 0-10 (Appendix C).

4.6 Inclusion criteria

Women who met the following criteria were considered as eligible participants:

- An overseas born woman,
- Aged 40 years or over,
- Australian citizen or permanent residents and
- Lives in Rockhampton.

According to BreastScreen Queensland, all permanent residents or citizen women over the age of 40 years are eligible to access a free breast cancer screening mammogram every 2 years although the main target audience is women aged between 50-69 years, as 75% of breast cancer occurs in women over 50. Therefore, this study tried to recruit women over 40 years as participants. As this study aims to assess knowledge, barriers and self-efficacy relating to the use of mammography only among NESB women, being overseas born was also one of the criteria.

4.7 Recruitment of participants

To recruit the study participants an initial survey form was distributed to 100 non-English speaking women to find out whether or not they were interested in attending the health education session. As figure 4.1 below illustrates, initially 49 women filled out the survey questionnaire. Among these 49 women 33 (67.3%) agreed to attend; however, 10 (30.3% 0f 33) later missed out on attending this one-hour session. Those 23 (69.7%) women who attended the session all participated in the self-reported pre-test questionnaire. Finally, after a three month follow-up period, 17 (73.9%) women filled out the post-test questionnaire. All these women were initially contacted by mail then reminded at least once or twice over the telephone or personally by the researcher.

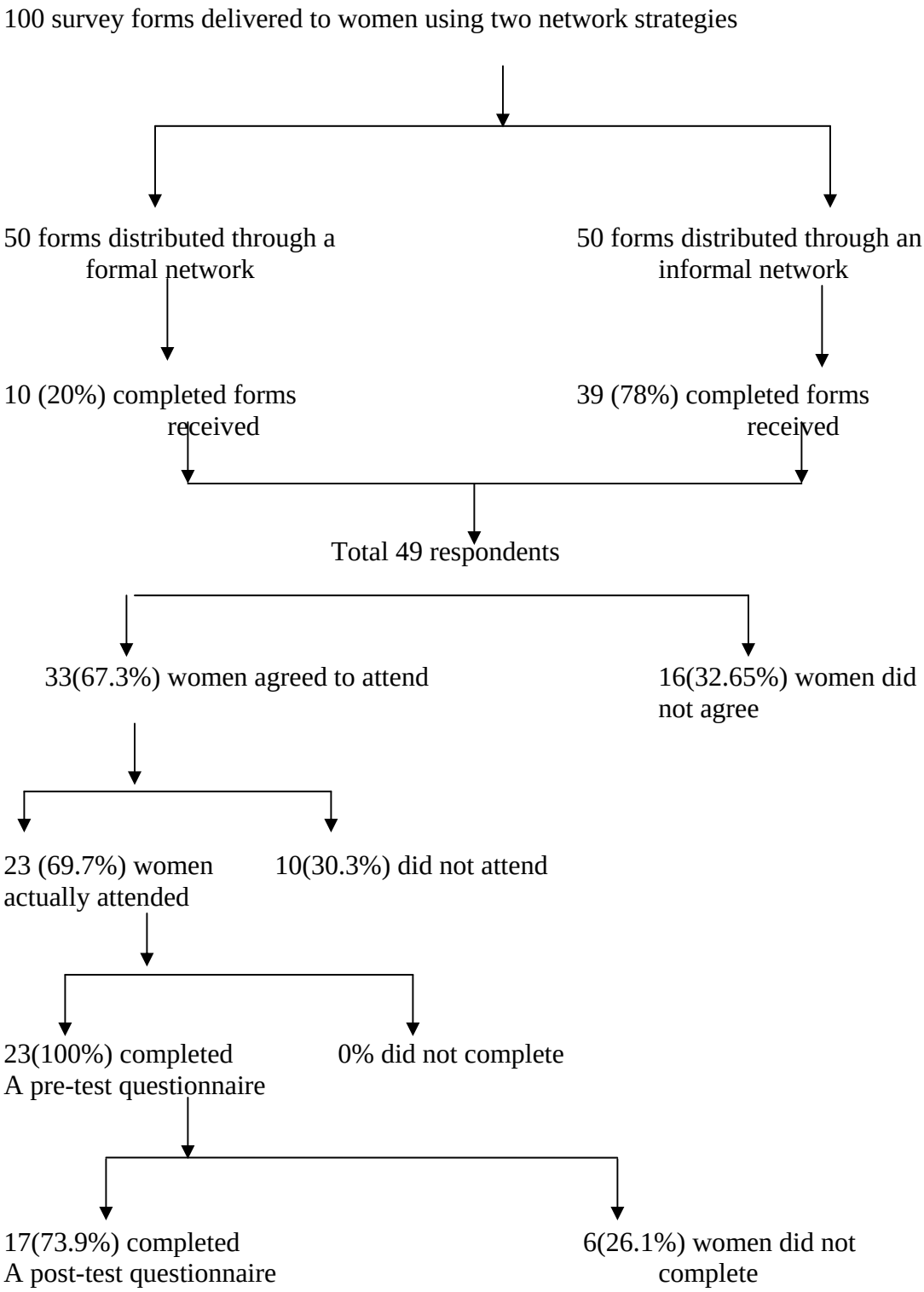


Figure 4.1: Flow chart showing the number of participants being recruited and retained during the study process.

4.8 Recruitment strategies:

Coleman et al. (1997) compared multiple strategies for recruiting participants from among African American older adults for a senior, centre-based health promotional trial. The result suggested that a multifaceted recruitment approach is effective and cultivates strong linkage between researchers and community leaders when conducting health promotion research. It has also been suggested that culture and ethnic representation will facilitate efforts toward increasing awareness, acceptance and access to the community (Polipnick et al. 2005). Participants in this present study are disadvantaged in terms of recruitment and retention in a number of ways. First, they are from a non-English speaking background; second, they are healthy women over 40 years of age; and third, they are all living in a regional city. No information has been found regarding recruitment of this particular group in a regional city like Rockhampton. Therefore different recruitment strategies were applied to collect the study participants which are shown in detail in the following flow charts (Figure 4.2a, Figure 4.2b & Figure 4.2c).

Two recruitment strategies were identified, formal and informal. With the formal recruitment strategy, the researcher contacted different sources like the Local Area Multicultural Program (LAMP) Officer and the president of Central QLD Multicultural Association (CQMA) through official channels. The informal strategy utilized more personal sources. From analysing the outcome of both formal and informal strategies it was found that using the formal (LAMP+CQMA) strategy, 10 responses were delivered from the 50 forms distributed. However, through informal contacts and snowballing, 39 responses were collected from the 50 women who were approached.

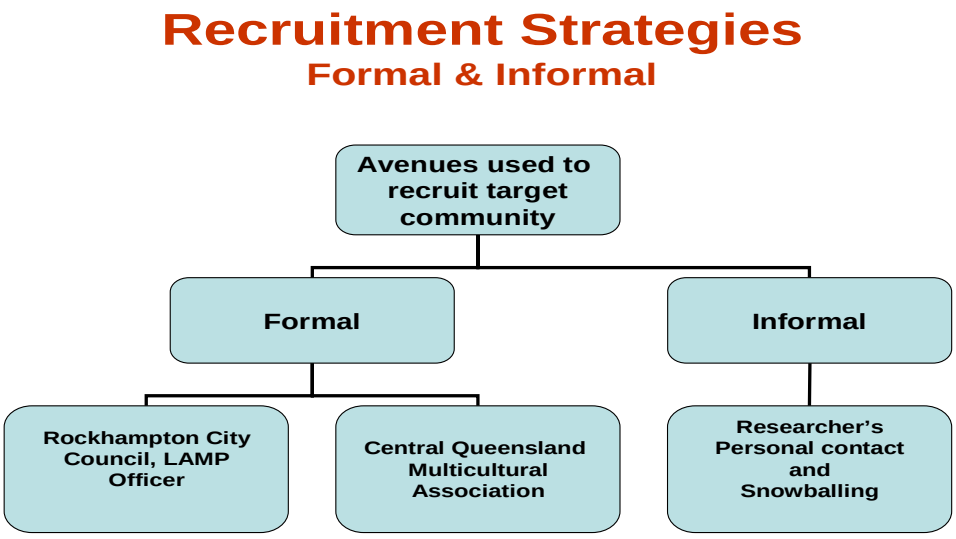


Figure 4.2a Recruitment strategies: formal and informal methods

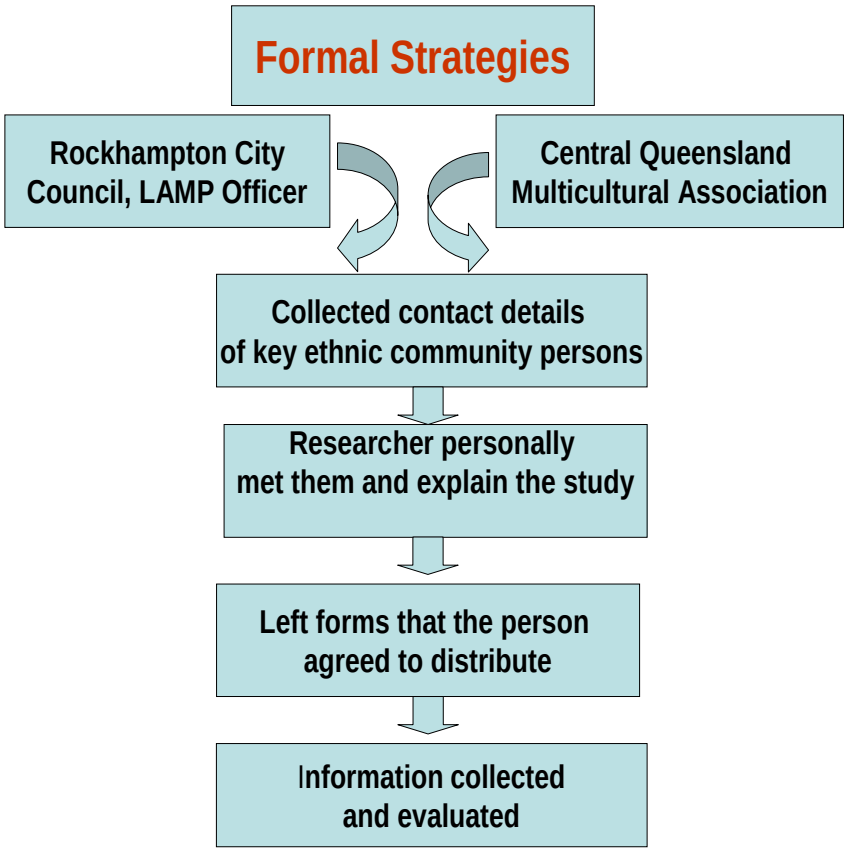


Figure 4.2b Flow chart of formal recruitment strategy

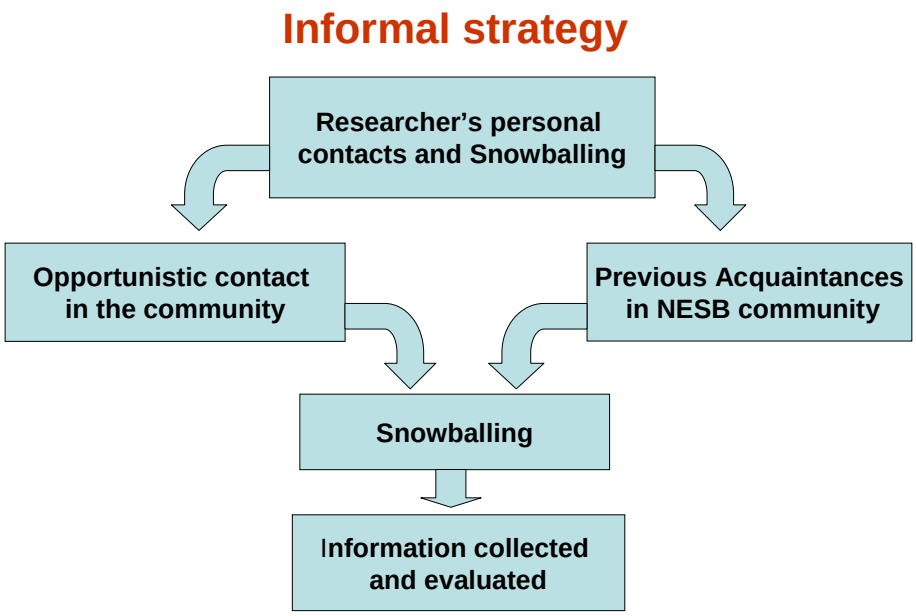


Figure 4.2c Flow chart of informal recruitment strategy

4.9 Issues relating to recruitment and retention of participants

These data have indicated that recruiting and retaining participants in a health related study is a challenge. Once the research question is determined, the first consideration is to recruit the desired subjects who are able to answer that question (Grady 2001). According to the author, recruiting subjects includes the challenge of both getting information to the people whom you want to recruit and getting them interested in the study that is being conducted. According to the US National Institutes of Health (NIH) as mentioned by Grady (2001, p.1), investigators should include women from ethnic minorities and children in research as the participation in the study often benefits groups in society and as well as the individual subjects. However, consideration of who will receive the benefit of research goes beyond the inclusion of these subgroups, and it is a central issue in debates about international research (Grady 2001).

Mainly it is difficult for healthy community based groups, who are generally well and difficult to access (Gillis et al. 2001). The authors also suggested that recruitment of women to research projects requires special approaches. This study is not a clinical trial, but studies that recruited minority women in clinical trials identified a set of barriers in recruiting and retaining these women in community based clinical trials (Stoy, Curtis & Dameworth 1995). Other studies found that these clinical trials have been rarely successful and take a longer time than expected (Swanson & Ward 1995).

In 2003, Patel, Doku & Tennakoon identified a few factors that adversely affected the response rate; being of a non-white race is one of the factors. Among the major barriers that were identified to the recruitment and retention of minority women were lack of awareness, lack of transportation and interference with work/family responsibilities (Brown et al. 2000). Warren-Findlow, Prohaska and Freedman (2003) suggest that there is an increasing emphasis given to health research and health promotion programs that traditionally have under-represented older populations including disadvantaged minority older adults. A greater attention was also given to the recruitment and retention of minority women in health studies because of their historical under representation, despite their greater morbidity and mortality from many conditions (Brown et al. 2000). Moreover, participation is less likely for a healthy person where direct benefit is not evident (Gillis et al. 2001).

The study by Warren-Findlow et al. (2003) suggested that program design can significantly influence the participation of underrepresented populations in exercise health promotion programs. Recruitment strategies must be designed so that they are acceptable and relevant to a particular sub-population (Lindenberg et al. 2001). The studies also suggested that building community partnerships and ongoing relationships with key community leaders can foster

open communication between the research team and the community (Lindenberg et al. 2001; Keyzer et al. 2005).

4.10 Data collection

According to the formal strategies, 10 key ethnic community leaders were contacted by a formal letter (Appendix D) requesting contact details of potential participants from their own ethnic groups. In some cases a few survey questionnaires were left with them to distribute. As shown in Figure 4.1, the researcher mailed an invitation letter (Appendix E) along with a survey questionnaire (Appendix A) to 100 potential participants to invite them to take part in the study. Forty nine women completed the survey questionnaire and of these 49, 33 agreed to attend the health education session. The women who agreed to attend the health education session were invited to participate in the study. It was mentioned in the invitation letter that regardless of their participation they were welcome to attend the group health education session (Appendix F).

Before the session began, the participants were given an information sheet (Appendix G) explaining the purpose of the study. This information sheet also explained the objectives of the study and potential benefits to the communities. They were asked to complete the consent form (Appendix H) and the pre-test questionnaire. The information sheet and consent form was provided in the English language as the initial survey revealed sufficient English proficiency among the participants. The community speaker of the Queensland Cancer Fund conducted the education session using their protocol. Altogether five educational sessions were held between October and November 2005. Each session consists of an hour. Time of the day was negotiated with the participants. On average four to six women attended each session. These five sessions were conducted in the Rockhampton Women's Health Centre. Of 49

women who were initially invited to attend the education session, 33 agreed to take part in the study. However, only 23 attended the health education sessions and completed the pre-test questionnaire. It was anticipated that a proportion of the women would use the mammography service for breast cancer screening.

The follow-up interview was scheduled at three months after the health information session attendance (January–February 2006). The participants could refuse to participate in the study at any stage of this research project either during an interview or by phoning the researcher. After a three month follow-up these 23 study participants were contacted again (Appendix I) and were mailed a post-test questionnaire to complete along with a pre-paid envelope. Of 23 women, 17 completed the post-test questionnaire and sent it back to the researcher.

4.11 Data analysis

The software Statistical Package for Social Sciences (SPSS) version 13.0 and EPISTAT for Windows were used to analyse the data. Descriptive and analytical statistical methods were used. Descriptive data were presented in number, percentage, range, mean and standard deviation. A Chi-square test and Fisher's Exact test were used to assess a change of knowledge and barriers before and after attending the health education session. Where two variables were categorical and the cases are unpaired, the classical Chi-square test was generally used **(**Central Queensland University 2005, HLPB 20003, Reading 10-1**).** Fisher's Exact test was used where small cell numbers did not allow Chi-square test (EPISTAT, Statistical analysis software). An unpaired t-test was used to investigate the relationship between the study participant's self-efficacy and their use of mammograms and the relationship of the women's self-efficacy and their intention to use mammography in the next

six-month and two-year period (CQU, HLPB 20003, Reading 10-1)**.** The normal distribution of self-efficacy score was considered, as according to Bland (2000, p. 59), if the distribution is normal the sample mean and median would be close - that means within 1% of each other. Null hypothesis was analysed without anticipating any direction. A two tailed test was applied throughout the study.

4.12 Ethical considerations

Research that involves human participants requires a researcher to protect the rights and welfare of the participants (Minichiello, Sullivan, Greenwood & Axford 2004). Ethical approval of this study was obtained from the Human Research Ethics Committee of the Research Office at Central Queensland University (Appendix L). This study abided by the ethical principle of respect for persons, beneficence and justice to human subjects (National Health and Medical Research Council (NHMRC) 1999).

According to LoBiondo-Wood and Haber (1998, p. 280), the principle of respect for a person states that, “People have the right to self-determination”. This principle of respect was ensured by the recognition of the participant’s right to informed consent. According to the NHMRC (1999), this informed consent has two aspects: (a) provision of detailed study information and (b) capacity to make voluntary choice. The information sheet that was provided before inviting potential participants to the health education session explained the study purpose, possible inconvenience and likely outcomes of the study. It was also stated that these women had every right to decide whether or not they agreed to participate in the study and that at any stage of the study they were free to withdraw themselves.

The ethical principle of beneficence was expressed by the research design itself. By the intervention, the participants were delivered knowledge about breast cancer and mammography. In the invitation letter, it was mentioned that regardless of their participation in the study they were welcome to attend the health education session. This principle was also ensured by the commitment of this study to search for knowledge, and the dissemination and communication of the result among the relevant service providers (NHMRC 1999). The principle of beneficence also states that there is an obligation to do no harm to any participants (LoBiondo-Wood & Haber 1998, p. 280). In keeping with this principle of beneficence the participants were offered free counselling for any stress caused by the study procedure or any questionnaire item.

According to the NHMRC (1999), the ethical value of justice requires that there should be a fair distribution of benefits and burden of participation in research. This value was ensured by the researcher throughout the study period. Before commencing the study, the participants were advised that no identifying details would be published or disclosed. The collected data were coded and stored in a locked filing cabinet at the researcher's study place at the university. Study findings also were stored on a computer and accessed only by the researcher through a protected password. Data and consent forms were stored in a locked office and upon completion of the research; data will be stored for five years in a research office at the Central Queensland University, after which they will be destroyed.

CHAPTER 5

Results

5.1 Demographic characteristics of the study population

5.1a Initial survey respondents

As discussed in the earlier section of 'Designing Questionnaire', this study used three sets of questionnaires to collect data. First, the survey questionnaire was used to recruit the participants for the study and to know whether or not they were interested in attending a health education session. Second, the pre-test questionnaire was used for the women who attended the session and third, the post-test questionnaire was used after a three-month follow-up to determine whether or not the women had any change in regards to knowledge of, and barriers to, the use of the mammogram. The demographic characteristics of the women who completed this survey questionnaire are presented here.

Age: The majority of the respondents of this study were from the age group of 40–49 years (63.3%). The next highest group was 50-59 years (26.5%) and the least represented group was 60-70 years (10.2%).

English proficiency: Thirty seven (75.5%) women considered their English speaking ability was relatively good, 21 women (42.9%) thought their English reading ability was very good to excellent and almost 50% (n=25) women considered their English writing skills were average to good.

Employment: Among all the respondents, 21 (42.9%) were in paid work, 17 (34.7%) referred to their occupation as home duties and 8 participants (16.3%) were receiving a pension.

Having a car and driver's licence: Out of 49 respondents, only 9 (18.4%) had no family car and 12 (24.5%) do not have a current driver's licence.

Table 5.1 Demographic characteristics of the initial survey participants

Age groups in years	Number	Percent
40-49	31	63.3
50-59	13	26.5
60 or older	5	10.2
Total	49	100.0
English proficiency		
Speaking		
Excellent	9	18.4
Very good	10	20.4
Good	13	26.5
Average	14	28.6
Not good	3	6.1
Reading		
Excellent	13	26.5
Very good	8	16.3
Good	12	24.5
Average	11	22.4
Not good	5	10.2
Writing		
Excellent	12	24.5
Very good	6	12.2
Good	9	18.4
Average	16	32.7
Not good	6	12.2
Employment status		
Employed	21	42.9
Full-time	11	22.4
Part-time	6	12.2
Self-employed	4	8.2
Student	2	4.1
Pensioner	8	16.3
Home-duties	17	34.7
Other		2.0
Having Car		
Yes	40	81.6
No	9	18.4
Have driving license		
Yes	37	75.5
No	12	24.5

5.1b Health education session attendees

This section describes the additional demographic characteristics of 23 women who attended the health education session.

Education: Approximately 60.9% (n = 14) women had an undergraduate or postgraduate degree from university and 21.7% (n = 9) women had an educational level of higher secondary to trade course (Figure 5.1).

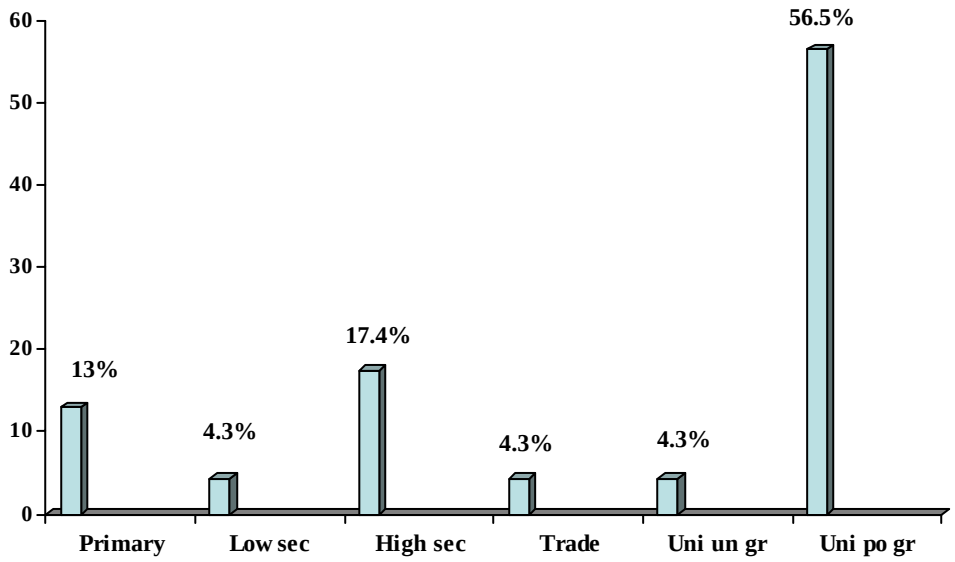
Length of residency in Australia: The average length of residency for these women was 14.52 (SD = 6.338) years and ranged from 3 years to 27 years. Out of 23 women, 9 (40.9%) lived in Australia for more than 15 years.

General practitioner (GP): Twenty-one women (91.3%) who attended the health education session had a permanent general practitioner and 65.2% of these women had a male general practitioner.

Health insurance: More than half (54.5%) of the women did not have any private health insurance.

Table 5.2 Characteristics of the women who attended a health education session

	Number	Percent
General Practitioner		
Yes	21	91.3
No	2	8.7
Gender of GP		
Male	15	71.4
Female	6	28.6
Private Health insurance		
Yes	10	45.5
No	12	54.5
Years living in Australia		
3-5 Years	2	8.7
6-10 Years	5	21.7
11-15 Years	7	30.4
16-20 Years	4	17.4
20 Years and over	5	21.7



Primary = grade 1-7
Low sec = Lower Secondary (grade 8,9,10)
High sec = Higher Secondary (grade 11,12)
Trade = Trade course/ certificate course
Uni un gr = University under-graduate
Uni po gr = University post-graduate

Figure 5.1 Education levels of the women who attended a health education session

5.1c Difference between attendees and non-attendees

A chi-square test has been conducted to assess the demographic variables between the groups who attended and who did not attend the session. In terms of the age group, employment status and having a family car there was no significant statistical difference. However, in terms of their English speaking and reading ability, there was a significant difference between the two groups, i.e., between those who attended and those who did not attend the health education session (Table 5.3).

Table 5.3 Demographic variables and the attendance of a health education session

	Attended the session		Chi-square	
	Yes	No	Test (df)	P Value
	Number(Percent)	Number(Percent)		
Age groups				
40-54 yrs	20 (86.9%)	20 (76.9%)	*	.47
55-77 yrs	3 (13.1%)	6 (23.1%)		
Speaking English				
Excellent-Very good	11 (47.8%)	8 (30.8%)		
Good	8 (34.8%)	5 (19.2%)	5.76 (2)	.05
Average -Not good	4 (17.4%)	13 (50.0%)		
Reading English				
Excellent-Very good	10 (43.5%)	8 (30.8%)		
Good	6 (26.1%)	3 (11.5%)	5.76 (2)	.05
Average -Not good	7 (30.4%)	15 (57.7%)		
Writing English				
Excellent-Very good	14 (60.9%)	7 (26.9%)		
Good	4 (17.4%)	8 (30.8%)	3.96 (2)	.13
Average –Not good	5 (21.7%)	11 (42.3%)		
Employment status				
Employed	13 (56.5%)	8 (30.8%)	2.33 (1)	.13
Other	10 (43.5%)	18 (69.2%)		
Having Car				
Yes	17 (73.9%)	23 (88.5%)	*	.27
No	6 (26.1%)	3 (11.5%)		

5.2 Knowledge of breast cancer and mammography

5.2a Knowledge about symptoms, causes and risk factors

In both the pre-test and post-test questionnaires, the participants were asked about the symptoms, causes and risk of breast cancer. There were right and wrong answers and participants were allowed to tick more than one answer. Almost the same rate of responses was found for ‘lump’ and ‘pain’ as a symptom of breast cancer before and after the session. Before the session, ‘secretion’ was considered by 30.4%, whereas after the session 41.2 % considered ‘secretion as a symptom’. After attending the session more (17.6%) participants picked ‘ulcer’ as one of the symptoms than before (4.3%). Although the results showed some differences, none of them are statistically significant except the item ‘itchy’. Before attending

the session no participants ticked the item ‘itchy’ whereas, after the session, 29.4% considered it as a symptom although the community speaker from the Queensland Cancer Fund mentioned ‘rash on the nipple or surrounding area’ as one of the symptoms. For the item ‘cracked nipple’, the change of responses were in the wrong direction. That means the participants considered ‘cracked nipple’ as a symptom of breast cancer which was not the correct answer according to the module of Queensland Cancer Fund.

For the causes of breast cancer, a greater percentage of participants considered ‘family history’, ‘menopause’, ‘hormone replacement therapy (HRT pill)’ and ‘contraceptive pill as the cause of breast cancer after attending the session. Similarly, a lower percentage of participants considered ‘avoiding breast feeding’ and ‘wearing uncomfortable bra’ as causes of breast cancer that indicated that these two items were considered as wrong answers by more participants after attending the session. Although the changes indicated improvement of the knowledge in terms of the causes of breast cancer, the results did not show any significant difference before and after the session.

For knowledge of risk factors, a lower percentage of women ticked ‘age’ and ‘overweight’ after attending the session. No participants considered ‘alcohol’, ‘race’ and ‘smoking’ as risk factors after the session. Out of 9 risk factors, in 8 items cell numbers were insufficient to perform a chi-square test. Therefore expected numbers were calculated which have been attached as Appendix J. As the expected number was lower than 1, Fisher’s Exact test was not valid (Bland 2000) for the items ‘alcohol’, ‘race’, ‘smoking’, ‘no exercise’, ‘no child’, ‘irregular period’, and ‘many children’.

Table 5.4 Responses for symptoms, causes and risk factors of breast cancer before and after the session

Knowledge of symptoms, causes and risk factors	Pre-test **Yes** Number (Percent)	**No** Number (Percent)	Post-test **Yes** Number (Percent)	**No** Number (Percent)	Chi Square (df)	P value
Symptoms of breast cancer						
Lump	21 (91.3)	2 (8.7)		1 (5.9)	0.07 (1)	0.66
Pain	15 (65.2)	8 (34.8)	11 (64.7)	6 (35.3)	0.09 (1)	0.76
Secretion	7 (30.4)	16 (69.6)	7 (41.2)	10 (58.8)	0.13 (1)	0.71
Cracked nipple	3 (13.0)	20 (86.9)	6 (35.3)	11 (64.7)	*	0.13
Ulcer	1 (4.3)	22 (95.7)	3 (17.6)	14 (82.4)	*	0.30
Itchiness	0	23 (100)	5 (29.4)	12 (70.6)	*	0.009
Causes of breast cancer						
Family history	19 (86.4)	3 (13.6)	16 (94.1)	1 (5.9)	0.06 (1)	0.79
Menopause	7 (31.8)	15 (68.2)	6 (35.3)	11(64.7)	0.01 (1)	0.91
HRT Pill	7 (31.8)	15 (68.2)	9 (52.9)	8 (47.1)	1.00 (1)	0.32
Contraceptive Pill	6 (27.3)	16 (72.7)	6 (35.3)	11 (64.7)	0.03 (1)	0.85
Avoid breast feeding	4 (18.2)	18 (81.8)	2 (11.8)	15 (88.2)	*	0.68
Uncomfortable brassier	2 (9.0)	20 (90.9)	1 (5.9)	16 (94.1)	*	1.00
Risk factors of breast cancer						
Age	12 (63.2)	7 (36.8)	10 (62.5)	6 (37.5)	0.09 (1)	0.76
Over weight	6 (31.6)	13 (76.5)	4 (25.0)	12 (75.0)	*	0.72
Alcohol	2 (10.5)	17 (89.5)	0	16 (100)	*	0.48
Race	1 (5.6)	18 (94.7)	0	16 (100)	*	1.00
Smoking	1 (5.6)	18 (94.7)	0	16 (100)	*	1.00
No exercise	1 (5.6)	18 (94.7)	1 (6.3)	15 (93.6)	*	1.00
No child	1 (5.6)	18 (94.7)	1 (6.3)	15 (93.6)	*	1.00
Irregular period	0	19 (100)	1 (6.3)	15 (93.6)	*	0.45
Many children	0	19 (100)	1 (6.3)	15 (93.6)	*	0.45

* Chi-Square test was not possible due to too small number in few cells. For these data Fisher-Exact test was conducted.

5.2b Knowledge of the BreastScreen Australia National Guidelines

To assess the knowledge of the BreastScreen Australia National guidelines, the participants were asked about the age for a free mammogram in Australia. It was a multiple choice question and only the category of 'more than 40 years' was analysed because according to BreastScreen Australia only women over that age are allowed to have a free mammogram. Almost more than 60% women answered correctly after attending the session whereas, before attending the session, only 36.7% were able to answer correctly. For the valid percentage, the response is completely reversed before and after the health education session. However, analysis (Table 5.4) did not show any significant change.

Table 5.5 Knowledge about the age of a free mammogram according to BreastScreen Australia

	Pre-test		Post-test		Chi-square (df)	P-value
Correct knowledge on the age for a free mammogram	**Yes** Number (percent)	**No** Number (percent)	**Yes** Number (percent)	**No** Number (percent)		
>40 yrs	7 (36.7)	12 (63.2)	10 (62.5)	6 (37.5)	1.377 (1)	0.241

In the post-test questionnaire the participants were asked for the frequency of having a mammogram. Out of 17 participating women, 29.4% (n=5) answered 'every year' and 70.6% (n=12) answered 'every two years' which is recommended according to BreastScreen Australia. Six (26.1%) women answered that they did not know. Comparison between the pre-test and post-test knowledge was not possible as the same question was not included in the pre-test questionnaire.

5.2c Knowledge of minimum age for developing breast cancer

Another multiple choice question was asked to assess these women's knowledge of the minimum age when a woman may be diagnosed with breast cancer. The women were asked to tick only one category. A change of response was observed (Table 5.5) for the percentage value of less than 20 years (from 4.8% to 11.8%), 20 to 30 years (33.3% to 47.1%) and 31-40 years (47.6% to 29.3%). However, there was no significant change found before and after the health education session.

Table 5.6 Women's perception of developing breast cancer at different age groups before and after the session

Youngest age for breast cancer	Pre-test		Post-test		Chi-square (df)	P-value
	Yes	**No**	**Yes**	**No**		
	Number (percent)	Number (percent)	Number (percent)	Number (percent)		
<20 yrs	1 (4.8)	20 (95.2)	2 (11.8)	15 (88.2)	*	0.58
20-30 yrs	7 (33.3)	14 (66.6)	8 (47.1)	9 (52.9)	.278 (1)	0.59
31-40 yrs	10 (47.6)	11 (52.4)	5 (29.3)	12 (70.6)	.652 (1)	0.42
41-50 yrs	3 (14.3)	18 (85.7)	2 (11.8)	15 (88.2)	*	1.00

* Chi-Square test was not possible due to too small number in few cells. For these data Fisher-Exact test was conducted.

5.3 Barriers for using mammography

A series of multiple choice questions were asked both in the pre-test and post-test questionnaires to assess the barriers for the NESB women to undertake a mammogram. Some questions assessed the concept of barriers in general (Appendix B, question 17 and Appendix C, question 13) and some assessed the participant women's own perception of barrier (Appendix B, question 30, and appendix C, question 24) in regards to use of mammography.

5.3a Reasons for not using mammography (in general)

One of the questions assessed women's negative perception for using mammography by women in general. Table 5.6 below showed that their overall negative perception changed after attending the health education session. Before attending the health education session 27.3% (n=6) mentioned that women who considered themselves to be 'too old', might not use the screening service. A smaller percentage (22.7 %, n=5) said women might feel better not to know about cancer. These data were compared to the number of women who indicated such a perception after attending the session.

Table 5.7 Negative perception about mammogram before and after the educational session

Reasons for not using mammography (in general)	Pre-test		Post-test		Fisher's-Exact test
	Yes	**No**	**Yes**	**No**	
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	P value
Cannot prevent Cancer	9 (40.9)	13 (59.1)	5 (41.7)	7 (58.3)	1.0
Too old	6 (27.3)	16 (72.7)	0	12 (100)	**0.06**
Not accurate	5 (22.7)	17 (77.3)	7 (58.3)	5 (41.7)	0.06
Better not to know	5 (22.7)	17 (77.3)	0	12 (100)	**0.03**
Can't cure cancer	2 (9.1)	20 (90.9)	1 (8.3)	11 (91.7)	1.0

5.3b Reasons for not using mammography (personal)

The next question was addressed personally to the participants to know the reason for not having a mammogram yet. Analysis of the data (Table5.8) did not show any significant change before and after attending the session. However, for the first three items, the row percentage of the data showed change in their perception of personal barrier. That means after attending the educational session lower proportion of women mentioned that they 'did not know about a mammogram', 'nobody suggested that they should have a mammogram' and they 'did not feel like having a mammogram'. It was noticeable that attending a health education session did not bring any change in terms of 'embarrassment' and 'fear' about mammography.

Table 5.8 Causes for not having a mammogram yet, before and after the educational session

Reasons for not using mammography (personal)	Pre-test		Post-test		Fisher's-Exact test
	Yes	**No**	**Yes**	**No**	
	Number (percent)	Number (percent)	Number (percent)	Number (percent)	P value
Do not know	2 (28.6)	5 (71.4)	1 (14.3)	6 (85.7)	1.0
No suggestion received	2 (28.6)	5 (71.4)	1 (14.3)	6 (85.7)	1.0
Did not feel like	2 (28.6)	5 (71.4)	1 (14.3)	6 (85.7)	1.0
Embarrassed	1 (14.3)	6 (85.7)	1 (14.3)	6 (85.7)	†
Fear	1 (14.3)	6 (85.7)	1 (14.3)	6 (85.7)	†

† Analysis was not conducted for these data as no change was observed in the percentage of responses before and after the session.

5.3c Reasons for not talking to a general practitioner about breast cancer

This study also considered investigating 'the women's ability to talk to the GP about breast cancer' as a factor for using or not using mammography. This factor was considered as a barrier if women were not able to talk to their GP for any reason such as 'gender of the GP', 'never think of it', or 'no problem yet'. This item followed the question '*Have you ever talked to your general Practitioner (GP) about breast cancer?'* The percentage of 'yes' (36.4%, 35.3%) and 'no' (63.6%, 64.7%) answers were almost the same before and after the educational session. The next question was '*what is the reason for not being able to talk?'* Significant change was found in the response for the item of, 'never think of it' before and after attending the educational session. However, in regards to the item 'gender of the GP' there was no change found in their response in the pre-test and post-test questionnaire.

Table 5.9 Reasons for not being able to talk to a General Practitioner, before and after the educational session

Consulting a general practitioner	Pre-test **Yes**	**No**	Post-test **Yes**	**No**	Fisher's-Exact test
	Number (percent)	Number (percent)	Number (percent)	Number (percent)	P value
Never think	4 (28.6)	10 (71.4)	1 (8.3)	11 (91.6)	**.033**
Male doctor	2 (14.3)	12 (85.7)	2 (16.7)	10 (83.3)	1.0
No problem yet	7 (50.0)	7 (50.0)	6 (50.0)	6 (50.0)	‡

‡ Analysis was not conducted for these data as no change was observed in the percentage of responses before and after the session.

To know about other barriers for using mammography or the negative perception about mammography, the participating women were also asked to comment on the reasons for not using mammography before and after attending the health education session. The following were a few reasons described by the women before attending the education session. The

comments included, '*Due to cultural issues women do not use mammography','no time to go for mammography', 'don't know about the service', 'lack of information', 'language problem', 'feeling shy to ask for mammography', 'radiation is bad for health', 'don't care', 'breast cancer won't happen to me'*. However, none of these barriers were stated by the women after the session.

5.4 Self-efficacy for using mammography

5.4a Descriptive statistics of total self-efficacy score

Of seventeen women who completed the post-test questionnaire, 14 (82.4%) completed the self-efficacy items. There were 11 items or statements to assess self-efficacy of the women for using the mammogram in different personal situations. The women were asked to score each item according to their certainty for having a mammogram in the following situations. The score ranged from '0' which meant 'can not do at all' through to '6' which meant 'moderately certain' to '10' which meant 'highly certain can do' the mammogram. The number of the women who responded on those items with the range and average score of each items are produced in the table 5.10.

Table 5.10 Range, mean and standard deviation of statements used to measure self-efficacy

Self-efficacy for using mammography	Number	Range	Mean (SD)
Without any support from others	14	1-10	8.64 (2.499)
When I am feeling anxious	14	0-10	8.43 (2.652)
When I have too much work to do at home	14	3-10	8.43 (1.869)
When there is bad weather	14	3-10	8.07 (2.269)
When I have too many other commitments	14	5-10	7.86 (2.143)
When visitors are present	14	4-10	7.71 (2.016)
After recovering from a sickness	13	0-10	7.16 (2.847)
When there are other interesting things to do	14	0-10	7.14 (3.697)
When I am feeling depressed	14	0-10	7.14 (3.110)
When I have other family problems	14	1-10	6.36 (2.530)
When I am on holiday	13	0-10	4.08 (4.051)

Among these 11 items, 10 items scored moderate to high (6-10). The data (table 5.10) showed that despite no support, anxiety, household work and bad weather the women were very much likely (more than 8) to go for a mammogram. In regards to other commitments, having visitors, interesting things to do and depressive state of mind, the scores were also moderately high (more than 7). In the case of family problems the women were moderately certain (around 6) and having a mammogram while on holiday scored comparatively low (4.08).

For each participant, who answered these items, a total self-efficacy score was computed by adding the scores of these 11 items. Table 5.11 shows the total self-efficacy score for each

person. The score ranges from 22.00 to 110.00, with a mean of 80.23 and standard deviation of 21.16.

Table 5.11 Frequency distribution of total score of 11 self-efficacy items

Total self efficacy Score	Number	percent
22.00	1	7.14
66.00	1	7.14
74.00	1	7.14
76.00	2	14.29
77.00	1	7.14
81.00	1	7.14
84.00	1	7.14
87.00	1	7.14
90.00	1	7.14
92.00	2	14.29
100.00	1	7.14
110.00	1	7.14
Total	14	99.99

The following histogram (figure 5.1) shows there were 2 (14.3%) participants that had a self-efficacy score within 100-120, 11 (78.6%) women fell into the range of 60-100, and only one (7.1%) had a self-efficacy score within 20-40, none within the range of 40-60.

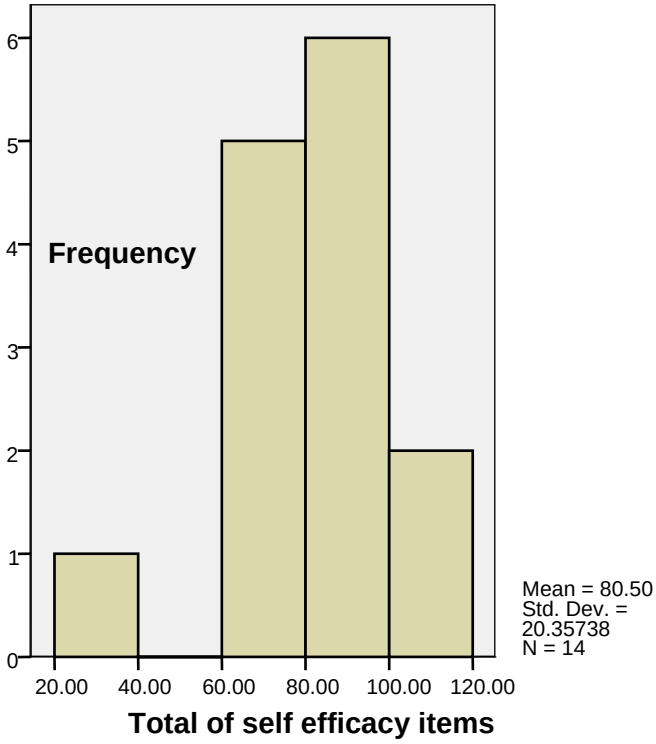


Figure 5.2 Group distribution of total score of self-efficacy

5.4b Distribution of data (total self-efficacy score)

A distribution of continuous variable was explored to identify whether the self-efficacy score was normally distributed or not. From the analysis it was evident that the median (81.0) is within 1% of the mean (80.23). Therefore it can be considered that the data of the self-efficacy total score is normally distributed (Bland 2000). Had this criterion not been met, the data would have been skewed.

5.4c Intention to have a mammogram within the next six months and two years

In the post-test questionnaire the participants were asked if they had made an appointment to have a mammogram in the next two to three months (Appendix C, question 32). None of the participants had responded ‘yes’ to that question. In the following questions they were asked how likely it was that they would have a mammogram in the next six months and two years (Appendix C, questions 33, 34). The responses were recorded in a five point Likert scale from very likely to very unlikely. Table 5.12 showed that in the next six months, 28.6% (n = 4) women were very likely to have a mammogram and the same percentage (28.6%) of women were not sure. Only a small percentage of women (7.1%, n=1) said that it was very unlikely to have a mammogram in the next six months. In regards to the next two years, 41.7% (n = 5) women expressed their intention by responding ‘very likely’ and 25.0% (n = 3) expressed their intention by ‘likely’ to use mammography. Compared to six months, only 16.7% (n = 2) said they were not sure (neither likely nor unlikely). A higher percentage of women (41.7%) responded ‘very likely’ in terms of the next two years than the next six months (28.6%) for having a mammogram. The proportion of women who reported that they were ‘likely’, to have a mammogram in the next two years (25.0%) was also higher by comparison to those who were planning to do it in the next six months (14.3%).

Table 5.12 Number and percentage of women who indicated their intention to have a mammogram within the next six months and two years

Intention to have a mammogram within next 6 months	Number of Women	Percent
Very likely		
Likely	4	28.6
Neither likely nor unlikely	2	14.3
Unlikely	4	28.6
Very unlikely	3	21.4
	1	7.1

Intention to have a mammogram within next 2 years	Number of women	Percent
Very likely	5	41.7
Likely	3	25.0
Neither likely nor unlikely	2	16.7
Unlikely	1	8.3
Very unlikely	1	8.3

5.4d Self-efficacy and Intention to have a mammogram within the next six months and two years

An unpaired t-test (independent sample) was conducted to assess whether there was any relationship of self-efficacy of the women and their intention to use mammography in the near future of six months and two years. The results are presented in Table 5.13. It was found that for the intention to use a mammogram by the next 6 months the mean of self-efficacy score was higher (80.14) for the group ‘don’t know – very unlikely’ than the group of ‘likely – very likely’ (78.00). However, for the intention to use a mammogram by the next 2 years the mean of self-efficacy score was lower (66.00) for the group ‘don’t know – very unlikely’ than the group of ‘likely – very likely’ (83.83). For both 6 months and 2 years the test did not show any

significant difference between the average score of self-efficacy among two groups of women (highly likely to use and less likely to use mammography).

Table 5.13 Relationship between self-efficacy and intention to have a mammogram by the next 6 months and 2 years

Self-efficacy and intention to have a mammogram	Number (percent)	Mean (SD)	t (df)	P value
Within 6 months				
Likely-very likely	5 (41.7)	78.00 (9.565)	-.160 (10)	.876
Don't know-very unlikely	7 (58.3)	80.14 (28.416)		
Within 2 years				
Likely-very likely	6 (66.7)	83.83 (15.548)	1.006 (7)	.348
Don't know-very unlikely	3 (33.3)	66.00 (39.949)		

CHAPTER 6

Discussion

6.1 Introduction

This chapter provides a general discussion of the findings of this study. Emphasis will be given to the results that are related to the objectives of this study. The aim of the study was to evaluate the usefulness of a formal health education session for having a mammogram among non-English speaking background (NESB) women in Rockhampton. As previous studies found, the uptake of mammogram was lowest among NESB women in developed countries (Truda et al. 1999; Australian Institute of Health & Welfare (2003); American Cancer Society (2005). The objectives of this study were to assess the knowledge of and barriers to use of mammography of these NESB women before and after attending a health education session. This study also assessed their self-efficacy in terms of their intention to use mammography in the near (6 months) and far future (2 years).

The study found that after attending the educational session, there was an improvement in knowledge about breast cancer and the mammogram and a reduction of barriers against using mammography among these participating women; however, most of these changes were not statistically significant. Average self-efficacy was moderate to high among these participating women. There was no significant relationship between their self-efficacy and intention to use mammography by a six-month period and a two-year period. After a discussion of the findings, this chapter will present the conclusion, significance and limitation of the study. Finally recommendations for future studies among NESB women in Australian regional areas will be presented.

6.2 Study outcome

6.2a Study setting and the population

This study was conducted in Rockhampton, a regional city in Australia which has a total population of around 60,000 (Australian Bureau of Statistics [ABS] 2005). It is a homogenous city where the NESB population is only 6.3% compared to the capital city, Brisbane (20.77%). The characteristics of the participants that may affect the outcome of the study results are their age group, level of education and employment status. Most of the participants who attended the health education sessions were from the age group of 40-49 years (63.6%) although the target age group according to BreastScreen Australia is 50-69 years. Of these participants 36.4% of the women aged 40-49 years old, had already had a mammogram; whereas, 27.3% women aged 50 years and over had a mammogram before attending the health education session.

According to the BreastScreen Queensland's statistical report 2000-2001, the participation rate for breast screening was almost similar for 40-49 years (11.9%) and 50-69 years (10.4%) among non-English speaking background (NESB) women (BreastScreen Queensland 2004). Although there was a significantly lower age-standardised rate of participation for women in the target age group from a non-English speaking background (48.9%) than for English speaking background women (58.5%) (AIHW 2003), the proportion of women screened from a non-English speaking background was greater (63.0%) than their representative in the population (BreastScreen Queensland 2004). Although the data were encouraging, these screened women might not be the actual representation of all ethnic communities. The data of Breast Screen Queensland were calculated from the 1996 census. Since then the proportion of NESB women aged 50-69 years may have changed (BreastScreen Queensland 2004). It was probable that women who already had a mammogram were not interested in attending a health

education session. As in the initial survey of this study 6.12% women mentioned that they were not interested as they had already been screened on a regular basis.

Several researchers (Mor, Pacala & Radowski 1992, in Janet et al. 1998; Breen & Kessler 1994; Martin et al.1996; Janet et al. 1998) found that the rate of mammography use was much lower among women with low income and education level compared to the rates of use by the women of higher income and education. This study result corroborated the findings by previous researchers that fewer than 12 years of education, belonging to a minority and being older than 65 years, as well as living in a rural area, significantly predicted under use of mammography (Johansson & Bertero 2003). The base line data of this study showed that 42.9% of the women were employed and 60.9% were highly educated. The same percentage of the participant women (60.9%) already had their mammogram. This information suggests that health related behaviour and participation in a health promotion study can be different according to certain levels of education. Studies by Shalvers et al. (2002) and Warren-Findlow et al. (2003) also suggested that a higher level of education is a strong predictor for participation in health promotion research.

English proficiency was also one of the considerations for NESB women. The lack of English proficiency has been consistently identified as one of the major barriers in effective communication between migrants and health service providers in many countries including United Kingdom and Australia (McAvoy & Sayeed 1990; Allotey et al. 1998, in Jirojwong & Manderson 2002). In this study the English proficiency was assessed by a self-reported questionnaire in three categories: speaking, reading and writing. In the initial survey, only 26.5% women stated that their English reading ability was excellent and only 18.4% told that their English speaking ability was excellent. It was possible that these NESB women were

discouraged from participating in this study by their perception of low English proficiency or they might not have got the appropriate information out of the information sheet provided by the researcher with the invitation letter. A survey by the Centre for Substance Abuse Prevention (1974) revealed that service recipients from other cultures needed culturally appropriate materials for health promotion. There was a lack of data regarding the English proficiency of migrant women in Rockhampton. Therefore, the participant women's level of English proficiency might not be comparable to NESB women in Australia. Such information would be useful to assess the English communication ability of non-participants among an NESB community.

The researcher did not have the information about the socio-educational characteristics of all migrant women in Rockhampton. There are two possible explanations for the representativeness of this study population. Firstly if the majority of NESB women migrants are highly educated, the participants of this study may represent the NESB women of this city. Secondly younger migrant women of 40-49 years in Rockhampton are more likely to use preventive health services compared to the older women of the targeted age group of 50-69 years. The surveillance data based on women using mammogram at the BreastScreen Queensland in Mackay and Townsville showed that approximately 60% of women were aged younger than 50 years (Jirojwong, Feeny & Husband 2006). This study found that not only younger migrant women were more interested to participate in the health promotion services, but also they were more likely to participate in the health promotion study.

6.2b Recruitment and retention

It has been discussed earlier in the fourth chapter that recruiting NESB women and retaining them in a health promotion study is a challenge for the researchers. To approach the target community, this researcher used two recruitment avenues. One was the formal avenue in which community ethnic leaders were approached through the President of the Central Queensland Multicultural Association (CQMA) and the Local Area Multicultural Program (LAMP) officer. The other avenue was 'informal' where the researcher's own personal and opportunistic contacts were used. Data showed that 79.6% women were recruited through the informal process and only 20.4% women were recruited through the formal process. It was possible that the initial survey forms that were attempted to be distributed by the community ethnic leaders and LAMP officer might not have reached the targeted number of potential participants. There was also a possibility that those non-respondent women were not motivated by this indirect approach to answer the survey questionnaire and to participate in the study. Supporting the outcome of this informal method, the study by Gilliss et al. (2001) also showed that the more labour intensive approach of face-to-face personal contacts reached fewer subjects but yielded a higher percentage of participants.

Of these, only 46.9% actually attended the health education session and 53.1% did not attend. Factors such as age, already under a regular screening program, indirect or formal approach and insufficient motivation could be the contributing factors for non-attending the health education session and remaining in the study. English proficiency was discussed in the earlier section (6.2a) as a possible contribution to such a low percentage of retention. The finding of this research supported similar findings from the previous studies that recruiting and retaining participants from different ethnic background needs special attention from the health

promotion researcher (Stoy et al.1995; Brown et al. 2000; Catherine et al. 2001; Gilliss et al. 2001; Patel et al. 2003).

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6.2c Change of knowledge and barrier

Since the 'Health Belief Model' was one of the theoretical frame works of this study, health education sessions were arranged as an intervention for a group of four to six women. According to the theory it was suggested that after introducing knowledge about breast cancer and the benefit of breast screening, the women would be more likely to use mammography (Stein et al.1992; Sadler et al. 2003). The intervention study by Paskett et al. (1999) demonstrated that by increasing knowledge using an intervention, women would be more likely to use a mammogram. Their study results showed that after three years of follow-up the proportion of women reporting regular use of mammography increased significantly (31% to 65%, $P < 0.001$). But this proportion was not statistically significant in the comparison city (33% to 40%; P = ns). On the contrary Jirojwong, Feeny and Husband (2006) demonstrated that an intervention did not provide a positive outcome in terms of re-screening. The surveillance data showed that after an intervention only 5.8% of non-English speaking women came back for re-screening and 94.2% did not come back ($p=<0.001$).

In regards to knowledge of breast cancer and mammography this study results showed that there were some changes occurred about knowledge of symptoms. Although apart from the item 'itchiness', none of the other items were statistically significant. The assessment of 'Knowledge about causes' could not show any statistically significant result. The women's knowledge about BreastScreen Australia National guidelines and perception of the minimum age for cancer were also improved but not significantly. A literature review by the American Society of Aging (n.d.) discussed some vital points that act as barriers to older adult health

education. These points included: vision and cognitive impairment, worsening physical health which in turn decreases the ability to concentrate on a complex cognitive task such as reading, and depression. These might also contribute to cognitive impairment (Huttsch et al. 1993; Devanand et al. 1996; Baker et al. 2000). This study could not assume similar reasons for the study outcome as very few numbers of women (n=3, 13.1%) aged 55-77 years attended the health education session.

In terms of barriers against using mammography, significant changes were observed in a few items of negative perception of mammography among women in general. However, in regards to personal barriers, the result did not show any significant change although a trend of reduced barriers was observed after attending the health education session. In a controlled trial by Nguyen et al. (2001) at pre-test, women in the control community were more likely to have fluent English proficiency, employed and to have health insurance. In contrast the intervention community was more likely to have a less than 12 years of education and income below poverty level. Analyses of the study by Nguyen and others (2001) found that women from the intervention community did have a modest impact of intervention to recognise, receive and plan a mammogram but the result was not significant.

From the base line data, this study showed that most of the participants were highly educated, employed and already had a mammogram. These demographic characteristics could contribute to the participants' knowledge improvement and barrier reduction. However, the changes indicated that the intervention by health education sessions to improve knowledge of disease and screening services could be useful in increasing knowledge of, and reducing barriers against, mammography use among NESB communities.

6.2d Self-efficacy and the use of mammography

Another component of the theoretical frame work of this study was the 'Social Learning Theory'. The Social Learning Theory is a widely recognised and applied theory for health education and health promotion practice (Macdonald 2000, in Whitehead 2001). This theory explains the health related behaviour change in the social context and the cognitive process associated with this behaviour. Bandura (1986) is considered as the pioneer for applying this theory in the discipline of health particularly the concept of 'self-efficacy' and its relationship with health related behaviour change (Whitehead 2001).

One of the objectives of this study was to assess self-efficacy relating to the use of mammography among these NESB women in a regional setting. The women were asked to assign scores on 11 self-efficacy measurement items which ranged from 0-10. These scores were decided by the participants on the basis of their willingness to undertake a scheduled mammogram in 11 different unfavorable social conditions or situations. A higher percentage of women 57.1% (n = 8) had a self-efficacy score of more than 80. None of the 11 participants who already had a mammogram scored less than 60. This study outcome was consistent with the previous study by Tolma et al. (2003). A study by Jirojwong and MacLennan (2002) also suggested that Thai women with a medium or a high level of self-efficacy were about four times more likely to do breast self examination regularly than women with a low level of self-efficacy.

The study women were also asked if they had a mammogram during the three-month follow-up period and their intention to use a mammogram in next two to three months. They were also asked about their intention to use mammography in the next six-month and two-year period. During a three-month follow-up period, there was no change of mammography use by

these participants and no women had showed intention to use mammography in next two to three months. An increased percentage of women intended to use mammogram after a long interval of six months and two years. It was not possible to assess whether their intention would come to true action. The time frame of this study was too short compared to other studies. The study by Paskett et al. (1999) demonstrated significant improvement for using mammography among low income, predominantly African-American women after a three years follow-up. On the contrary, this study collected post-test data only after three months follow-up. It was possible that too short a follow-up period may not be sufficient to assess the NESB women's change of health related behaviour after an intervention. It might be that this short time period was not within their biennial schedule as a high proportion (60.9%) of these participating women had already had a mammogram.

The results showed a trend of increased intention to use mammography over a period of two years (41.7%), compared to six months (25.0%), after attending the health education sessions. Tolma et al. (2003) suggested that self-efficacy or the confidence of a woman in her ability to get screened was the best predictor of her intention to have a mammogram. The study by Tolma (2003) also identified significant descriptive differences between intenders and non-intenders to use mammography related to age, education and knowledge. Consistent with Tolma's study, this research also identified a relationship between age and the educational level on the score of self-efficacy (Table: 6.1). The following table 6.1 shows that out of a total of 14, 10 (71.4%) women were tertiary qualified (university). Of these, six women had self-efficacy score of more than 80. In terms of the age group, 57% (8 out of 14) belonged to 40-49 years of age and same percentage of women already had a mammogram. However, this study could not demonstrate any significant relationship between the women's self-efficacy and their intention to use mammography in the near and distant future.

Table 6.1 Self-efficacy score in terms of educational level, age and use of mammography

	Self-efficacy score		
	More than 80	Less than 80	**Total**
Educational level			
Primary-lower secondary	0	1	1
Higher secondary-trade	2	1	3
University	6	4	10
Age groups			
40-49 years	5	3	8
50-59 years	3	2	5
60->60 years	0	1	1
Used Mammogram			
Yes	8	6	14
No			

6.3 Conclusion

According to the demographic data, this study showed that women who were disadvantaged in terms of education, employment and age, were less likely to use preventive health care services and participate in the health promotion sessions as well. This finding supported similar findings of previous studies (Jirojwong & Manderson 1999; Kelaher et al. 1999). Because Rockhampton is a homogenous city, it was difficult to recruit a sufficient number of participants and was more challenging to retain them in the study throughout the study period. In a regional city like Rockhampton, people are quite familiar with each other and have more community interaction. As this research indicated, an informal recruitment process can be considered for further health promotion studies among the NESB communities in a regional city and more attention is needed to reach the actual socially disadvantaged NESB women.

The results of this study indicated that it was possible to improve somewhat knowledge about disease and use of preventive health care services among NESB women by providing health information. It might happen that the result of this study was affected by the insufficient number of the participants or the higher percentages of highly educated participants who were not representative of the population. This study's results also suggested that the provision of health education in terms of disease and screening services could reduce the perception of barriers in general as well as individual personal barriers to access preventive health services although not statistically significant. The result showed a positive relationship between higher self-efficacy with the use of mammography and an increased willingness for using mammography in the distant future (two years) rather than the near future (six months). This study could not find any statistically significant relationship between self-efficacy and mammography use. This might be affected by the insufficient number of participants and too short follow-up period. Further studies are required to assess these variables for this particular NESB community in a bigger context with a longer period which could give a direction for health promotion among NESB women. Acculturation, cultural belief and ethnicity are also a few factors to consider in terms of developing positive health behaviour among NESB communities (Jirojwong & Manderson 2001; Foxall et al. 2004, Guevarra et al. 2005). Therefore, this study result has not only theoretical implications, but may be of use to health promotion professionals, including those from the Queensland Cancer Fund.

6.4 Significance of the study

Breast cancer and mammography are culturally sensitive health issues among this community. However, no other study has been conducted among non-English speaking background (NESB) community in regards to breast screening in an Australian regional city like Rockhampton. Previous studies (Kelaher 1999; Coppe 2001; Jirojwong & Manderson 2001) were conducted in Australian capital cities involving ethnic communities, but this study recruited participants from 13 different countries living in a regional city.

Three major outcomes evolved from the study results. First, the most effective strategy which was used to recruit these NESB women to take part in various stages of the study was the informal contacts. Second, the benefits of the formal health education sessions, which were routinely available, on the change of women's preventive health behaviour were systematically explored. Third, women's personal factors which might have been associated with their preventive health behaviour were identified. The participants have gained knowledge relating to breast cancer and breast cancer screening services provided by an education session. It was expected that a proportion of the women would use the mammography service for breast cancer screening. However, this positive outcome was not identified by the study results.

6.5 Limitation

This is a descriptive study where data were collected from a wide range of ethnic groups. This study could not recruit the expected number of participants within a period of eight months. Moreover, among the women who participated, 60.9% were highly educated; 42.9% were employed either part time or full time and 60.9% had already used mammograms. It is likely that women who chose to attend the health education sessions were more aware of breast cancer and mammograms than the women who did not. In other words, women who were highly educated and employed may be more approachable and interested to take part in the study. This study recruited only 36.7% (n=18) women aged 50 years and over although according to BreastScreen Australia the target age group for mammograms is 50-69 years.

During the recruitment process it was found that the researcher's own personal contacts and the snowballing method were able to recruit around 80% of women while the other formal methods recruited only around 20%. As the researcher was known to most of the participants, this may have influenced the participation rate. In a regional city like Rockhampton, where less than 10% of the population were from different ethnic backgrounds and cultural activity was happening quite often, it was likely that most of the ethnic background women were known to each other and this familiarity among different ethnic communities could influence the recruitment of participants. It was possible that the English proficiency of these migrant women had affected their access to the information provided by the researcher. Using English throughout the study as a medium of communication might have had an indirect effect on the women's relatively low willingness to take part in the study.

6.6 Recommendations

According to this study result it was evident that mostly educated and employed and comparatively younger (40-49) aged women are more interested in attending a health education session and participating in a health promotion study. Future studies need to give more attention to such disadvantaged NESB women who are aged, less educated and not in the workforce; especially in a regional city where the community is comparatively more culturally homogenous than in capital cities. Understanding the barriers raised by different cultures should be the initial step in developing successful outreach for health education programs.

To recruit the expected number of participants, the researcher included predominantly women from different Asian countries. It was not possible for the researcher to translate the questionnaire into more than ten different languages within a limited time and resources. Of those women who did not complete the initial survey form, actual reasons for their non responsiveness were not stated. It was possible that their English proficiency had affected their access to the information provided by the researcher. Therefore, English proficiency data is required for health service providers to understand the needs and characteristics of the NESB recipients. In order for health promotion programs to be effective, it is required to put emphasis on bi-lingual health professionals and to distribute translated information of preventive health care services in the context of a regional city.

From an economic perspective, it is not appropriate to address only one particular ethnic community for a regional city like Rockhampton where the total ethnic population is less than ten percent. Further studies are needed to show the way to educate a group of multicultural women in a regional community to promote their health where language barrier, age, education, employment and diversity are the collateral issues to be considered. Inadequate

knowledge about breast cancer screening may be the consequences of the provision of insufficient or culturally inappropriate information (Watts, Merrell, Murphy & Williams 2004). Health care providers need to work collaboratively with women from different ethnic groups to develop appropriate information and dissemination strategies to educate NESB women.

These study results can be used as an impression of the general characteristics of NESB women, their knowledge, barriers to, and self-efficacy for, using available preventive health services in a regional city. This can be used for future health promotion program in a similar diverse setting of NESB community. From the findings of this study it is recommended that the BreastScreen Australia, Queensland Cancer Fund, Community and Public Health Centre and Hospitals consider language appropriate materials suitable for older women from lower socio-economic backgrounds and educational levels. It is also recommended to recruit bi-lingual presenters for health education sessions to be delivered to non-English speaking background women.

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APPENDIX A

Initial survey questionnaire

ID No: ☐☐

1. Participant's Name **……..**

2. Age in years… (Please tick in the appropriate range)

- ☐ 40-44
- ☐ 45-49
- ☐ 50-54
- ☐ 55-59
- ☐ 60-69
- ☐ 70 or older

3. Do you speak any language other than English?

☐ **Yes** ☐ **No** → Please specify here ……

4. In your opinion how well do you speak in English?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Average
- ☐ Not good

5. In your opinion how well do you write English?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Average
- ☐ Not good

6. In your opinion how well do you read English?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Average
- ☐ Not good

7. In which country were you born?

- ☐ Australia
- ☐ Other (Please Specify)……

8. Which of the following categories best describe your employment status? (Tick in the appropriate box)

- ☐ Paid Employed → ☐ Full- time, ☐ Part- time, ☐ Self -employed
- ☐ Student
- ☐ Home duties
- ☐ Pensioner
- ☐ Other. Please Specify**……**

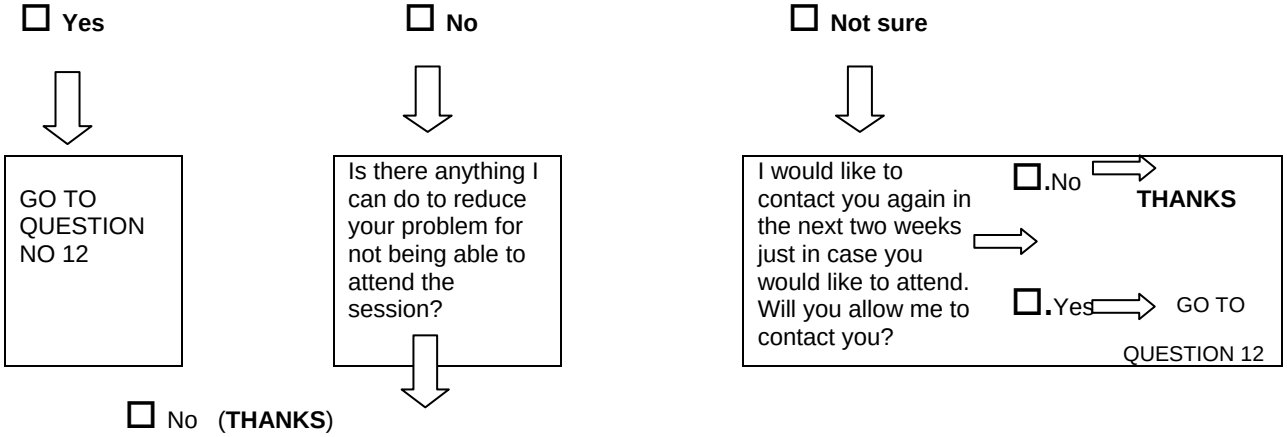
9. Does your family have a car?

☐ Yes ☐ No

10. Do you have a current driver's license?

☐ Yes ☐ No

11. There has been new information about breast cancer and its screening provided by Australian health services. I would like to invite you to attend an education session conducted by an experienced staff of Queensland Cancer Fund. Would you be interested in taking part in this session?



☐ No (**THANKS**)

☐ Yes (Please specify what sorts of support do you need that will help you to attend this session?)

……

12. Which day of the week is suitable for you to attend this session?

☐ Week days (Please specify) ……..

☐ Weekends (Please specify) …….

13. What time of the day suits you most to attend the session? (May tick more than one box)

☐ 10am – 12pm

☐ 12pm – 2pm

☐ 4pm – 6pm

☐ 6pm – 8pm

14. I would like to inform you where and when the session will be conducted. Please write down your contact details in the space below.

Phone: (Home)……. (Mobile)……. (Work)……..

Postal address:

……

WOULD YOU LIKE TO MAKE ANY FURTHER COMMENT?

……
..

THANKS FOR YOUR PARTICIPATION

APPENDIX B

Pre-session questionnaire

ID No ☐ ☐

Demographic Questions:

Thank you for taking part in tis study. In order to describe the group of women I met, I would like to ask you some personal questions. (Please tick in the appropriate box for each of the questions)

1. What best describes the highest education level you have completed? (Either from your home country or Australia)

   ☐Primary (grade 1-7)
   ☐Lower Secondary (grade 8, 9, 10)
   ☐Higher Secondary (grade 11, 12)
   ☐Trade
   ☐University undergraduate
   ☐University Post-Graduate
   ☐None

2. How many years in total have you lived in Australia? ……

3. Do you have a permanent General Practitioner (GP) or Family doctor?

   ☐Yes (Go to the next question)
   ☐No (Go to question no 5)

4. Is your General Practitioner a male or a female?

   ☐Male
   ☐Female

5. Apart from Medicare, are you currently covered by private health insurance?

   ☐Yes
   ☐No

Following few questions that will assess how much you know about breast cancer and mammography. Your opinion will be helpful for future planning of Health care services

6. In your opinion what are the symptoms of breast cancer? (You may tick more than one box).

☐ Pain	☐ Secretion
☐ Ulcer	☐ Itchy
☐ Lump	☐ Cracked nipple

Other (specify) **……**

7. What do you think can be the cause of breast cancer? (You may tick more than one box).

☐ Family history of breast cancer	☐ Menopause (stopped menstruation)
☐ Avoiding breast feeding	☐ Taking HRT(Hormone replacement therapy eg: Premarin)
☐ Wearing an uncomfortable Bra	☐ Using the birth control pill

Other (specify**) ……**

8. In your opinion what is the youngest age group a woman may have breast cancer?

☐ Below 20 years	☐ 41 – 50 years
☐ 20 – 30 years	☐ 51 – 60 years
☐ 31 - 40 years	☐ More than 60 years

9. After what age is breast cancer screening free for women in Australia?

☐ After 30 years	☐ After 50 years
☐ After 40 years	☐ After 55 years
☐ After 45 years	☐ After 60 years

Following sentences are about breast cancer. Please tick the box that corresponds to your opinion about each statement.

10. How strongly do you believe that breast cancer is curable?
    - ☐ Strongly believe
    - ☐ Believe
    - ☐ Not sure
    - ☐ Don't believe
    - ☐ Strongly disbelieve

11. How strongly do you believe that there are times when a woman has breast cancer and she does not know?
    - ☐ Strongly believe
    - ☐ Believe
    - ☐ Not sure
    - ☐ Don't believe
    - ☐ Strongly disbelieve

12. If breast cancer is found at an early stage and treated without any delay, do you believe that a woman will be able to do her daily activities as she did before she had breast cancer?

    - ☐ Yes, she can do all the activities
    - ☐ Yes, she can do some of the activities
    - ☐ Not sure
    - ☐ No, she can do very little activities
    - ☐ No, she can not do any normal activities

13. If yes, how long do you think it will take her to return to her normal routine activities?

    - ☐ **……** Days
    - ☐ **……** Months
    - ☐ **……** Years

14. What kind of test you can do to detect breast cancer in its early stage? (You may tick more than one box).

    - ☐ Breast self examination
    - ☐ Clinical breast examination (Breast examined by health professional)
    - ☐ Mammography
    - ☐ Other (specify)……

15. Have you ever carried out any of the above mentioned examinations?

Breast self examination.

- ☐ Yes
- ☐ No

Clinical breast examination (Breast examined by health professional)

- ☐ Yes
- ☐ No

Mammography (X-ray like examination)

- ☐ Yes
- ☐ No

Other (specify)…….

16. In your opinion what are the benefits of having breast cancer screening by a mammogram? (You may tick more than one box)

- ☐ Mammography can detect the tumour when it is small
- ☐ Mammography ensures better chance of survival
- ☐ Mammography can cure breast cancer
- ☐ Mammography can prevent breast cancer
- ☐ Just for peace of mind

Other (specify)……..

17. In your opinion why some women do not go for mammogram? (You may tick more than one box)

- ☐ There is no use of doing screening as it can't cure cancer
- ☐ Screening can't prevent cancer
- ☐ Test is not 100% accurate
- ☐ Better not to know about cancer
- ☐ Too old to go for screening

Other (specify)…….

Following few questions will assess your feeling of severity and susceptibility about your-self of having breast cancer. You can skip if you don't wish to answer any question.

18. Do you know any woman who has had breast cancer?

☐ Yes ☐ No

19. Do you have any family members who had breast cancer?

☐ Yes ☐ No

20. How likely it is for you to develop breast cancer?

☐ Very likely

☐ Likely

☐ Do not know

☐ Unlikely

☐ Very unlikely

21. In your opinion, is there any reason that makes you consider your-self at risk for breast cancer? (You may tick more than one box)

☐ Age ☐ Race ☐ Over body weight

☐ Number of children ☐ Having no children

☐ Smoking habit ☐ Drinking alcohol

☐ Not doing exercise ☐ Having irregular period

☐ Close family member had breast cancer

Other (specify): ……..

23. No one really knows if she will have breast cancer or not. Just in case if you developed breast cancer how serious it would be?

☐ Extremely serious

☐ Quite serious

☐ Can't say

☐ Not very serious

24. Some women think that Anglo-Saxon women have a higher chance of having breast cancer compared to women from other ethnic group. Do you agree with them?

☐ Yes (go to next question)

☐ No

25. If yes, why do you think so?

……..

The following questions will assess the barriers for multicultural women for using preventive health care services.

26. Do you ever heard about the free breast cancer screening (Mammogram) services in Australia?

☐ Yes (Go to next question)

☐ No (Go to question no 31)

27. If yes, where did you hear about mammogram? (you may tick more than one box)

☐ GP ☐ Hospital

☐ Friends ☐ TV/Radio/Newspaper

Other (specify)……

28. Have you ever done mammogram?

☐ Yes (Go to next question)

☐ No (Go to question no 30)

29. If yes, is there any particular reason that you went there? (you may tick more than one box)

☐ Referred by GP

☐ Decided by your-self

☐ Suggested by other

Other (specify)……

30. If no, is there any particular reason that you did not go for mammogram yet?

☐ Don't know ☐ Fear

☐ Embarrassed ☐ Did not feel like

☐ No body suggested to

Other (specify)……

31. Have you ever talk to your GP about breast cancer?

☐ Yes ☐ No (go to next question)

32. If not, what is the reason for not being able to talk?

☐ Never think of it

☐ Male doctor

☐ No problem or symptoms yet.

Other (specify)……

33. If you are concerned about breast cancer, where will you go first to seek help? (You may tick more than one box).

☐ GP clinic / Surgery ☐ Hospital ☐ Friends

☐ Relatives **Other** (specify) ……

Conclusion

I would like to contact you again 3 months after this to find out whether this session has any effect on your health behaviour. Is it OK for me to contact you again?

- ☐ Yes
- ☐ No

When is the best time to phone you so that I can make an appointment to see you?

- ☐ Morning
- ☐ Afternoon
- ☐ Evening

THANK YOU FOR YOUR PARTICIPATION.

APPENDIX C

Post-session questionnaire

ID no. ☐☐

The following few questions will help us to assess whether your knowledge about breast cancer and mammography has changed after attending the group educational session.

1. In your opinion what are the symptoms of breast cancer? (**You may tick more than one box**).

☐ Pain
☐ Ulcer
☐ Lump
☐ Secretion
☐ Itchy
☐ Cracked nipple

Other (specify) **……**

2. What do you think can be the cause of breast cancer? (**You may tick more than one box**).

☐ Family history of breast cancer
☐ Avoiding breast feeding
☐ Wearing an uncomfortable Bra
☐ Menopause (stopped menstruation)
☐ Taking HRT (Hormone replacement therapy eg: Premarin)
☐ Using the birth control pill

Other (specify**) ……**

3. In your opinion what is the youngest age group a woman may have breast cancer?

☐ Below 20 years
☐ 20 – 30 years
☐ 31 - 40 years
☐ 41 – 50 years
☐ 51 – 60 years
☐ More than 60 years

4. Have you heard of any screening test for breast cancer?

☐ Yes
☐ No
☐ Not sure

5. What kind of tests can you do to detect breast cancer in its early stages? (**You may tick more than one box**).

☐ Breast self examination
☐ Clinical breast examination (Breast examined by health professional)
☐ Mammography **(X-ray like examination)**
☐ Other (specify)……

6. After what age is Mammography free for women in Australia?

☐ After 30 years
☐ After 40 years
☐ After 45 years
☐ After 50 years
☐ After 55 years
☐ After 60 years

7. Generally how often it is recommended that a woman should have a mammogram **(that is an X-ray like examination)**?

☐ Every Year
☐ Every 2 years
☐ Every 3-5 years
☐ Older woman do not need
☐ Younger woman do not need
☐ Woman without children do not need
☐ Woman with children do not need
☐ Not necessary without doctor's advice
☐ Don't know
☐ Other……..

The following sentences are about your opinion towards the benefits of the mammography test. Please tick the box that corresponds to your opinion about each statement.

8. How strongly do you believe that breast cancer is curable?

   ☐ Strongly believe
   ☐ Believe
   ☐ Not sure
   ☐ Don't believe
   ☐ Strongly disbelieve

9. How strongly do you believe that there are times when a woman has breast cancer and she does not know?

   ☐ Strongly believe
   ☐ Believe
   ☐ Not sure
   ☐ Don't believe
   ☐ Strongly disbelieve

10. Do you think it is beneficial for you to have a mammogram **(X-ray like examination)**?

    ☐ Yes (Go to question no.**11**)
    ☐ No (Go to question no.**18**)
    ☐ Not sure (Go to question no.**18**)

11. In your opinion what are the benefits of having breast cancer screening by a mammogram **(X-ray like examination)**? (**You may tick more than one box**)

    ☐ Mammography can detect the tumour when it is small
    ☐ Mammography ensures better chance of survival
    ☐ Mammography can cure breast cancer
    ☐ Mammography can prevent breast cancer
    ☐ Just for peace of mind
    Other (specify)……..

12. If breast cancer is found at an early stage and treated without any delay, do you believe that a woman will be able to do her daily activities as she did before she had breast cancer?

    ☐ Yes, she can do all the activities
    ☐ Yes, she can do some of the activities
    ☐ Not sure
    ☐ No, she can do very little activities
    ☐ No, she cannot do any normal activities

13. In your opinion why is it not beneficial to have a mammogram? (**You may tick more than one box**)

    ☐ There is no use of doing screening as it can't cure cancer
    ☐ Screening can't prevent cancer
    ☐ Test is not 100% accurate
    ☐ Better not to know about cancer
    ☐ Too old to go for screening
    Other (specify)……

The following few questions will assess your feeling of severity and perceived susceptibility to breast cancer.

14. Do you know any woman who has had breast cancer?

☐ Yes ☐ No

15. Do you have any family members who had breast cancer?

☐ Yes ☐ No

16. How likely it is for you to develop breast cancer?

☐ Very likely ☐ Likely

☐ Do not know ☐ Unlikely

☐ Very unlikely

17. In your opinion, is there any reason that makes you consider yourself at risk for breast cancer? (You may tick more than one box)

☐ Age ☐ Race ☐ Over body weight

☐ Number of children ☐ Having no children

☐ Smoking habit ☐ Drinking alcohol

☐ Not doing exercise ☐ Having irregular period

☐ Close family member had breast cancer

Other (specify): ……..

18. No one really knows if she will get breast cancer or not. However, if you developed breast cancer how serious it would be?

☐ Extremely serious

☐ Quite serious

☐ Can't say

☐ Not very serious

19. Some women think that Anglo-Saxon women have a higher chance of having breast cancer compared to women from other ethnic groups. Do you agree with them?

☐ Yes (go to next question)

☐ No (Skip question no. **20**)

20. If yes, why do you think so?

……

The following questions will assess the barriers for Non-English speaking women for using preventive health care services.

21. Have you ever had a Mammogram (**X-ray like examination**)?

- ☐ Yes regularly (Go to next question)
- ☐ Yes but not regularly (Go to question no.**22**)
- ☐ No (Go to question no.**23**)

22. If yes, what or who influenced you to have your mammogram? (**you may tick more than one box**)

- ☐ GP (General Practitioner)
- ☐ Hospital
- ☐ Friends
- ☐ TV/Radio/Newspaper
- ☐ Symptoms
- ☐ Group information session

Other (specify)……

23. What are the reasons for which you might not have mammograms more regularly?

……

……..

24. If **NOT**, is there any particular reason that you did not go for a mammogram yet?

- ☐ Don't know
- ☐ Fear
- ☐ Embarrassed
- ☐ Did not feel like
- ☐ No body suggested to
- ☐ Don't think it is beneficial

Other (specify)……

25. Have you ever talked to your GP about breast cancer?

- ☐ Yes
- ☐ No (go to next question)

26. If **NOT**, what is the reason for not being able to talk?

- ☐ Never think of it
- ☐ Male doctor
- ☐ No problem or symptoms yet.

Other (specify)……

27. If you become concerned about breast cancer, where will you go first to seek help? (You may tick more than one box).

- ☐ GP clinic / Surgery
- ☐ Hospital
- ☐ Friends
- ☐ Relatives
- **Other** (specify) ……

28. Have you had a mammogram within the last three months?

- ☐ Yes (Go to question no. **32**)
- ☐ No (Go to question no. **29**)

29. Have you made an appointment to have a mammogram in the next 2 to 3 months?

- ☐ Yes (Go to question no. **32**)
- ☐ No (Go to next question)

30. How likely is it that you will have a mammogram in the next 6 months?

- ☐ Very likely (Go to question no. **32**)
- ☐ Likely (Go to question no. **31**)
- ☐ Neither likely nor unlikely (Go to question no**. 31**)
- ☐ Unlikely (Go to question no. **31**)
- ☐ Very unlikely (Go to question no. **31**)

31. How likely is it that you will have a mammogram in the next 2 years?

- ☐ Very likely (Go to question no. **32**)
- ☐ Likely (Go to question no. **32**)
- ☐ Neither likely nor unlikely
- ☐ Unlikely
- ☐ Very unlikely

Please turn over the page

32. Let us assume that you have already planned to have a mammogram in the near future. The following situations may stop some women to have the mammogram. I would like to know how likely each situation influences on your own decision to have the planned mammogram. If the score is zero (0), it means you will not do it at all. If the score is ten (10), you will certainly do it.

Please write the score applying to your decision in the space at the end of each statement.

0 1 2 3 4 5 6 7 8 9 10

Cannot Do at all — Moderately can do — Highly certain can do

	Confidence (0-10)
When I have other time commitments	_____
When I am feeling depressed	_____
When I am feeling anxious	_____
When visitors are present	_____
When I have too much work to do at home	_____
When there is a bad weather	_____
When I have other family problems	_____
When I am on holiday	_____
When there are other interesting things to do	_____
After recovering from a sickness	_____
Without any support from others	_____

Thank you for your valuable time and participation in this project.

APPENDIX D

Letter to key community leaders to recruit study participants

Tabassum Ferdous (Neeta)
Central Queensland University
Ph: 07 4930 6326
Mobile: 0421 898 412
Email: t.ferdous@cqu.edu.au.

Date

Name
Address

Re: Health promotional survey among multicultural communities in Rockhampton

Dear

I am a research Masters' candidate of Central Queensland University and conducting a research to assess the knowledge and awareness of breast cancer prevention and screening services among multicultural women in Rockhampton. In order to conduct this study and to promote health, I am going to organise health education sessions for multicultural women in Rockhampton. The topic will focus on cause, severity, early detection of breast cancer and the available screening services according to national guideline in Australia. The session will be conducted by Val Wex, 'Prevention and Early Detection Co-ordinator' of Queensland Cancer Fund. It is anticipated that the health educator, the participants of this session and me will be women only. I trust that this educational session will have a great impact on our physical well being.

For successful conduction of these sessions I need some information regarding some individual matters which will help me to decide the day and time of the sessions according to the convenience of the potential participants. In order to gather information about this important women's health issue as a key community person your help is essential for us. I would like to request you to provide me the name, address and contact details (with their permission) of at least five women age 40 years and over of your community to fill-out a survey form (see attached example). I can provide you the form so that you will be able to forward it to the women who are willing to participate. I will appreciate it if you will be able to provide this information to me by 15th of August 2005. Once it is completed, I will collect it from you or they can mail it to me using the attached prepaid envelop.

For further information relating to this matter, please contact: Tabassum Ferdous (Neeta) on 4930 6326 (CQU), 4928 7657 (home) or 0421 898 412 (mobile).

Looking forward to your support relating to this request.

Yours sincerely,

Tabassum Ferdous
Research Masters Candidate
Central Queensland University

Sansnee Jirojwong, PhD
Senior Lecturer
School of Nursing and Health Studies
Direct Phone 07-4930 6317
Fax 07-4030 9871
E-mail: s.jirojowng@cqu.edu.au

APPENDIX E

Letter to potential participants to

Participate in the initial survey

Tabassum Ferdous (Neeta)
Central Queensland University
Ph: 07 4930 6326
Mobile: 0421 898 412
Email: t.ferdous@cqu.edu.au

Date

Name

Address

Re: Survey to conduct Health education session – Breast Cancer and Screening services.

Dear

I am a Research Masters candidate at Central Queensland University. I am going to organise a one hour health education session for multicultural women in Rockhampton. The session will focus on the causes, severity, and early detection of breast cancer. It will also provide information on the available screening services according to national guidelines in Australia. These sessions will be conducted by the 'Prevention and Early Detection Co-ordinator' of Queensland Cancer Fund. She will be happy to answer any personal questions you may have.

It is anticipated that the health educator, researcher and the participants of this session will be women only. I hope this educational session will have a great impact on our physical well being. In order to conduct these sessions successfully I need some information so that the sessions can be arranged according to your convenience. Attached with this letter is a survey form. Would you please kindly fill out this form and send back it to me in the reply paid envelope or return it to your key community person which ever suitable for you.

For further information please contact: Tabassum Ferdous (Neeta) on 4930 6326 (CQU), 4928 7657 (home) or 0421 898 412 (mobile).

Best regard,

Tabassum Ferdous
Research Masters Candidate
Central Queensland University

APPENDIX F

Invitation letter to the women to

Attend a health education session

Tabassum Ferdous (Neeta)
Central Queensland University
Ph: 07 4930 6326
Mobile: 0421 898 412
Email: t.ferdous@cqu.edu.au

Date

Name

Address

Re: Health education session – Breast Cancer and Screening services

Dear

I am a Research Masters candidate at Central Queensland University. I am going to organise a health education session for multicultural women in Rockhampton. The topic will focus on cause, severity, early detection of breast cancer and the available screening services according to national guidelines in Australia. These sessions will be conducted by **Ruth Cole**, who is the 'Community Speaker' of Queensland Cancer Fund (QCF). Ruth will be happy to answer any personal questions you may have. It will also give you the opportunity to learn about other resources available through QCF.

Another purpose of these educational sessions is to conduct research to assess breast cancer screening awareness and the promotion of health among multicultural women in Rockhampton. In order to gather information about this important women's health issue your knowledge and experience relating to breast cancer and early detection is valuable for us. It is anticipated that the health educator, researcher and the participants of this session will be women only. Hope this educational session will have effects on our physical wellbeing. You may be reminded by a phone call prior to the group discussion. You are welcome to attend the session even you are not willing to participate in the study.

The next educational session will be held in Rockhampton Women's Health Centre at the corner of Bolsover and Derby Street at **10am – 12 pm on 10th of October 2005**.It is my pleasure to offer you tea and snacks during the session. If you have any small children at home, you can bring them along with you or if you need a lift to attend this session we can arrange transport for you. For further information or speak to this matter please contact: Tabassum Ferdous (Neeta) on 4930 6326 (CQU), 4928 7657 (home) or 0421 898 412 (mobile). If for any reason you are unhappy with how the research has been conducted you can contact Office of Research at (07) 4923 2607.

Looking forward to see you there.

Best regard,

Tabassum Ferdous

Come, Join, Meet your community and

Win A Lucky Door Prize: A Magnificent Lady's Bag

APPENDIX G

Letter to the participants to complete the post-test questionnaire

Tabassum Ferdous (Neeta)
Central Queensland University
Ph: 07 4930 6326
Mobile: 0421 898 412
Email: t.ferdous@cqu.edu.au.

Date

Name

Address

Project: Initial breast screening among non-English speaking women in Rockhampton

Dear

This is the follow-up survey of the "Initial breast screening among non-English speaking women in Rockhampton" project.

I would like you to complete the attached questionnaire and return it using the reply paid envelope by 15th February. If you are unable to return the questionnaire to me, I will contact you later using the information you provided at the beginning of the project.

Your participation in this project will not affect services provided by any community organisations including Queensland Cancer Fund and BreastScreen Queensland. I do not think there will be any stress from taking part in this project. If you experience any stress during or after the project, please contact **Rockhampton Women's Health Centre at Ph: 4922 6585 (225 Bolsover street, Rockhampton 4700)** for counselling services.

Appropriate measures have been taken to ensure confidentiality and anonymity so that no individual respondent will be identified. No identifying characteristics regarding the response in the interview will be utilised. Data will be stored securely while in use and the personal information collected by the researcher will be securely stored for five (5) years after the completion of the research according to the CQU policy.

If you would like further information regarding this project, please contact the researcher Tabassum Ferdous (Neeta), Central Queensland University on (07) 4930 6326 or email to t.ferdous@cqu.edu.au. If for any reason you are unhappy with how the research has been conducted you can contact Office of Research at (07) 4923 2607.

I would like to thank you for your participation.

Sincerely yours

Tabassum Ferdous
Master of Health Sciences Candidate
Central Queensland University

APPENDIX H

Information sheet for study participants

Participant Information sheet

Initial breast screening among non-English speaking women in Rockhampton.

Breast cancer is one of the leading causes of cancer death among women in the world. Despite the increased rate of breast cancer among migrant women in Australia, studies have found migrant women particularly from Asian countries do not use breast cancer screenings as much as Australian born women. This research project aims to provide you with information about breast cancer and its screening services available in communities. It is hoped that the awareness of breast screenings will increase the use of mammography among migrant women in Rockhampton, so that early treatments can be provided.

I would like to invite you to participate in this research project. If you agree to be a part of this project, you will need to sign an attached consent form. As a part of this research project, you will be interviewed by the researcher twice. The first interview will be undertaken before the commencement of the group discussion. The second interview will be undertaken three months after the first interview. I will phone you to arrange the date, time and place convenience to you for this second interview. Each of these interviews will take approximately 15 minutes of your time.

If you do not wish to take part in any stage of this research project, you are still welcome to attend the discussion. During the interview, you have the right not to answer any question or withdraw from the research project anytime. Your participation in this project will not affect services provided by any community organisations including Queensland Cancer Fund and BreastScreen Queensland.

I do not think there will be any stress from taking part in this project. If you experience any stress during or after the project, please contact **Rockhampton Women's Health Centre** at **Ph: 4922 6585 (225 Bolsover street, Rockhampton 4700)** for counselling services.

Appropriate measures have been taken to ensure confidentiality and anonymity so that no individual respondent will be identified. No identifying characteristics regarding the response in the interview will be utilised. Data will be stored securely while in use and the personal information collected by the researcher will be securely stored for five (5) years after the completion of the research according to the CQU policy.

If you would like further information regarding this project, please contact the researcher Tabassum Ferdous (Neeta), Central Queensland University on (07) 4930 6326 or email to t.ferdous@cqu.edu.au. If for any reason you are unhappy with how the research has been conducted you can contact Office of Research at (07) 4923 2607.

I would like to thank you for your interest and look forward to your participation.

Sincerely yours

Tabassum Ferdous
Master of Health Sciences Candidate
Faculty of Arts, Health and Sciences
Phone: (07) 4930 6326
Email: t.ferdous@cqu.edu.au.

APPENDIX I

Consent form to be completed by the study participants

CONSENT FORM

Project "Initial Breast Cancer Screening among non-English speaking women in Rockhampton" conducted by Tabassum Ferdous, Master of Health Sciences Candidate, Central Queensland University.

Anonymity
The confidentiality of the results of this study is assured. Under no circumstances will your name appear in publications associated with this research. Your results will be provided to you in both written and verbal form with no one else being given your results unless you request it.

THROUGHOUT THE COURSE OF THE PROPOSED RESEARCH PROGRAM, YOU ARE FREE TO WITHDRAW AT ANY TIME FOR WHATEVER REASON

Enquiries:
Any enquiries or concerns about the proposed research can be directed to the researcher by ringing at work **(07) 49306326**, at home **(07) 49287657**, by e-mail at t.ferdous**@cqu.edu.au** or by writing to: **Ms Tabussum Ferdous**, School of Nursing and Health Studies, Central Queensland University, North Rockhampton 4702.

Freedom to Withdraw

I have read the above information. The nature, the demands, risks and benefits of the project have been explained to me. I knowingly assume the risks involved, ***and understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself***. In signing this consent form I am not waiving my legal claims, rights or remedies. A copy of the consent form will be given to me.

NAME: _____

SIGNATURE: _____

DATE: _____

CONTACT DETAILS: _____
_____

I certify that I have explained to the above individual the nature and purpose, the potential benefits and possible risks associated with participation in this research study, have answered any questions that have been raised and have witnessed the above signature. I have also provided the participant a copy of this signed consent document.

NAME: _____

SIGNATURE: _____

DATE: _____

Please contact Central Queensland University's Research Service Office (phone: 4930-9828) should there be any concerns about the nature and/or conduct of this research project.

Appendix J

Table of Observed and expected numbers of responses provided by the participating women about the risk factors of breast cancer before and after the session.

Table: Observed and expected numbers of responses provided by the participating women about the risk factors of breast cancer before and after the session.

Knowledge of	Observed		Expected		Observed		Expected	
Risk factors	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Age	12	7	11.94	7.06	10	6	10.06	5.94
Over weight	6	13	5.43	13.57	4	12	4.57	11.43
Alcohol	2	17	1.09	17.91	0	16	0.91	15.09
Race	1	18	0.54	18.46	0	16	0.46	15.54
Smoking	1	18	0.54	18.46	0	16	0.46	15.54
No exercise	1	18	1.09	17.91	1	15	0.91	15.09
No child	1	18	1.09	17.91	1	15	0.46	15.09
Irregular period	0	19	0.54	18.46	1	15	0.46	15.54
Many children	0	19	0.54	18.46	1	15	0.46	15.54

For knowledge of risk factors, out of 9, in 8 items cell numbers were insufficient to perform chi-square test. Therefore expected numbers were calculated which have been attached as appendix- As expected number is lower than 1, Fisher's Exact test is not valid (Bland, M 2000) for the items 'alcohol', 'race', 'smoking', 'no exercise', 'no child', 'irregular period', and 'many children'

APPENDIX K

Conference presentations arising from the research

Poster presentation in the 36th PHAA Annual Conference "Success in Public Health" on September 25-28, 2005 in Perth, Western Australia. The poster was awarded as one of the two highly commended posters.

Title: Issues relating to recruit non-English speaking women and responses in regards to breast screening information sessions in a regional city.

Abstract: In Australia, cervical and breast screening rates among Non-English speaking women (NESB) are lower than the rates of women from English speaking background. Several studies conducted in Australia, UK and USA identified barriers to the use of these screenings. Barriers to women's participation in screening for breast cancer include: the schedule of services, distance, cost, and women's level of education, women's lack of awareness, women's low self-efficacy beliefs and the lack of social interaction with other women. Based on these findings, the author has planned to assess whether a group information session provided to NESB women in a regional city will be effective in the increased awareness of the screening services and subsequently use of available mammography services.

Initially, a survey has been conducted to recruit NESB women and to conduct a group information session according to the participant's convenience. This poster presented the findings that revealed by the preparatory survey and some personal experiences gained by the researcher in order to distributing forms and collecting data. However, the overall result showed positive attitude among NESB women for attending a group information session.

Attached is the copy of the poster and the award letter

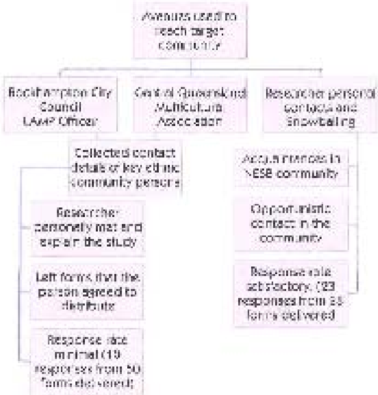
Participation in breast screening information session: issues in the recruitment of non-English speaking women in an Australian regional city

Tabassum Ferdous, Sansnee Jirojwong & Roberta Harreveld

Central Queensland University

Abstract:

In Australia, cervical and breast screening rates among Non-English speaking women (NESB) are lower than the rates of women from English speaking background. Several studies conducted in Australia, UK and USA identified barriers to the use of these screenings. Barriers to women's participation in screening for breast cancer include: the schedule of services, distance, cost, and women's level of education, women's lack of awareness, women's low self-efficacy, beliefs and the lack of social interaction with other women. Therefore, a research study will be investigating whether these barriers can be overcome by a group information session for using mammography services in a regional city. This poster presents findings from a preparatory survey conducted to recruit NESB women to participate in a group information session about breast screening. It also includes some personal experiences gained by the researcher during recruitment and data collection processes. The data show positive attitudes among NESB women for attending a group information session.



"Taking care of our own health"

Characteristics of the respondents:

Age: The majority of the respondents of this survey were from the age group of 40-44 years (33%). The next highest age groups were 45-50 years (30%) and 50-54 years (15%) respectively.

Employment: Among all the respondents 14 (42.4%) were in paid work, 9 (27.3%) referred their occupation as home duties and 8 (24.2%) were receiving pension.

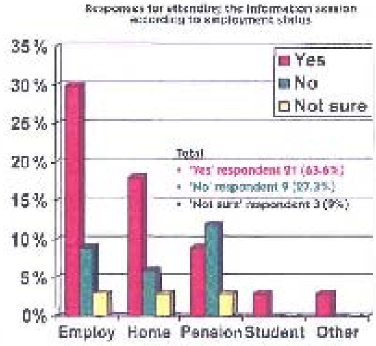
Speaking English: 33.3% (11) women considered their English speaking ability were average, 21.2% (7) thought good and 18.2% (6) very good. 24.2% (8) identified themselves as excellent English speaker and only 6.1% (2) thought they are not good.

Car: Out of 33 respondents only 4 have no family car and 8 do not have current driver's license.

Day and time preference: A higher percentage of the respondents preferred to attend the information session in the week days (14, 42%) and among these women 10am to 12 pm was the most preferable time. Those who chose weekend to attend (9, 27%), preference of morning (10-12 pm) and evening (4-6 pm) is almost similar among them.

Responses for attending an information session according to language spoken at home

Language	Yes	No	Not sure
Bengali	3		
Burmese	6		
Chinese	1		
Fijian	4		
Filipino	9	1	2
Hindi	3		
Japanese		1	
Mandarin	8		
Pidgin	1		
Sinhalese			1
Tagalog	1		
Tamil	1	1	
Thai	1	5	
Vietnam		1	
Total	63.6%	27.3%	9%



Conclusion:

Research studies are essential for health promotion. It is crucial to recruit a planned number of participants. Recruiting participants includes the challenge of getting information to the people whom the researcher wants to recruit and getting them interested in the study. In the field of health promotion research, another challenge is recruiting ethnic minority community people due to variations of culture and language. As a contemporary field of research, recruitment of NESB participants from ethnic communities in an Australian regional city requires more attention in future studies.

It is to be hoped that the further study by these researchers will provide more insight into the motivational barriers NESB women encounter in their participation in breast cancer screening, specifically mammogram.

PUBLIC HEALTH ASSOCIATION
of Australia

Dear Tabassum Ferdous, Sansnee Jirojwong and Roberta Harreveld

Poster – Highly Commended

I am pleased to advise you that your poster has been highly commended by the Scientific Program Committee Reviewing Panel. In recognition of this, PHAA will provide complimentary membership for one person to the Public Health Association of Australia Inc for one year.

We wish to acknowledge commendation of your poster in the Closing Session of the Conference on Wednesday, 28 September. Would you please contact the registration desk as soon as possible, so that I can be advised if you concur with this?

Would you please confirm with me who the recipient of the complimentary membership will be? I can be contacted by email at conference@phaa.net.au

Yours sincerely

Julie Woollacott

Julie Woollacott
Conference Coordinator

20 Napier Close Deakin, ACT Australia, 2600 PO Box 319 Curtin, ACT Australia, 2605
Tel: (02) 6285 2373 Fax : (02) 6282 5438 Email: phaa@phaa.net.au
www.phaa.net.au

Presented in an International Conference "Impact of Global Issues on Women and Children" on February 12 to 16, 2006 at Dhaka, Bangladesh

Conference Theme:

Prevention/Rehabilitation: Physical and mental Health.

Title:

Recruitment of non-English speaking women in research: an additional challenge in health promotion targeting ethnic community.

Abstract:

Introduction: Studies showed that barriers to the accessibility to breast cancer screening by non-English speaking background (NESB) women include their lack of awareness, low level of education, low self-efficacy and lack of social interaction with other women. This paper will describe the characteristics of women who agreed to attend a group information session provided to NESB women in an Australian regional city. This session aimed to increase the awareness and the use of mammogram among NESB women.

Method: Three different sources were used to contact potential participants. They were (1) key ethnic community persons, (2) Central Queensland Multicultural Association and (3) the researcher's personal contacts and a snowballing method. Of these, the researcher's personal contacts were found to be the most successful method to gain the highest percentage of participation.

Result: Of 49 women approached, 33 (67.3%) agreed to attend the group information session. They were later followed up prior to the session either by phone or home visit and mailing a reminder flyer. However, 23 (69.7% of 33) personally attended the session. A high proportion of the attendees (17, 73.9%) were highly educated and the same percentage previously used mammogram. This data suggested that the targeted disadvantaged NESB women did not access the information provided for them. However, personal contact and shared culture between the researcher and the women was helpful in increasing women's participation in this group information session.

Conclusion: There is additional challenge to health promotion programmes targeting ethnic community due to the variation of culture and languages. This challenge is the recruiting and increasing the participation of this disadvantaged group. In countries where there is cultural difference between health care providers and consumers, sensitivities to the range of culture and language should be considered as the initial phase of health promotion process.

Attached is the power point presentation

Recruitment of non-English speaking women in research:
An additional challenge in health promotion targeting ethnic communities

Tabassum Ferdous
Candidate of Master in Health Science
Centre, Queensland University
Email: t.ferdous@cqu.edu.au

Title of the larger project

Using formal health education sessions to increase mammography use among women from non-English speaking backgrounds in a regional city in Australia

Tabassum Ferdous

Background

- Breast cancer is one of the major causes of death among women.
- Regardless of country of origin, risk of having breast cancer increased among non-English speaking (NESB) migrants.
- National data show the low uptake of mammography screening by NESB women.
- Lack of knowledge as one of the major causes.
- Intervention to increase knowledge could be a remedy to reduce the problem.

Arranging Health Education Session

- Provided to NESB women
- Permanent residence of Australia
- Age 40 years or older
- Predominantly Asian women were approached
- Living in Rockhampton

Tabassum Ferdous

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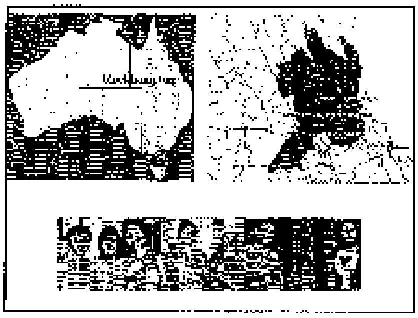
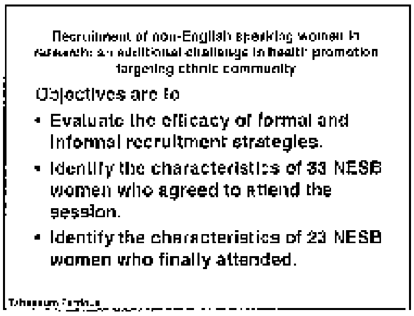
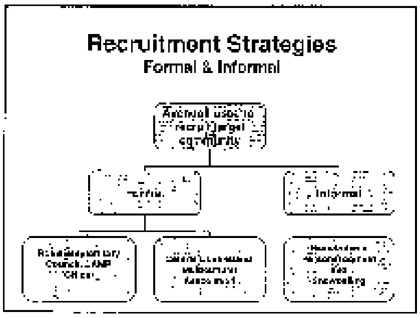
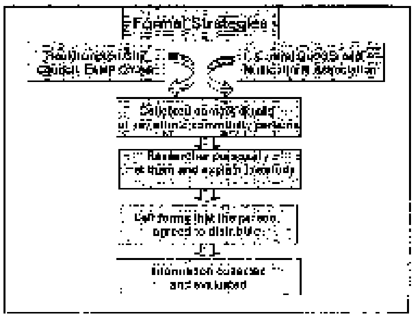
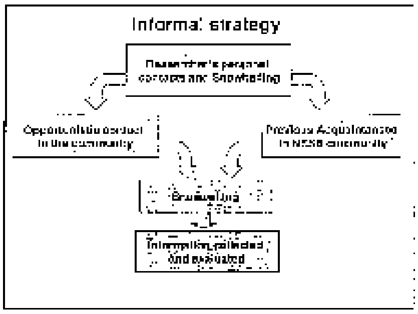



Recruitment of non-English speaking women in
research: an additional challenge in health promotion
targeting ethnic community
Objectives are to
• Evaluate the efficacy of formal and informal recruitment strategies.
• Identify the characteristics of 33 NESB women who agreed to attend the session.
• Identify the characteristics of 23 NESB women who finally attended.


Recruitment Strategies
Formal & Informal
Informal


Formal Strategies
and evaluated



Results of formal and informal recruitment strategies

- Using forms (LAMP+COMA), 10 responses from 50 forms delivered.
- Through informal contacts and snowballing, 39 responses from 50 forms.
- Total 49 recruited, 33 (67.3%) agreed to attend the session but
- Finally 23 (69.7% of 33) actually attended.

Number of women by country of birth

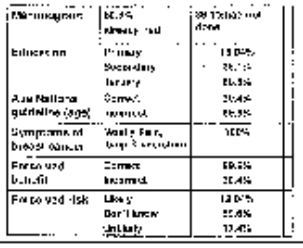
Country	Recruited	Agreed to attend	Finally attended
Bangladesh	4	4	3
Burma	3	2	2
China	4	4	2
Fiji	4	4	1
India	4	4	2
Indonesia	1	0	0
Japan	1	0	0
Philippines	5	3	3
PNG	-	0	0
Iran	4	2	2
Sri Lanka	3	[illegible]	[illegible]
Thai	8	3	2
Vietnam	2	1	1
Total	36	33	23

Characteristics of the participants

Age groups (years)	Recruited (%)	Attended (%)	Chi-sq test
20-39	53.8	65.2	2.89
40-59	38.5	30.4	df=2
60 & older	10.20	4.3	P=0.23
Employment			
Paid	30.6	82.?	12.45
Self-employed	14.3	[illegible]	df=4
Student	4.1	8.7	P<0.01
Housewife	34.7	[illegible]	
Pensioner	16.3	4.3	

3

Characteristics of the women who attended the educational session



Result Summary

- Informal strategy is the better way to recruit the NESB women.
- Although national target age group is 50-69 y's. this study could not recruit this group in sufficient number.
- Paid employed women are more interested than pensioners & house wives.
- Regardless of country of birth, they are difficult to reach.
- 60.9% of the attendees are university graduates.

Recruitment is the Challenge

Special attention is needed to recruit actual disadvantaged NESB women in health promotion studies

Acknowledgement

- Participants & Community leaders
- Central Queensland University
- Dr. Sansnee Jirojwong & Dr. Roberta Harreveld
- QLD Cancer Fund, Women's Health Centre, Rockhampton City Council & CQMA
- The Arshad family

Thank You

APPENDIX L

Copy of the Application for Ethical clearance and Letters of approval