

RESEARCH

SMOKING CESSATION AND THE PHARMACY: WHAT ARE THE ISSUES THAT NEED TO BE ADDRESSED BEFORE THE IMPLEMENTATION OF AN INTENSIVE PHARMACY BASED SMOKING CESSATION PROGRAM? A GENERAL POPULATION PERSPECTIVE.

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ABSTRACT

Aim: To gather information on smoking cessation from members of the general population with a lifetime smoking history. To then use this information to identify issues or factors that may need to be considered before the implementation of a pharmacy based smoking cessation program.

Method: Surveys were distributed to members of the general population with a smoking history. The survey was structured to address three groups; current smokers who have attempted to quit in the past, current smokers who have never attempted to quit and members of the population who have a smoking history but are not currently smoking. The populations were sampled from the Sydney South and the Central western regions.

Results: Twenty-two percent of current smokers and four percent of past smokers sought help from the pharmacy during their quitting process. Pharmacists were also found to be an unlikely reason for a person attempting to quit or for quitting smoking.

Conclusion: There a number of factors that need to be addressed before the implementation of a pharmacy based smoking cessation program. Promotion of the pharmacy as an avenue for smoking cessation intervention is needed.

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INTRODUCTION

Smoking is the largest preventable cause of death and disease in Australia [1]. Twenty percent of the Australian population currently smokes and although the prevalence of smoking has reduced significantly since 1977 when it was thirty-seven percent [2] cigarette smoking is still responsible for 7.8% of total disease burden in Australia. Tobacco smoking is a bigger burden on the Australian society than high blood pressure, high body mass, physical inactivity and high blood cholesterol [3].

The impact of smoking on one's health and the benefits of smoking cessation have led to the development of numerous smoking cessation strategies, such as pharmacotherapies and behavioural methods. The effectiveness of these mechanisms of smoking cessation varies, with some demonstrating greater efficacy than others. Nicotine Replacement Therapy (NRT), Bupropion and Varenicline are all effective at improving smoking cessation rates when compared to a control, however Varenicline has proven to be slightly more effective than NRT and Bupropion [4][5]. Behavioural methods of smoking cessation have also shown some efficacy, however

it is generally accepted that pharmacological methods achieve significantly greater sustained cessation rates than behavioural methods [6].

Community pharmacists are in regular contact with members of the lay public, and hence have a greater opportunity to influence smoking behaviour than many healthcare professionals [7] [8]. Although there is limited data on the use of the community pharmacy as an environment for smoking cessation intervention, the studies that are available all support the possibility of trained pharmacy personnel delivering smoking cessation intervention [9][10][8]. The study by Dent et al (2009) assessed the effectiveness of a face to face group program conducted by a pharmacist versus brief telephone assistance delivered by a pharmacist. The study used biochemical verification of self-reported cessation to assess the point prevalence of quit rates. The study found that not only can pharmacists increase smoking cessation rates; the intensity of the intervention may also directly influence smoking cessation interventions. An intensive pharmacy based smoking cessation intervention could hence have a

Sarah et.al/Smoking Cessation And The Pharmacy: What Are The Issues That Need To Be Addressed Before The Implementation Of An Intensive Pharmacy Based Smoking Cessation Program? A General Population Perspective.

significant impact on smoking rates and prevention of tobacco-related diseases [9].

The aim of the present study is to gather information on smoking cessation from members of the general population. The information gathered will allow for an investigation into current smoking cessation practice and will provide an indication of what issues needs to be targeted to support the implementation of an intensive pharmacy-based smoking cessation program.

METHOD

Ethics

Ethics clearance was obtained from Charles Sturt University Human Research Ethics Committee. The protocol number issued with respect to this study is 2009/033.

Study Design

A survey based cross-sectional study was chosen as the study’s primary method. The aim of the survey was to elicit information on smoking cessation from current and past smokers.

All respondents were asked to provide their age, gender and location. However no personally identifying information was collected.

Survey design

The survey was structured to address three groups; (i) current smokers who have attempted to quit in the past, (ii) current smokers who have never attempted to quit and (iii) members of the population who have a smoking history but are not currently smoking.

The survey was adapted from the data set defined by the National Health Data Dictionary [11]. The items used included tobacco consumption, duration (in years) of smoking for current and past smokers, age of smoking initiation and the time since quitting. The remaining survey items addressed particular issues associated with smoking cessation such as levels of nicotine dependence and previous quit attempts (Figure 1).

modest travelling distance of the investigator’s location. The target population was adults eighteen to seventy-five.

Recruitment of population sample

Recruitment first began by face to face contact. Surveys were distributed to friends and family members of the chief investigator who were known to have a smoking history. Students and lecturers at Charles Sturt University Orange campus were also approached to participate in the study. Local hotels in the Orange region were visited and asked to participate in the study. The hotels were then revisited two days later for collection. Service clubs such as the Liverpool and Orange Rotary clubs were also approached and agreed to participate in the study.

The survey was also posted on the website surveymonkey.com. A link of the survey was emailed to participants and posted on university electronic bulletin boards. A radio announcement was made on ABC radio promoting the study and asking participants to access the survey via the surveymonkey.com link. The survey was kept open on surveymonkey.com from June 1st to July 31st 2009.

Data Collection and Analysis

All surveys were exported onto SPSS version 17 for analysis. The data were entered, coded as required and assessed for data entry errors and missing values. Descriptive statistics such as percentages and frequencies were prepared for all relevant variables explored. These statistics were then analyzed and where appropriate grouped into categories for further analysis. Chi-square and correlation tables were used to decipher any potential relationship between variables. All significance calculations were based on a 95 percent confidence interval at a p value of less than 0 .05.

RESULTS

Study Population

The research targeted people with a history of smoking, either current smokers or past smokers. The total number of participants responding to the survey was 271. Of these, 207 respondents disclosed having a smoking history; 61 identified as never smokers and three participant’s responses were missing on this variable.

Demographics

The mean age of participants was 38.8 years with a range from 18 to 73 years. In addition, 6 participants did not disclose their age. Table 1 identifies that 57.7% of respondents were aged 44 years or below. The gender distribution slightly favoured females with 53.6% of the sample respondents disclosing female gender. No missing data was recorded on this variable.

Just over half the respondents (55.0%) were located in Sydney while 45.0% were from the Orange region. Seven participants did not disclose their location.

Table 1: Demographic characteristics for the combined samples

	Total Population	Current Smokers	Past smokers
Number of respondents (Percentage)	207 (100%)	100 (48.3%)	107 (51.7%)
Mean age (standard deviation)	38.8 (14.8)	33.0 (13.7)	44.3 (12.6)
% Female	53.6	46.0	60.7
% Male	46.4	54.0	39.3
% From Sydney	55.0	51.0	58.8

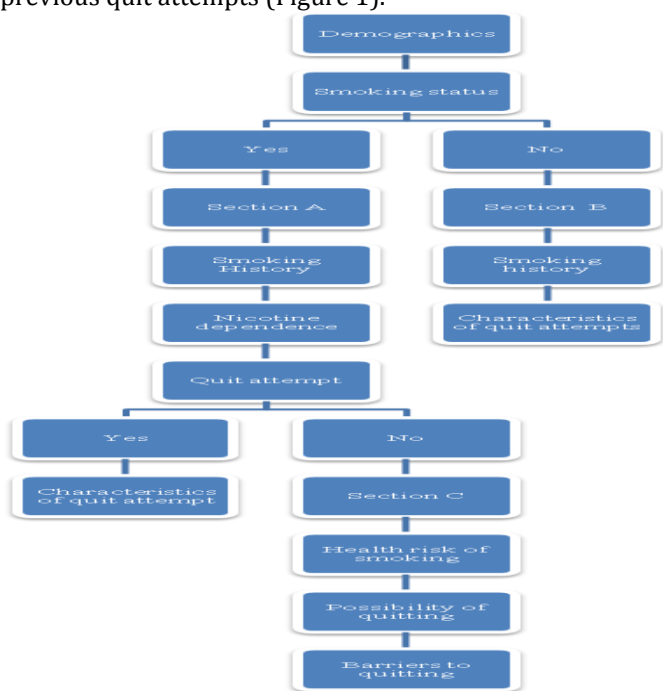


Figure 1: Survey Design

Population sample

The populations were sampled from the Sydney south west region and the Central western regions. These geographical regions were selected as a convenience sample within

Sarah et.al/Smoking Cessation And The Pharmacy: What Are The Issues That Need To Be Addressed Before The Implementation Of An Intensive Pharmacy Based Smoking Cessation Program? A General Population Perspective.

% From Orange	45.0	49.0	41.2
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Within the respondents, 100 (48.3 %) were current smokers (Table 1). The proportion of current smokers decreased with increasing age. The highest percentage of current smokers was found within the 18-24 age intervals. Males constitute a greater proportion of those that disclose 'currently smoking' than females (Table 1). The highest rate of smoking in both males and females was seen in the 18-24 age category. This was followed by the 25-34 age category for males and the 35-44 age category for females.

Past smokers represented 107 (51.7%) respondents (Table 1). The highest proportion of past smokers was within the 45-54 age category (32.7% of past smokers). There was a significantly ($p = 0.033$) higher percentage of female past smokers than male (60.7 percent vs. 39.3 percent) (Table 1).

Quit Attempt

The majority of current smokers had attempted to quit smoking at least once with only 22.2% never attempting to quit (Figure 3). There was also no difference between those who had a previous quit attempt and those who had not in relation to gender ($p = 0.389$), age of initiation ($p = 0.102$), number of cigarettes smoked daily ($p = 0.696$), level of nicotine dependence ($p = 0.324$) and duration of smoking history ($p = 0.727$).

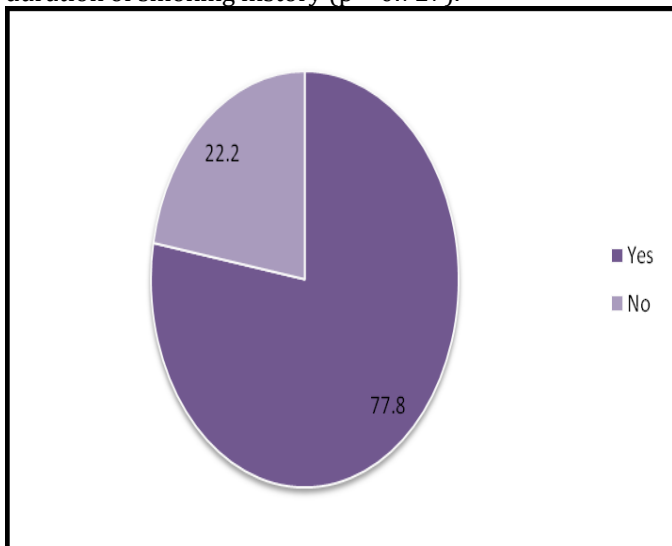


Figure 2: Smoking cessation attempt percentages of current smokers

Quit attempt characteristics

As shown in Table 2 (below) health status (38.5%) and family and friends (24.8%) were the most identified prompts for current smokers attempt to quit. Health status (48.4%) and advice from family and friends (31.6%) were also the most common reasons for quitting smoking for past smokers (Table 2). Healthcare professionals made a smaller impact on past smokers than current smokers. Pharmacists were less likely to be cited as a reason for either a quit attempt or quitting compared to doctors. Smoking cessation advertising had a much bigger impact on past smokers, with 17.4 percent of reasons for quitting due to advertisements compared with only 4.6% of reasons in current smokers.

Table 2: Percentage of reasons for attempting to quit or for quitting smoking¹

	Current smokers	Past smokers
Health status	38.5	42.2
Family and	24.8	27.2

friends		
Doctor	10.1	4.6
Cost of cigarettes	10.1	3.7
Personal choice	7.3	4.6
Smoking cessation advertisement	4.6	17.4
Pharmacists	4.6	0

¹ The values given above are based on total number of reasons NOT total number of respondents.

The majority of current smokers either did not use any method to assist in their smoking cessation attempt or used NRT (Table 3).

Heavy smokers were more likely to use pharmacotherapies (NRT, Zyban or Champix). Going 'cold turkey' (using no formal strategy) was the most common method (66.3%) of quitting smoking (Table 3). No support or 'cold turkey' was the most common method of smoking cessation in both male and female past smokers.

Table 3: Percentage of methods of attempting or quitting smoking¹

	Current smokers	Past smokers
No method	40.2	66.3
Nicotine replacement therapy	35.6	18.4
Zyban/Champix	13.8	6.1
Other	10.3	9.2

¹ The values given above are based on total number of methods NOT total number of respondents

Nineteen percent of current smokers sought help from other sources. The majority sought additional help and support from family and friends (30.8%). Other sources of help included doctors (23.1%), quitline (23.1%), hospital quit program (15.4%) and a hypnotherapist (7.7%).

Seventeen percent of past smokers sought help from other sources during their quit attempt. The other sources of support were very similar to those used by current smokers. The sources ranged from family and friends (33.7%), doctor (16.7%), quitline (22.2%) and hypnotherapist (5.6%).

Twenty-two of current smokers sought the advice of pharmacy staff during their quit attempt. Ninety percent of the advice offered by pharmacy staff was based on nicotine replacement therapy. The advice was centered on the type to use, the strength that is applicable for particular people and the side effects. Only one respondent listed encouragement by pharmacy staff as a form of advice. The majority of respondents (94.8%) were happy with the advice offered by pharmacy staff.

Four percent of past smokers sought help from pharmacy staff. The type of advice offered to respondents was similar to the advice given to current smokers, with most emphasis on the use of medications rather than encouragement and advice on how to manage the behavioural aspect of quitting. Of the people who did seek advice, 25% said they were very satisfied with the help given, 50% said they were just satisfied and the remaining 25% said they were not satisfied.

The majority of current smokers blamed stress (31.5%) and social situations (38.4%) as the reason for their inability to refrain from cigarettes. Social situations such as being around family and friends who smoke, social outings where there is alcohol involved and peer pressure from friends were all listed as reasons many respondents failed in their quit attempts (Table 4). There was no

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difference in the reasons between males and females ($p = 0.315$). For most (95%) respondents receiving more support, using medication, avoiding social situations that trigger cigarette cravings and learning how to handle stress without cigarette use are all factors that they believe would lead to a successful quit attempt.

Table 4: Reasons for unsuccessful quit attempt

Reason	Percentage
Social situations	38.4
Stress	31.5
Lack of willpower	13.7
Nicotine cravings	5.5
Lack of desire to quit	4.1
Medication side effects	4.1
Cost of medications	1.4
Weight gain	1.4

For some past smokers (29.8%), the social aspect of smoking was the most difficult aspect of quitting (Table 5). However for others (25.2%), it was the behavioural aspect of smoking that proved to be the most difficult. Breaking habits associated with cigarettes and finding a way to replace the hand action of cigarette smoking were all mentioned as part of the difficulties of abstaining from cigarette smoking. Nicotine cravings was more common in past smokers than current smokers, with 12.8% of past smokers reporting nicotine cravings as been the hardest component of quitting, compared with 5.5% of current smokers. Withdrawal symptoms (7.4%) such as depression and increased appetite also made the quitting process very difficult for some people.

Table 5: Most difficult aspect of quitting for Past smokers

Component	Percentage
Social situations	29.8
Behavioural	25.5
Nicotine cravings	12.8
Nothing	11.7
Making the decision to quit	8.5
Dealing with withdrawal symptoms	7.4
Stress	3.2
Side effects of medication	1.1

Past smokers were asked which factor or factors in their quit attempt led to their success. Support from friends and family (19.4%), having the determination and desire to quit (22.6%), use of medication (6.5%), willpower (9.7%), knowing the effects on health (14.0%), abstaining from behaviours that usually precede smoking (6.5%), desire to increase fitness (5.4%), desire to start a family (5.4%) were all reasons given.

DISCUSSION

The present study aimed to gather information on smoking cessation from members of the general population with a smoking history. The information gathered aimed to identify issues or factors that may need to be considered before the implementation of a pharmacy based smoking cessation program.

The present study examined the methods employed by both current and past smokers in smoking cessation and the factors that motivate smoking cessation.

The 48.3% current smoking prevalence self-reported in this study was higher than the current Australian levels. The most recent Australian Bureau of Statistics (ABS) data reports a current smoking prevalence of 20.1% with 32.8% of the population reported as past smokers [12]. The

differences between the current study and the population data may be due to several factors.

Firstly this study used a cross-sectional survey to specifically target those with a history of smoking therefore there was always an expectation that there would be a higher prevalence of smoking than in the entire Australian population.

Secondly this study did not use a standardized definition of smoking status. A commonly used definition is the consumption of 100 cigarettes in a lifetime. This criterion has been used to define smoking status in many studies including the data from the Australian Bureau of Statistics [12][13][14]. Therefore the proportion of past smokers would have been higher in this study when compared with the data from the ABS as respondents who smoked less than 100 cigarettes in their life may have classified themselves as past smokers. This definition of smoking status is not based on an increased risk of nicotine dependence or smoking related illnesses, but rather 100 was an arbitrary number chosen randomly as a method of standardization [13]. However it may be advisable to use this criterion for future studies as it allows for comparison with other studies within Australia and overseas.

The present study found that males and members of the younger population were more likely to be current smokers. The study found that members of the older population were more likely to be past smokers while current smokers were more commonly found within the younger population. The differences in prevalence rates between the younger population and older population has been previously linked to an increasing awareness of smoking related illness with advancing age. Due to this members of the older population are less likely to take up smoking and are also more willing to quit [15][16].

The majority of current smokers had made at least one attempt to quit smoking in the past. This finding is in accordance with previously reported finding [14][17][18][19]. Knowledge of the characteristics that determine whether a smoker will attempt to quit smoking may be useful for a pharmacy based smoking cessation program. However the present study did not find any differences between smokers who had a previous quit attempt and those who had not in relation to gender, current age, age of smoking initiation, number of cigarettes smoked daily, level of nicotine dependence and duration of smoking history.

These variables have all been previously identified as predictors of a smoking cessation attempt. Efforts to ascertain the determinants of smoking cessation attempt have produced inconsistent results. Some studies have identified gender as a factor in smokers attempting to quit with females being more likely to make a quit attempt [20] while others have found no such association [21].

As previously mentioned the present study did not identify any predictors of smoking cessation attempt however in a healthcare setting such as a pharmacy regardless of whether a smoker is likely to attempt to quit or is unwilling, pharmacists need to alert patients to the risks associated with smoking and strategies available to quit. Nonetheless knowledge of the type of person who is likely to make a quit attempt or not may help pharmacist or pharmacy assistant to direct smoking cessation counseling. A person who is identified as not being likely to make quit attempt may be counseled on the benefits of quitting and the health effects of smoking. While someone motivated to

Sarah et.al/Smoking Cessation And The Pharmacy: What Are The Issues That Need To Be Addressed Before The Implementation Of An Intensive Pharmacy Based Smoking Cessation Program? A General Population Perspective.

quit may be counseled on the methods that are available to aid smoking cessation. Therefore this is an area which may benefit from further research.

One of the objectives of the current study was to identify the factors that motivate smokers to quit smoking. This study analysed this variable across both current and past smokers. Understanding the motivation behind a smoker's attempt to quit is needed to foster a successful smoking cessation program, as it directs those strategies that may be needed to motivate smokers to quit [22].

The present study found that for both current and past smokers, health status was the most common motivator of smoking cessation. Health status included concerns about the effects of smoking on present health as well as on future health.

Health status has been identified in a number of studies as the primary motive for quit attempts [22][23][24][18]. A review article by McCaul et al (2006) found that for both current and past smokers, concern about current or future health was the strongest motivator for a smoking cessation attempt. The review consisted of 15 retrospective reports of ex-smokers, 14 cross-sectional surveys of current smokers and 6 prospective studies of smokers in cessation studies.

The present study adds to the importance of knowledge of the effects of smoking in regards to smoking cessation interventions. Healthcare professionals must emphasize the health issues of smoking opportunistically in interaction with patients, even if they feel it is already known. The combination of healthcare professionals position of trust in the community and the proven association of health concerns with smoking cessation attempt, places healthcare professionals in a prime position to significantly motivate and assist smokers to quit [6][8].

The methods used by smokers to quit smoking may have a significant impact on their success in quitting. Studies have consistently shown that some methods of smoking cessation assistance such as behavioural therapy or the pharmacotherapies can increase success rates in smoking cessation [25][18][26]. However the present study found that both current and past smokers are more likely to use no method in their quitting process. The study also found current smokers to be the more likely to use some form of smoking cessation assistance. This supports the findings of previous studies which have also shown that most smokers use no method of support during their smoking cessation attempts [17][27][23][25][18][26].

The low adoption of smoking cessation assistance is of concern in a healthcare setting, as many smokers may be unnecessarily reducing their chances of quitting successfully. The low adoption of smoking cessation assistance may be due to three reasons.

Firstly a lack of knowledge of the availability and use of smoking cessation aids may lead smokers to attempt to quit on their own. This was shown in a study by Hammond, McDonald, Fong & Borland (2004). The study found that twenty-four percent of respondents were unable to recall a type of smoking cessation assistance. Eighty-seven percent of respondents wanted additional information on where to get help on smoking cessation and eighty-six percent wanted information on how to quit [28]. This once again shows unmet need and the importance of healthcare professionals such as pharmacists in providing evidence-based smoking cessation assistance. Provision of

information on the types of smoking cessation assistance that are available to smokers may lead to a greater adoption of smoking cessation aids and a greater chance of successfully quitting.

Secondly the low adoption of smoking cessation assistance may be due to the smoker's perception of a low chance of successfully quitting with smoking cessation aids. Many smokers claim to have greater chance of successfully quitting on their own [29]. This was also found in the study of Hammond et al (2004), where seventy-eight percent of the respondents believed that they are just as likely to quit on their own, even without smoking cessation assistance [28]. The contrasts the current evidence that the use of pharmacotherapies such as NRT, Champix or Zyban doubles a person chances of quitting successfully [6][18]. The misconception in regards to smoking cessation assistance needs to be addressed. This can be achieved by pharmacists emphasizing the higher chances of successfully quitting with smoking cessation aids. For a pharmacy based smoking cessation program, counseling on the effectiveness of smoking cessation assistance should be integrated into the consultation with patients.

Thirdly smokers may be deterred by the cost of smoking cessation aids such as NRT and the prescription medications. This was shown in the study by Gross et al (2008) which found that one quarter of smokers did not use smoking cessation assistance because they felt they were too expensive [29]. However as of February 2011, nicotine patches have been placed on the Pharmaceutical Benefits Scheme (PBS). Nicotine patches are now listed on the PBS as a smoking cessation aid for people who are also part of support and counseling program [30]. Nicotine patches are available on an authority prescription and a maximum of 12 weeks of nicotine patches are subsidized per year. Thus far only the nicotine patches are available on the PBS. Although there has been no formal data on whether this listing has reduced smoking prevalence in Australia or at least increased the uptake of smoking cessation assistance, this listing makes NRT even more affordable and could encourage greater use of smoking cessation assistance.

This study found that most people who have successfully quit smoking did so without using any formal smoking cessation assistance. This was also found in previous studies [18][27]. Fiore et al (1990) linked the success of past smokers to the fact that those who use smoking cessation assistance tend to be heavier smokers, and since heavier smoking is linked to greater nicotine dependence, these people already have a reduced chance of successfully quitting even before they attempt to quit. The present study did not however find heavier smoking to be associated with a less successful smoking cessation attempt, although the study did find that current smokers who were heavier smokers were more likely to use NRT, Zyban or Champix. It could also be that many of the surveyed past smokers may have stopped smoking before the widespread use of NRT, Champix or Zyban which are relatively recent support medications.

A low proportion of smokers were found to seek the advice of pharmacy staff during their quit attempts. Only twenty-two percent of current smokers and four percent of past smokers sought the advice of pharmacy staff during their quit attempt. Smokers may not perceive pharmacy staff as a source of smoking cessation advice. This may be a role smokers associate with other healthcare

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professionals such as general practitioners. However previous research has found that patients do perceive the pharmacy as a convenient venue for smoking cessation counseling [31][32]. Therefore it is up to pharmacy staff to promote the potential for smoking cessation counseling in the pharmacy by identifying the smoking status of patients, being well trained as to useful pharmacotherapeutic options and non-pharmacological options including counseling and stress management.

One of the biggest issues in smoking cessation is the high rate of relapse among smokers. The factors that cause current smokers to relapse in this study were in accordance with those that have been identified by past research [33][20][34]. The most identified factors were stress and social situations. Social situations such as being around family and friends who smoke, social outings where alcohol is freely available or heavily consumed and peer pressure from friends have all been previously found to lead to relapse in smokers attempting to quit [33][20][34]. Although weight gain has been found to cause relapse in some smokers, particularly females [35] only a small percentage of respondents listed weight gain as a reason for their relapse. This was also found in a study on smoking cessation attempt and relapse. Zhou et al (2009) found that weight gain was not significantly related to relapse.

There has been significant research to identify the predictors of smoking cessation [36][37][15][38]. However there are still no clear indications of what factors determine whether a smoker will successfully abstain from smoking. Some studies report male gender, lower levels of daily cigarette smoking, and lower nicotine dependence as predictors of a successful quit attempt [37][15]. However other studies have also found no relation with gender, amount of daily cigarette consumption or level of nicotine dependence [38][20].

This study did not find any differences between current smokers and past smokers in relation to age of smoking initiation, smoking history and cigarette consumption. The lack of differences between past smokers and current smokers does not diminish the purpose of this study; it actually shows that most smokers can quit, regardless of their level of nicotine dependence, number of daily cigarettes or duration of smoking history.

This apparent lack of difference between past and current smokers could represent a positive outcome. Since there is no difference between current and past smokers in terms of their smoking behaviour, the only difference between past smokers and current smokers may be their desire or motivation to quit. When asked what led to their success in abstaining from smoking, most past smokers identified strong desire to quit as well as the support from their family and friends as the biggest factors in their success. This is not surprising as family and friends have consistently been identified as having a strong influence on the smoking cessation attempt of smokers [22][24]. Encouragement of family and friends support could enhance the chances of a successful smoking cessation attempt in many smokers. This could be employed in a pharmacy based smoking cessation program. The patient may nominate a friend or family member as part of a support network; the chosen person may then accompany the patient to their smoking cessation consultation.

LIMITATIONS OF THE STUDY

There are several limitations to this study. The self-reported answers provided by respondents could be subjected to recall bias [39]. The assumption is that respondents only provided accurate responses. However since the data collected is based on memory particularly for the surveyed past smokers, respondents may have overstated or understated the findings. Also there may be some bias in the recruitment of participants particularly in the Orange sample. The uptake of participants through family and friends may have cause bias in the sample. The population sample was relatively smaller than those obtained in previous research. This makes it more difficult to compare the findings of this study with previous research. However it must be noted that the response rate obtained in this study was quite high, at just over fifty percent.

CONCLUSION

There are a number of factors that need to be considered before the implementation of a pharmacy based smoking cessation program. The study found that a low proportion of smokers seek the help of pharmacy staff when quitting or attempting to quit smoking. This is a major concern as even though pharmacists have better access to the general population than most healthcare professionals, patients are still not aware of the help and resources that pharmacists can deliver. Patients need to view the pharmacy as a credible source of smoking cessation intervention before there is any chance of a pharmacy based smoking cessation program. Furthermore a pharmacy based smoking cessation program should consistently outline the harmful effects of smoking on an individual's health. The inclusion of family and friends in the smoking cessation consultation should also be considered as support from family and friends have been identified by past smokers as essential to their successful smoking cessation attempt.

REFERENCES

1. McRitchie D. Quit smoking for life. Marrickville NSW: Elsevier Australia; 2007.
2. Australian Bureau of Statistics. Australian Social Trends 1994: Health Risk factors (Internet). Canberra Australia: 1994 (updated 9 May 2006, cited 31 October 2009). Available from <http://www.abs.gov.au/ausstats/abs@.nsf/2f762f95845417aeca25706c00834efa/597fab560b3ef4b7ca2570ec00785dc3!OpenDocument>
3. Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD. The burden of disease and injury in Australia 2003. Australian Institute of Health and Welfare, 25 May 2007. Cat.No PHE 82.
4. Wu P, Wilson K, Dimoulas P, Mills EJ. Effectiveness of smoking cessation therapies: a systematic review and meta-analysis. *Biomed Central Public Health*. 2006;6(300).
5. Keating GM, Lyseng-Williamson KA. Varenicline: a pharmacoeconomic review of its use as an aid to smoking cessation. *Pharmacoeconomics*. 2010; 28(3): 231-254.
6. Miller M, Wood L. Effectiveness of smoking cessation interventions: review of evidence and implications for best practice in Australian health care settings. *Australian and New Zealand Journal of Public Health*. 2003; 27(3): 300-309.

Sarah et.al/Smoking Cessation And The Pharmacy: What Are The Issues That Need To Be Addressed Before The Implementation Of An Intensive Pharmacy Based Smoking Cessation Program? A General Population Perspective.

7. Maguire TA, McElnay JC, Drummond A. A randomized controlled trial of a smoking cessation intervention based in community pharmacies. *Addiction*. 2001; 96:325-331.
8. Costello MJ, Sproule B, Victor JC, Leatherdale ST, Zawertailo L, Selby P. Effectiveness of pharmacist counseling combined with nicotine replacement therapy: a pragmatic randomized trial with 6,987 smokers. *Cancer Causes Control*. 2011; 22: 167-180.
9. Dent L A, Harris KJ, Noonan CW. Randomized trial assessing the effectiveness of a pharmacist-delivered program for smoking cessation. *Annals of Pharmacotherapy*. 2009; 43(2):194-201.
10. Sinclair HK, Bond CM, Stead LF. Community pharmacy personnel interventions for smoking cessation. *Cochrane Database of Systematic Reviews*. 2004;1.
11. Australian Institute of Health and Welfare. National Health data Dictionary Version 12 including Version 12 Supplement. Australian Institute of Health and Welfare, 2004. Cat. No. HW173
12. Australian Bureau of Statistics. National Health Survey 2007-08: Summary of Results (Internet). Canberra Australia: 11 May 2009 (updated 24 November 2010, cited October 2009). Available from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4364.0/>
13. Bondy S, Victor J, Diemert L. Origin and use of the 100 cigarette criterion in tobacco surveys. *Tobacco Control*. 2009; 18: 317-323.
14. Davila EP, Zhao W, Byrne M, Webb M, Huang Y, Arheart K, Dietz N, Caban-Martinez A, Parker D, Lee DJ. Correlates of smoking quit attempts: Florida Tobacco Callback Survey 2007. *Tobacco Induced Disease*. 2009;5(1):10.
15. Khuder SA, Dayal, HH, Mutgi AB. Age at smoking initiation and its effect on smoking cessation. *Addictive Behaviors*. 1999; 24(5): 673-677.
16. Scollo MM, Winstanley. *Tobacco in Australia: Facts and Issues* (Internet). Melbourne: Cancer Council Victoria; 2008 (cited 9 October 2010). Available from: <http://www.tobaccoinaustralia.org.au>.
17. Doran CM, Valenti L, Robinson M, Britt H, Mattick RP. Smoking status of Australian general practice patients and their attempts to quit. *Addictive Behaviors*. 2006; 31:758-766.
18. Yeomans K, Payne KA, Marton JP, Merikle EP, Proskorovsky I, Zou KH, Li Q. Smoking, smoking cessation and smoking relapse patterns: a web-based survey of current and former smokers in the US. *Int J Clin Pract*. 2011; 65(10): 1043-1054.
19. Vangeli E, Stapleton J, Smit ES, Borland R, West R. Predictors of attempts to stop smoking and their success in adult general population samples: a systematic review. *Addiction*. 2011; 106: 2110-2121.
20. Zhou X, Nonnemaker J, Sherril B, Gilsenan AW, Coste F, West R. Attempts to quit smoking and relapse: factors associated with success or failure from the attempt cohort study. *Addictive Behaviors*. 2009; 34: 365-373.
21. Ladwig KH, Baumert J, Lowel H, Doring A, Wichmann HE. Contemplating to quit current smoking status: differences in behavioural and psychosocial patterns in a population-based cohort of current smokers. *Preventive Medicine*. 2005; 41:134-140.
22. McCaul KD, Hockemeyer JR, Johnson RJ, Zetocha K, Quinlan K, Glasgow RE. Motivation to quit using cigarettes: a review. *Addictive Behaviors*. 2006;31:42-56.
23. Sieminska A, Buczkowski K, Jassem E, Lewandowska K, Ucinska R, Chelminska M. Patterns of motivations and ways of quitting among Polish smokers: a questionnaire study. *Biomed Central Public Health*. 2008; 8(274).
24. West R, McEwen A, Bolling K, Owen L. Smoking cessation and smoking patterns in the general population: a 1 year follow-up. *Addiction*. 2001; 96:891-902.
25. Zhu SH, Sun J, Rosbrook B, Pierce JP. Smoking cessation with and without assistance: A population based analysis. *American Journal of Preventive Medicine*. 2000;18(4):305-311.
26. Westmaas JL, Abroms L, Bontemps-Jones J, Bauer JE, Bade J. Using the internet to understand smokers' treatment preferences: informing strategies to increase demand. *J Med Internet Res*. 2011; 13(3):58.
27. Fiore MC, Novotny TE, Pierce JP, Giovino GA, Hatziandreu EJ, Newcomb PA, Surawicz TS, Davis RM. Methods Used to Quit Smoking in the United States: Do cessation programs help?. *Journal of American Medical Association*. 1990; 263(20): 2760-2765.
28. Hammond D, McDonald PW, Fong GT, Borland R. Do smokers know how to quit? knowledge and perceived effectiveness of cessation assistance as predictors of cessation behaviour. *Addiction*. 2004; 99 (8):1042-1048.
29. Gross B, Brose L, Schumann A, Ulbricht S, Meyer C, Volzke H, Rumpf HJ, John U. Reasons for not using smoking cessation aids. *Biomed Central Public Health*. 2008; 8(129).
30. National Prescribing Service Limited. Nicotine patches(Nicabate P, Nicorette, Nicotinell Step 1) for smoking cessation(Internet). National Prescribing Service Limited; 1 February 2011(updated 23 February 2011; cited October 2011). Available from: http://www.nps.org.au/health_professionals/publications/nps_radar/2011/february_2011/nicotine_patches
31. Hudmon KS, Hemberger KK, Corelli RL, Kroon LA, AV Prokhorov. The pharmacist's role in smoking cessation counseling: perceptions of users of nonprescription nicotine replacement therapy. *Journal of the American Pharmaceutical Association*. 2003; 43: 573-582.
32. Bock BC, Hudmon KS, Christian J, Graham AL, Bock FR. A tailored intervention to support pharmacy-based counseling for smoking cessation. *Nicotine and Tobacco Research*; 2010; 12(3): 217-225

Sarah et.al/Smoking Cessation And The Pharmacy: What Are The Issues That Need To Be Addressed Before The Implementation Of An Intensive Pharmacy Based Smoking Cessation Program? A General Population Perspective.

33. Jarvis M J. Why people smoke. *British Medical Journal*. 2004; 328: 277-279.
34. Yang T, Fisher KJ, Li F, Danaher BG. Attitudes to smoking cessation and triggers to relapse among Chinese male smokers. *BMC Public Health*. 2006; 6(65).
35. Aubin H.-J, Berlin I, Smadja E, West R. Factors associated with higher body mass index, weight concern and weight gain in a multinational cohort study of smokers intending to quit. *International Journal of Environmental Research and Public Health*. 2009; 6: 943-957.
36. Godtfredsen NS, Prescott E, Osler M, Vestbo J. Predictors of smoking reduction and cessation in a cohort of Danish moderate and heavy smokers. *Preventative Medicine*. 2001; 33: 46-52.
37. Hymowitz N, Cummings KM, Hyland A, Lynn WR, Pechacek TF, Hartwell TD. Predictors of smoking cessation in a cohort of adult smokers followed for five years. *Tobacco Control*. 1997; 6(2):57-62.
38. Matheny KB, Weatherman KE. Predictors of smoking cessation and maintenance. *Journal of Clinical Psychology*. 1998; 54(2): 223-235.
39. Hassan E. Recall bias can be a threat to retrospective and prospective research designs. *The Internet Journal of Epidemiology*. 2006; 3(2).