Smoking prevalence, attitudes and beliefs of female nursing students at the University of the Sunshine Coast (2012)

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Declaration of Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: 

Date: 22/01/13
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Dedication

I dedicate this to Cathy, Josh and Madeleine for your patience and support.
Abstract

This study was undertaken as a cross-sectional survey to analyse the smoking prevalence, attitudes and beliefs among 385 female nursing students at the University of the Sunshine Coast (response rate: 82.5%). An anonymous, self-reporting questionnaire was used to collect the data. The overall prevalence of current smoking was 18.2%, with a further 15.6% classified as ex-smokers. The smoking prevalence among nursing students was higher than the general population. The limited smoking-related content in the nursing curriculum appeared to have minimal effect on the smoking prevalence, attitudes and beliefs of the students in each year of study. The smoking status of the students may have an influence on the students’ attitudes and beliefs towards the role of nurses in smoking cessation and their perceptions of smoking policy. A large proportion of the nursing students supported either a total ban of smoking on campus or a restriction to designated areas. The study results suggested that smoking remained a common behaviour among nursing students. Smokers were less likely to perceive there was a role for nurses in helping people quit smoking. A more comprehensive integration of smoking-related content and health promotion training into the nursing curriculum, along with targeted cessation interventions for nursing students who smoked may decrease the smoking prevalence and positively influence the attitudes and beliefs of nursing students.

Key words: cross-sectional, nursing student, smoking, tobacco, nursing curriculum
Chapter 1: Introduction

This chapter is divided into two subsections. First, a literature-based background on the prevalence of smoking among nursing students and its implications for nursing practice in smoking cessation is provided. Based on this background, an overview of this study is described. Second, the significance of this study to research related to smoking among nursing students, their attitudes and beliefs towards smoking, and their perceptions of curriculum items related to smoking is discussed.

Background and overview of the research

Previous research among nurses and nursing students has shown the provision of smoking-related counselling, advice and treatment to be sub-optimal (Chalmers, Seguire, & Brown, 2002; Nagle, Schofield, & Redman, 1999). Recommendations and guidelines from the peak bodies for nurses suggest that either opportunistic or formal smoking cessation counselling or advice should be offered to all patients who smoke (Board of Directors of Royal College of Nursing, 2005; International Council of Nurses, 2006). The guidelines recommend the assessment of a patient’s smoking behaviours and where possible, the provision of advice and counselling. The guidelines emphasise the significant role that nurses can perform in tobacco control by providing health education, prevention and cessation advice. The ability and opportunity for nurses to apply these guidelines has been limited by a lack of knowledge, skills and confidence in relation to smoking cessation.

Nurses have been increasingly expected to perform health promotion functions as either core duties or as part of their role (Casey, 2007). However, many nurses were placed in health promotion roles, such as conducting smoking cessation interventions for patients and clients, with limited or no prior training (Barta & Stacy, 2005). There may have been a lack of negotiation with nurses to foster a willingness to perform the new role. This may have led to ambivalence by nurses about the role (Casey, 2007). Nurses may have understood the importance of health promotion to enhance a patient’s health and wellbeing. However, there may have been a perception of an overloading of the role and a lack of adequate training in the skills necessary to perform a health promotion role (Casey, 2007). Nurses may not have had specific knowledge of behaviour change theory, had sufficient time allocated to
incorporate the new role and generally believed that the role change was being imposed from the top down.

To adequately prepare nursing students for a potential future role in health promotion, including smoking cessation, it may be appropriate to integrate training in health promotion and behaviour change theory. There may be opportunities for greater collaboration between nursing, public health and health promotion disciplines within universities to facilitate integrated health promotion training. At USC, there is the potential to build on the close connections that already exist between faculty members within these disciplines to explore integrated curriculum development.

The research literature has also shown that the smoking prevalence among nurses and nursing students is higher than among other health professionals and the general population (Blake, Malik, Mo, & Pisano, 2011). Research has also suggested a link between the smoking status of nurses and their willingness to offer smoking cessation advice to patients (Berkelmans, Burton, Page, & Worrall-Carter, 2011). As nursing students will play an important role in smoking prevention and cessation as part of their future professional practice, it is essential that they have adequate training and the ability to provide smoking cessation treatment to their patients (Molina et al., 2011).

The reported prevalence of smoking among Australian nursing students has varied over time in the few studies on this topic. Smith and Leggat (2007a) conducted a cross-sectional survey of tobacco smoking habits among nursing students and found a smoking prevalence of 15.9%. More recently Walsh, Cholowski, Tzelepis, and Stojanovski (2012) reported a smoking prevalence of 21%. Two earlier studies conducted surveys of second and third year nursing students and both found that 24% of students were current smokers (Clark, McCann, Rowe, & Lazenbatt, 2004; McCann, Clark, & Rowe, 2005).

The smoking prevalence in Australia is declining, with 16.3% of the general population reported as current daily smokers in 2011-12 (ABS, 2012), down from 21% in 2004-05 (Australian Institute of Health and Welfare, 2012). Despite perceptions that smoking is becoming more prevalent among young women in Australia, between 2001 and 2011-12, females aged between 18 and 44 years had the largest decreases in smoking. In the 18-24 age category, smoking rates decreased from around 27% in 2001 to 17.1% in 2011-12 (ABS, 2012). However, there was almost no change in smoking rates over this same time period for
females aged 45 years and over (ABS, 2012). The prevalence of smoking in Queensland has
decreased markedly over the past decade. In 2012, 14.3% of Queensland adults reported
smoking daily, a reduction from 22.1% in 2001. This represented about 10,000 fewer
smokers per year over this time period. However, smoking currently causes 1 in 7 deaths in
Queensland (Queensland Health, 2012). The state had historically recorded higher smoking
rates compared to the Australian average, but the smoking rate for Queensland has now fallen
below the national rate. If the current trend continues in Queensland, the smoking prevalence
is expected to be about 10% in 2017 (Queensland Health, 2012). Previous studies of nursing
students in Australia have found that the students smoke at higher or similar levels to the
general population. This study explored if this higher smoking prevalence than the general
public existed among USC nursing students. A complete cross-sectional survey was used to
take a snapshot of nursing students’ smoking habits, compared to the general population data
for the Sunshine Coast, Queensland and Australia.

The study attempted to obtain data for the entire group of nursing students and
stratified the data into year of study and by smoking status. This allowed the research to
explore if any differences existed between yearly cohorts and by smoking status, and the
possible reasons for the differences. The study established the smoking prevalence for
cohorts of first, second and third year nursing students. The study explored the nursing
students’ attitudes and beliefs towards smoking. It also explored what elements related to
smoking were in the nursing curriculum and any possible influence these elements had on the
students’ attitudes and beliefs.

**Significance of the research**

A nursing student’s attitude towards the role of nursing in tobacco control may be
negatively influenced by their own smoking behaviour (Sejr & Osler, 2002). Therefore,
smoking prevention and cessation among nursing students will have an effect on their
attitudes, and beliefs towards tobacco control. This will indirectly benefit their patients
(Molina et al., 2011). Students of nursing who smoke are not likely to function optimally as
health role models. Findings from the research may have implications for smoking cessation
curriculum, training and interventions and for university smoking policies. A better
understanding of the smoking prevalence, attitudes and beliefs of USC nursing students will
also enable tailored cessation programs to be developed.
This study was unique because it was the first to attempt a cross-sectional study of the entire USC nursing student cohort. There has been limited research on smoking using a complete cross-sectional survey as the study design. A review of the literature found only two complete cross-sectional surveys of the smoking habits of nursing students at Australian universities (Smith & Leggat, 2007a; Walsh et al., 2012). An international review of smoking research found that the most accurate ‘snapshot’ of tobacco smoking prevalence was obtained by complete cross-sectional studies (Smith & Leggat, 2007b). The two previous studies were relatively successful in attempting to survey the entire cohort of nursing student at the two Australian universities with response rates of 84.6% and 68% respectively (Smith & Leggat, 2007a; Walsh et al., 2012). This study has added to the existing research on the smoking habits of nursing students, and explored if the declining smoking prevalence in the general population was reflected in the current cohort of USC nursing students. The study was conducted at a regional Australian university where almost half of the students were the first in their family to attend university. In 2012, 49% of USC students were in this category.

**Theoretical background**

The Theory of Planned Behaviour (Ajzen, 1991) and the Trans-theoretical Model of Change (Diclemente et al., 1991) are theories that underpin the research questions for this study (see Figures 1 and 2). These theories are based on the construct that a person’s attitudes and beliefs, along with the attitudes and beliefs of society, influence their intentions and behaviours. Theories which explain health behaviour support the likelihood of such a change in attitudes and beliefs. The Theory of Planned Behaviour (TPB) suggests personal attitudes, societal norms and an individual’s perceived behavioural control (PBC) predict the intention to perform a behaviour, which then determines actual behaviour (Ajzen, 1991). TPB may be applied to explain nursing students’ smoking or non-smoking behaviours. The study participants’ beliefs, attitudes and perceptions of friends and family’s attitudes and beliefs (norms) to smoking may be associated with the nursing student’s smoking or non-smoking behaviour. The theory may also explain the students’ willingness to engage in health promotion, such as smoking cessation programs, with their patients or clients. A nursing student’s intention to provide smoking cessation advice may be influenced by a combination of their attitudes, beliefs, norms and PBC (confidence) in performing that role, or behaviour (Ajzen, 1991).
The Trans-theoretical Model of Change (TTM) outlines the five stages of change for an individual’s behaviours: Pre-contemplation, Contemplation, Preparation, Action and Maintenance (Diclemente et al., 1991). The TTM suggests a smoker’s knowledge, attitudes and beliefs about smoking are associated with the stages of change. The TPB suggests that if an individual acquires knowledge, this will influence their perceptions and result in a change in behaviour. The TTM helps to explain why this behaviour change does not automatically occur for every individual. Applied to smoking cessation, each stage of the TTM represents a smoker’s intentions and behaviours (Prochaska, Teherani, & Hauer, 2007). In the pre-contemplation stage, the smoker has no intention to quit in the next 6 months. In the contemplation stage, smokers intend to quit, but not in the next 30 days. A smoker in the preparation stage has made at least one quit attempt in the previous twelve months and intends to quit in the next 30 days. Smokers in the action stage have quit smoking for less than 6 months and in the maintenance stage, the person has not smoked for more than 6 months (Prochaska et al., 2007).

For nursing students who smoke, the TPB suggests increased knowledge of the dangers of smoking, the benefits of quitting and skills in smoking cessation techniques may influence a positive change in attitudes and beliefs, leading to intentions to quit and quit attempts. The TTM conceptualises the nursing student’s readiness to quit, depending on which of the early stages of intention to quit the student is in, Pre-contemplation, Contemplation or Preparation (Prochaska et al., 2007). For all nursing students, from the perspective of the TPB, increased health knowledge, skills and training in specialised smoking cessation techniques may influence their attitudes and beliefs towards the role that nurses play in helping people to quit smoking. Gaining competence in smoking cessation techniques may increase a student’s perceived behavioural control (Diclemente et al., 1991). From a TTM perspective, having the required skills in smoking cessation and a positive attitude and belief in the role of a nurse in tobacco control may influence a nursing student’s stage of behaviour change, making the student more willing to engage in tobacco control as a nurse (Prochaska et al., 2007). The questionnaire for this study includes items on nursing students’ attitudes and beliefs in relation to smoking, elements of the nursing curriculum and the perceived role of nursing in smoking prevention and cessation.
Figure 1.1: The Theory of Planned Behaviour
(Adapted from Ajzen, 1991)

Figure 1.2: The Trans-theoretical Model of Change
(Adapted from DiClemente et al., 1991)
The reasons why a nursing student continues to smoke may be explained by cognitive dissonance. This is an emotional state resulting from an individual having beliefs which are inconsistent with each other (Festinger, 1957). In relation to smoking, an individual may believe that smoking is harmful to their health, but also believe that smoking helps with weight loss. A person may know that particular behaviours, such as smoking, are detrimental to their health and wellbeing, but they continue with this behaviour. This concept has been explored in a previous study of Australian nursing students (Clark, McCann, Rowe, & Lazenbatt, 2004). Individuals have a need to maintain consistency in their beliefs. A state of dissonance occurs when there is conflict between beliefs (Festinger, 1957). An individual may attempt to decrease the dissonance by ignoring or avoiding information that adds to the conflict. Smokers may ignore or avoid health warnings on the dangers of smoking to decrease the conflict in beliefs. This theory suggests that to change behaviour (quit smoking) and restore consistency in beliefs, a smoker must believe that the benefits of quitting are greater than those gained from continuing to smoke.

As with the general population, many nursing students are already aware of the health risks associated with smoking. There has been greater emphasis over the last decade on the use of evidence-based cessation interventions by health professionals to help patients quit smoking (Fiore, 2008). This has emphasised the role of nurses in smoking cessation. Over the same period of time, smoking has become less socially accepted, with greater restrictions on where and when cigarettes can be sold or consumed. This includes the restriction on smoking on university and hospital campuses. These factors may influence nursing students’ attitudes and beliefs about smoking.

The study used this theoretical background of health behaviour change to describe the smoking prevalence, the reasons for smoking and the perceptions of the role of nursing in tobacco control among the female USC nursing students. The study also explored differences between the years of study to examine the potential for any link to a change in attitudes and beliefs towards smoking and the role of nursing in providing smoking cessation advice to patients. Differences in attitudes and beliefs were also explored based on the smoking status of the students. This study combines a description of the smoking prevalence, attitudes and beliefs of nursing students with the students’ perceptions of smoking-related items in the nursing curriculum.
Chapter 2: Literature Review

Smoking related illnesses are the second largest cause of mortality in the world, accounting for one in ten adult deaths each year (World Health Organisation, 2008). The focus on smoking cessation is a priority for health services around the world in general and in Australia in particular. With an 18.1% prevalence of current smokers, 16.3% of whom smoke daily (ABS, 2012), smoking remains the single largest cause of preventable illness in Australia (Berkelmans et al., 2011). As the largest group of healthcare professionals, and the first point of contact for many patients, nurses have a vital role to play in health promotion initiatives in Australia, including smoking cessation (Smith & Leggat, 2007b). Nurses are role models to health consumers and are trusted sources for health education and smoking cessation advice (Clark et al., 2004). As such they are an appropriate source for opportunistic provision of smoking cessation advice using evidence-based guidelines (Australian Department of Health and Ageing, 2004; World Health Organisation, 2008).

There is a role for nursing students and nurses in providing advice and support for smoking cessation. Rice and Stead (2008) found that nurses can be effective in increasing the likelihood of their patients’ smoking cessation. However, there has been some difficulty in the integration of smoking cessation advice into routine nursing practice. It is recognised that the nursing curriculum should include material to cultivate knowledge, skills and a sense of responsibility among nurses in regards to smoking cessation (Chan, Sarna, & Danao, 2008). Yet, there are no studies in Australia that simultaneously assess the smoking behaviour and attitudes of nursing students in tertiary education and their perception of smoking-related curriculum elements. This is in contrast with studies of smoking-related curriculum from the United States and reveals a gap in Australian research and knowledge relevant to this field (Lowe, Aquilino, & Abramsohn, 2007).

Research suggests that nursing students’ smoking attitudes and habits during their university training may affect their future smoking cessation practice (Baron-Epel, Josephsohn, & Ehrenfeld, 2004). In particular, studies have found that nursing students who smoke are less likely to offer smoking cessation advice to patients (Berkelmans et al., 2011). There is a documented need to better understand smoking prevalence, attitudes and beliefs of nursing students (Smith, 2007). This can justify more comprehensive education on smoking
related health risks and smoking cessation training during their undergraduate studies (Smith & Leggat, 2007).

**Australian nurses**

There has been limited research into the smoking prevalence of Australian nurses. Smoking amongst nurses in Australia declined from 53% in 1976 (Kirkby, 1976) to 21% in 1999 (Hughes & Rissel, 1999). A recent study of 1029 nurses in Victoria found a smoking prevalence of 11% (Berkelmans et al., 2011). There were two older studies identified in the literature, both from the 1990s, which described the smoking prevalence amongst Australian nurses. A survey conducted in 1997 of 610 randomly selected nurses from Sydney found the rate of current smokers to be 21% (Hughes & Rissel, 1999). Nagle et al. (1999) found a smoking prevalence of 22% from a sample of 388 nurses who worked at six hospitals in New South Wales in 1991.

**International nurses**

The smoking prevalence of nurses from different countries has been researched over recent decades. Surveys of nurses around the world have mostly shown higher rates of smoking prevalence than both other health professionals and the general population (Blake et al., 2011). The stress of the job was one of the main reasons given for why nurses smoke in many studies, but Rowe and Macleod Clark (2000) found that female nurses are subject to the same types of stresses as females in other occupations. Perdikaris, Kletsiou, Gymnopoulou, and Matziou’s (2010) review of the literature on the possible relationship between workplace stress and nurses’ smoking habits was inconclusive, as no evidence was found on whether the nurses’ workplace caused smoking initiation.

The smoking rate for nurses has declined over time in parallel with the decline in smoking in the general population in many countries. Edwards, Bowler, Atkinson and Wilson (2008) used data from the 2006 New Zealand Census to explore the smoking prevalence among nurses and doctors. The 2006 Census included data from 4197 female doctors and 32682 female nurses. This data was compared to previous censuses to examine the trends in smoking among nurses and doctors. The analysis of the data from successive censuses showed there has been an incremental reduction in smoking among doctors and
nurses. New Zealand nurses had decreased smoking rates from approximately 40% of female nurses in 1976 to 13% in 2006. By comparison, only 3% of female doctors were regular smokers in 2006 (Edwards et al., 2008). The authors of this descriptive study did not analyse why the smoking rate for nurses was higher than for doctors. However, similar comparisons with other health professions in the United States have also shown higher rates of smoking among nurses (Tong, Strouse, Hall, Kovac, & Schroeder, 2010; Sarna, Bialous, Sinha, Yang, & Wewers, 2010).

The United States has seen a decline in the smoking prevalence among nurses from 33.2% in 1976 to 8.4% in 2003 (Sarna, Bialous, Jun, Wewers, Cooley, & Feskanich, 2008). However, a national survey in the United States of different health professions found low smoking prevalence rates for each of the professions, except nursing (Tong et al., 2010). There were relatively low smoking rates for primary care physicians (1.7%), emergency medicine physicians (5.7%), psychiatrists (3.2%), dentists (5.8%), dental hygienists (5.3%) and pharmacists (4.4%). However, nurses had a much higher smoking prevalence of 13.1% (Tong et al., 2010). A similar study in the United States compared survey data on the smoking prevalence of nurses (divided into registered nurses and licensed practical nurses) and six other health professions: physicians, physician assistants, pharmacists, dentists, respiratory therapists, and dental hygienists (Sarna et al., 2010). The researchers found that the licensed practical nurses had the highest smoking prevalence (20.55%) among the health professions in the study. In the United States, a licensed practical nurse receives equivalent training and performs similar duties to that of an enrolled nurse in Australia. However, the university trained registered nurses had a relatively lower smoking prevalence of 10.73%, compared to the respiratory therapist (19.28%), physician’s assistants (12.18%) and dental hygienists (12.29%). The smoking rate for registered nurses was still considerably higher than the smoking prevalence for physicians (2.31%), dentists (3.01%) and pharmacists (3.25%). Sarna et al. (2010) noted that these smoking prevalence rates from a 2006 survey had not changed significantly from the rates recorded in the 2003 survey. However, the smoking rates across the health professions had declined over the past decades.

Similar declines have been reported among nurses in the UK from 40% in 1983 (Spencer, 1983) to 20% in 1993 (Hussain, Tjeder-Burton, Campbell, & Davies, 1993). The smoking prevalence among nurses in Canada has reduced from 32% in 1982 (Senior, 1982) to 12% in 2002 (Chalmers et al., 2002). More recent studies have suggested a relatively high
smoking rate among nurses has persisted in European and Asian countries, with a prevalence of 57% in Greece (Vagropoulos, 2006), 51% in Bosnia and Herzegovina (Hodgetts, 2004), 45% in Turkey (Sezer, Guler, & Sezer, 2007), 36% in Italy (Proietti, 2006), 24% in Japan (Suzuki, Ohida, Yokoyama, Kaneita, & Takemura, 2005) and 22% in Israel (Baron-Epel et al., 2004). However, the high rates among nurses reflect the smoking prevalence in the general population of these countries. In Eastern European and Asian countries, smoking remains socially accepted as part of the culture, with little restriction on the sale of smoking products or education on the dangers of smoking (Hodgetts, 2004; Susuzi et al., 2005). Restrictions on the sale of tobacco products, public health campaigns to discourage smoking and laws prohibiting tobacco advertising in Australia and other countries have contributed to a decline in smoking prevalence (Smith & Leggat, 2007a).

**Relevant studies of nursing students in other countries**

Cross-sectional studies have been conducted among nursing students in the USA (Najem, Passannante, & Foster, 1995; West & Hargreaves, 1995), in the UK (Carmichael & Cockcroft, 1990), in Italy (Boccoli, Federici, Melani, & DePaola, 1996), in Iran (Ahmadi, Maharloooy, & Alishahi, 2004), in Israel (Baron-Epel et al., 2004), in Greece (Krommydas, 2004); in Japan (Sekijima, Seki, & Suzuki, 2005; Suzuki et al., 2005), and in Malta (Cauchi & Mamo, 2012). These studies have shown considerable variability in the smoking prevalence for nursing students over time. High smoking rates were reported in Italy with 51% in one study (Boccoli et al., 1996), and 44.2% in a more recent survey (Biraghi & Tortorano, 2010), and 43% in a UK study (Carmichael & Cockcroft, 1990). Among a sample of Greek nursing students, 36% were reported as current smokers at the time of the study (Krommydas, 2004). A Spanish study reported 28.8% of nursing students as smokers (Fernandez, Martin, Molina, & De Luis, 2010). One Japanese study found a smoking prevalence of 24% (Suzuki et al., 2005). The researchers in this study noted that the smoking rate among the nursing students studied was higher than that of the general population of a similar age and gender profile. A survey of nursing students at a Spanish university reported a significant difference in smoking prevalence between first (19%) and third year (41%) students (Fernández García et al., 2007). The researchers found that the students in general lacked knowledge of smoking related illnesses and had negative attitudes and beliefs towards the role of nurses in smoking health promotion. The researchers concluded there was a need
for improved curricular content on smoking prevention and cessation (Fernández García et al., 2007).

The most recent study of nursing students from outside Australia found in the literature originated in Malta. Cauchi and Mamo (2012) used the Global Health Professions Student Survey (GHPSS) questionnaire to survey 78 nursing students, as part of a study of all third year students in four health disciplines in Malta. The study reported a smoking prevalence of 40.3% among the nursing students. This was considerably higher than among the 59 medical (14.3%) and 30 pharmacy students (13.3%), but lower than the smoking prevalence among the 6 dental students (60%). The number of participants in this study was small. However, the study sample (n = 211) represented the entire population of third year students from Malta for these four disciplines.

In addition to smoking prevalence, some of the studies have explored the attitudes, beliefs, confidence or self-efficacy of nursing students from other countries. Lenz (2008) studied nursing students’ beliefs about smoking and smoking cessation programs, their self-efficacy to offer smoking cessation advice to their patients, and perceived barriers and benefits to providing smoking cessation programs. Nursing students who smoked were less likely, compared to non-smoking nursing students, to believe that nurses should set a good example for their patients by not smoking. The students’ beliefs about smoking cessation and their self-efficacy in providing cessation programs were potential barriers to the nursing students’ intentions to incorporate smoking cessation into their future nursing role (Lenz, 2008).

Other international studies have also examined the influence of family and friends, as well as attitudes towards smoking. An Italian study analysed the influence of peer and family smoking behaviours on the tobacco smoking habits of nursing students (Biraghi & Tortorano, 2010). The researchers found that among the 44% of students who smoked, 75% had at least one smoking parent, 47% had at least one smoking sibling and 87% had friends who smoked. Baron-Epel, Josephsohn, and Ehrenfeld’s (2004) research from Israel studied nursing students’ perceptions of smoking prevention. The findings included that nursing students who had family or friends who smoke were less likely to engage in smoking prevention activities as part of their role as nurses. This research into peer and family influences on the smoking behaviours of nursing students is supported by research on the general population which
found that siblings had more of an influence on an individual’s intention and decision to smoke than parents. If the older sibling smoked, then the younger sibling was four times more likely to smoke. The researchers suggested that in relation to smoking, siblings took on more of a role model status than parents (Fagan & Najman, 2005).

**Australian nursing students**

Nursing students are the future nursing workforce for Australia. Tobacco smoking among nursing students is a cause of concern, because they will become the role models of healthy lifestyles for their patients (Biraghi & Tortorano, 2010). In their future practice, as nurses, they will be ideally placed to provide prevention and tobacco cessation education within the community. However, nursing students who smoked were less likely to give advice on the dangers of smoking to their patients (Berkelmans et al., 2011). The smoking behaviours displayed as nursing students may influence their future intentions to offer smoking cessation advice. Therefore, initiatives to lower the prevalence of smoking among nurses need to begin with a focus on nursing students (Smith & Leggat, 2007b). A better understanding of the tobacco smoking habits of nursing students will assist in addressing the need for effective smoking cessation initiatives for this group.

There have been some previous studies looking at the smoking behaviours of Australian nursing students. Adams (1994) researched the smoking habits of nursing and teaching students. In their study of third-year nursing students, a smoking rate of 45% of university-based and 65% of hospital-based nursing students was reported. However, the study did not differentiate between “past” or “present” smokers. Nagle, Schofield and Redman (1999) included some nursing students among the participants of their larger study of Australian hospital nurses. However, they did not specifically report on the smoking prevalence of the nursing students as a subgroup. Three studies used the data from the same survey of 366 second and third year nursing students. The smoking prevalence was reported as 24% overall, with 25% of the female students classified as current smokers (Clark & McCann, 2008; Clark et al., 2004; McCann et al., 2005). McCann et al.’s (2005) study also examined the nursing students’ attitudes toward smoking health promotion.

Clark and McCann (2008) found that peers and friends had an influence on both the smoking initiation and cessation of the nursing students. This influence was greater than that
of the nursing students’ parents. Having a friend who smokes was given as the main reason for starting smoking by 51% of the respondents, compared to only 4% who responded that having a parent who smokes was the main reason for smoking initiation. The intention to conform to the norms of peers and being part of a social group were more important predictors of smoking behaviour. The influence of peer norms on smoking behaviour is one element of the Theory of Planned Behaviour. Clark and McCann (2008) also found that most of the nursing students in the study were willing to quit smoking. Many had made more than one attempt to quit in the past. The willingness to quit, quit attempts and relapse are aligned with the contemplation, preparation, action and relapse stages of change from the Trans-theoretical Model. Clark and McCann’s (2008) study also identified stress as one of the main barriers to quitting.

A recent Australian study reported a smoking prevalence of 21% (Walsh et al., 2012). The cross-sectional study of 381 nursing students at an Australian university found no significant differences in the smoking rates between the different years of study, with 20.3% of first and second year students, and 22.4% of third year students reporting to be current smokers. The researchers also assessed attitudes and confidence levels about the students’ future role in smoking cessation. Students who were smokers had significantly higher confidence levels than non-smokers. Smith and Leggat (2007a) attempted the first complete cross-sectional survey of tobacco smoking habits among nursing students at an Australian university. The researchers found a smoking prevalence of 16%. There was a significant difference in the smoking rates of the first (around 14%), second (23.1%) and third (7.8%) year students. By comparison, a study of first and fifth year medical students at an Australian university reported low daily smoking rates (2.3% and 3.3% respectively) and the overall smoking rates were lower (11.8% and 13.7% respectively) than the rates reported in the studies of nursing students (Richmond & Kehoe, 1997). An international review of the smoking prevalence rates of medical students found relatively low rates of daily smoking in Australia, between 4% and 6%, in studies published between 1980 and 1997 (Smith & Leggat, 2007c). As with other countries, nursing students in Australia have reported higher smoking rates than other health professionals.

**The role of nurses in smoking cessation**

Nurses are the largest group of healthcare professionals, with 199,500 nurses and
midwives in Australia in 2008 (Australian Institute of Health and Welfare, 2012). They play a significant part as role models and trusted sources of health information for patients (Moyle et al., 2010). Some studies have looked at how nurses or nursing students’ beliefs about smoking affect their view about the professional role in promoting smoking cessation (Lenz, 2008; Sofia, Jose, Pedro, & Luis, 2011). Barta and Stacey (2005) have stated three main reasons why nurses should participate in smoking cessation interventions for their patients. First, nurses are the largest group of health professionals and have a significant role in providing health information, including smoking cessation. Second, nurses are well respected as trusted sources for health advice and have more contact with hospital patients than any other health professional group. Therefore, nurses have more opportunities to discuss and assess the smoking habits of patients and provide smoking cessation counselling. Third, as many smokers attend hospital each year as either inpatients or outpatients, nurses have the opportunity to reach a large population of smokers in hospital by providing smoking cessation programs (Barta & Stacy, 2005).

However, Barta and Stacy’s (2005) research also identified many reasons why nurses are not adequately prepared to provide smoking cessation programs. Lack of time and confidence, limited knowledge and specific training, and insufficient skills are potential barriers to nurses performing a smoking cessation role (Barta & Stacy, 2005). Lenz (2008) found that nurses who smoked were less likely than non-smokers to perceive that there is a role for nurses in providing smoking cessation programs. Radsma and Bottorff (2009) researched the perceived contradictions of the professional role of nurses to support patients to quit smoking and the personal smoking habits of nurses. The study found that nurses who smoked used strategies, such as indifference and evasion, to counteract their personal ambivalence towards providing smoking cessation advice to patients (Radsma & Bottorff, 2009). O’Donovan (2009) found only 14% of nurses in an Irish health service had received training in smoking cessation. The study also found a significant difference in attitudes towards smoking, depending on the nurses’ smoking status. The non-smokers were more likely to agree that smoking was a major health risk. The nurses identified a lack of time and a lack of training as the main barriers to a nurses’ role in assisting patients to quit smoking.

Mixed findings were reported on the perceptions of smokers and ex-smokers to the role of nursing in smoking cessation. Chalmers et al. (2002) found that nursing students in their study believed that smoking could be beneficial as a short-term stress reliever for
patients. Nurses who smoke may perceive they will lack credibility when attempting to provide smoking cessation advice to patients (Chalmers et al., 2002). Nurses who were ex-smokers may be best placed to advise and be positive role models for their patients, as they can understand the difficulties in attempting to quit, and can share their experiences of the benefits of quitting (Chalmers et al., 2002). Many nursing students who smoked did not intend to integrate smoking prevention activities into their role as nurses (Baron-Epel et al., 2004).

Lack of knowledge and skills in tobacco control may influence the willingness of nurses and nursing students to provide smoking cessation advice. A study which explored the provision by nurses of opportunistic smoking cessation advice to hospital inpatients found that there was sufficient time and opportunities to educate the patient’s on the health risks of smoking and to provide advice on smoking cessation, as part of routine interactions (Whyte, Watson, and McIntosh, 2006). There was also a willingness from the nurses to provide education and advice. However, the delivery of the advice varied, due to a lack of knowledge of smoking and smoking cessation and poor communication skills from some of the nurses. The authors suggested that providing opportunistic smoking cessation advice was part of the nursing role. Lack of knowledge related to tobacco control was also highlighted in a Chinese study. Leung, Chan, Jiang, and Lam (2009) compared the knowledge and attitudes towards tobacco control and smoking cessation among nurses. The study found that nurses showed inadequate knowledge of tobacco control measures (Leung, Chan, Jiang, and Lam 2009). The integration of smoking-related knowledge, skills and training into the nursing curriculum that are based on smoking cessation guidelines could enhance the ability of nurses to provide effective advice (Whyte et al., 2006).

The attitudes and beliefs of nurses and nursing students about smoking may also influence their willingness to provide cessation advice. Nagle et al. (1999) found that 75% of the nursing students in their study believed that nurses should provide counselling to patients who wanted to quit smoking. However, the students were less likely to provide education, as only 58% of respondents believed that educating patients about the health risks of smoking was part of the nursing role. In a study from Northern Ireland, 88% of student nurses believed that health promotion was part of the role of nursing (Rowe & Macleod Clark, 2000). Puska, Barrueco, Roussos, Hider, and Hogue (2005) utilised the Trans-Theoretical Model to study physicians and nurses who were smokers, but were motivated to quit smoking, to explore if
there was a change in smoking cessation advice given by these health professionals. Data were collected before and after the physicians and nurses participated in a smoking cessation program. The participants were divided into treatment and placebo groups. After a seven week cessation program for the treatment group and twelve month follow up for both groups, the study found an increase in the advice and support by the physicians and nurses to patients who smoked (Puska et al., 2005).

However, other studies had findings from nursing students that challenged the role of nurses in smoking cessation. Chalmers et al.’s (2002) identified four common perceptions among nursing students in relation to the role of nurses to provide smoking cessation advice and counselling. The four perceptions were: beliefs that patients had autonomy and personal choice about their lifestyle; that quitting smoking was hard and not always in the best interests of the patient, depending on their overall medical history; experiential knowledge formed an important consideration in patient care; and to remain non-judgmental towards patients. These perceptions may explain why a significant number of nursing students believed that it was not part of the nurse’s role to advise patients to quit smoking (Melani, Verponziani, Boccoli, Federici, & Sestini, 2001). Changing the perceptions of nursing students who may place a low priority on smoking cessation as part of their role as nurses is a major challenge (Walsh et al., 2012).

The smoking status of nurses may influence their ability and intention to give smoking cessation advice. Nurses who do not smoke are unable to fully understand the difficulty in overcoming nicotine addiction. Nurses who smoke may feel hypocritical, or believe they are not a credible source for smoking cessation advice (Chalmers et al., 2002). Nurses who were current smokers were significantly less likely to get involved in smoking cessation activities (Sarna, Brown, Lillington, Rose, Wewers, & Brecht, 2000). However, not all nurses and nursing students believed that nurses should not smoke (Sekijima et al., 2005). Nurses who smoked were more likely to have positive attitudes toward other nurses smoking and were less likely to believe that nurses should be involved in smoking prevention as part of a nurse’s role (Baron-Epel et al., 2004). However, if they were to be involved in tobacco control, most nurses who smoked did not believe their smoking would prove a hindrance to helping patients who wanted to quit smoking (Nagle et al., 1999). Most nurses who did not smoke believed that nurses who smoked could not effectively advise patients to quit (Nagle et al., 1999). Nurses who had stopped smoking may be in the best position to provide advice
and counselling. These nurses may appreciate the difficulties a patient faces when attempting to quit. They can also highlight the benefits of quitting (Chalmers et al., 2002). The majority of nurses who were ex-smokers believed themselves best placed to provide smoking cessation advice, compared to nurses who were current smokers or non-smokers (Nagle et al., 1999). These studies suggest that there is not a consensus among nurses or nursing students on whether nurses have a role to play in providing smoking cessation advice to patients and clients.

The findings from McCann et al.’s (2005) study of the role of nurses as health promoters may challenge the belief that providing smoking cessation advice is not part of the nursing role. The study followed up nurses one year after commencing a tobacco cessation program and investigated whether a change in smoking status was related to changing beliefs in the role of nurses in providing health promotion advice. It showed that of those nurses who had changed from smoker to ex-smoker within the follow up period, 59% felt less hypocritical, 29% were confident in a health promotion role and 12% believed they had a better understanding of the needs of patients who smoked. However, for those nurses who remained smokers, 66% believed they were hypocrites or not good role models (McCann et al., 2005). Nurses who did not smoke were more likely than the nurses who smoked to believe that nurses should set a good example for their patients by not smoking (Sarna et al., 2000).

A potential barrier to involvement in conducting smoking cessation interventions may be a nursing student’s beliefs about the benefits of smoking cessation treatment and their self-efficacy as effective treatment providers. Jenkins and Ahijevych (2003) conducted a descriptive research study to examine nursing students’ beliefs about smoking, knowledge about tobacco use and tobacco dependence interventions, self-efficacy to intervene with their patients who use tobacco, and perceived barriers and benefits to delivering tobacco-cessation interventions. Most of the nursing students inaccurately perceived that brief tobacco treatment counselling did not have an effect on improving smoking quit rates. The students were most confident in their ability to inform smokers of the general health risks of smoking (86.2%). The students were least confident in ability to give medications advice (63.7%) (Jenkins and Ahijevych, 2003).
Smoking cessation curriculum

The introduction of smoking cessation training can have a positive impact on the attitudes and beliefs of students towards smoking (Molina et al., 2011). A quasi-experimental study of health science students at two Spanish university campuses found significant improvement in attitudes and perceived ability to act among students who received smoking cessation training compared to the control group (Molina et al., 2011). Another study found that nursing students’ personal smoking behaviours affected their beliefs about smoking and their perception of the future role in smoking cessation. The study suggested that undergraduate nursing programs needed to consider these findings in relation to nurses’ professional role and education about clinical smoking cessation practice (Lenz, 2008).

There has been a focus in recent years on research into the role of university training in preparing nursing and health students for professional practice in smoking cessation (Arima & Mikami, 2011; Baron-Epel et al., 2004; Durkin, 2007; Holt, 2008; Lowe, Aquilino and Abramsohn, 2007; Molina et al., 2011; Schmelz, Nixon, McDaniel, Hudmon, & Zillich, 2010; Shishani, Stevens, Dotson, & Riebe, 2012; Smith, 2010). In addition, Wewers, Kidd, Armbruster and Sarna (2004) reviewed the smoking-related curriculum content offered in the nursing programs of universities in the United States. Lowe et al. (2007) developed and evaluated an integrated smoking prevention and cessation education program for Master of Public Health (MPH) students at a university in the United States. Content was integrated across six core courses in the MPH curriculum, by incorporating material on tobacco prevention, use and control to illustrate concepts that were part of the existing curriculum. The example was given that for the epidemiology course, data from a survey of tobacco use was used to calculate smoking prevalence. The authors obtained pre and post test results from 27 of the MPH students to evaluate the education program. The testing examined the students’ knowledge of tobacco control. The study found the integrated curriculum significantly increased students’ knowledge of tobacco control and prevention (Lowe et al., 2007).

Holt (2008) suggested that greater importance needs to be placed in the curriculum on developing communication skills to enable nursing students to be more effective in communicating health messages, such as smoking cessation. Holt (2008) states that a nursing care assessment provides an ideal opportunity to gain a holistic understanding of a patient’s
Baron-Epel et al. (2004) suggested there was a need for a more holistic approach to the education of student nurses with regard to smoking-prevention and cessation activities. The nursing curriculum could include more than just information on the health effects of smoking, the types of cessation interventions and the importance of prevention (Baron-Epel et al. 2004). The more holistic approach the researchers recommended would include activities such as group discussions on the social aspects influencing smoking, perceptions, knowledge, attitudes and beliefs about smoking, training in smoking cessation support, the role of the nurse and the ethical considerations regarding the freedom to smoke (Baron-Epel et al. 2004). It would also provide opportunities to interview smokers and non-smokers regarding their perceptions of smoking. The researchers suggested that incorporating a more comprehensive smoking curriculum into the nursing program may enable the students to be more effective in tobacco control when practicing as a nurse. These suggested changes to curriculum may better prepare nursing students for their future role in smoking cessation (Baron-Epel et al., 2004).

Durkin (2007) reviewed the literature on smoking cessation, nursing students and the role that nursing faculty can play in reducing the stress on students and supporting the inclusion of smoking cessation programs in the curriculum. The relief of stress has been identified as a major reason why nursing students smoke (Jenkins & Ahijevych, 2003). As previous research has shown that most nursing students who smoke want to quit, Durkin (2007) states that the knowledge and skills in health promotion that nursing faculty possess could be used to support smoking cessation among nursing students and other students on campus. Smoking cessation programs could be integrated into the nursing program to enable students to practise smoking cessation techniques, at the same time helping students to quit smoking. Smith (2010) also supported the need for the nursing curriculum to provide adequate delivery of tobacco control education. The author stated that despite declining smoking rates and more emphasis on the role of nursing in smoking cessation in many countries, there was still more work to be done, both in supporting students to quit smoking, and in developing the most effective strategies to train nursing students in tobacco control.
Nurses can be effective in increasing the likelihood of their patients’ smoking cessation (Rice & Stead, 2008). However, a lack of specific training in smoking prevention and cessation may limit a nurse’s skills and self-confidence in conducting appropriate interventions (Molina et al., 2011). The lack may be due to the lack of adequate training in nurses’ undergraduate education (Wewers et al., 2004). In the United States, most nursing programs include education on the health effects of smoking, but lack content on smoking cessation techniques in the curriculum (Wewers et al., 2004). The majority of nursing programs devoted less than one hour on the teaching of smoking cessation techniques and not until the third year of the program (Wewers et al., 2004). The majority also failed to provide opportunities for students to provide smoking cessation advice to patients during clinical placements (Wewers et al., 2004). Nurses and other health professionals can apply and further develop their clinical skills during a placement by having opportunities for hands-on experience. The integration of appropriate education on the health effects of smoking, cessation techniques, and clinical learning opportunities into the nursing curriculum may increase students’ knowledge, skills and confidence in providing smoking cessation programs and advice (Wewers et al., 2004).

Shishani, Stevens, Dotson, and Rueben (2012) examined the effect of an evidence-based smoking cessation education program on nursing students’ perceptions and self-confidence to help smokers quit smoking. The program combined an on-line educational program with opportunities for the 110 senior nursing students to practise cessation techniques through simulation. The students reported increased confidence in their overall ability to assist smokers to quit smoking. The researchers recommended the integration of the evidence-based practical smoking cessation program into nursing curricula to improve nursing students’ smoking cessation skills (Shishani et al., 2012). A Japanese study developed a tobacco educational program to enhance nursing students’ smoking cessation support efficacy. The researchers described their three hour program as providing lectures, discussions and role plays on smoking related illness, smoking cessation support and the role of nurses in smoking cessation. The students reported a significant increase in smoking cessation efficacy after completing the program (Arima & Mikami, 2011). Another study evaluated the impact on health students, including nurses, of a semester-long, online, elective course in smoking cessation counselling. The students reported an improvement in their ability and skills to counsel patients after completing the online course (Schmelz et al., 2010).
A study from Hong Kong examined a tobacco control education program integrated into the nursing curriculum (Chan, So, Wong, & Lam, 2008). A group of 78 first-year undergraduate nursing students attended a 2-hour introductory lecture on tobacco and health. The study found a significant improvement in the students’ knowledge and attitudes about tobacco control. The researchers suggested that tobacco control education should be introduced at an early stage in the nursing curriculum (Chan et al., 2008). An analysis of smoking cessation curricula in nursing programs from four Asian countries found that 51% of schools included smoking cessation training. However, most of these programs provided less than one hour of teaching per year (Sarna et al., 2006).

There has also been research into incorporating competencies for smoking cessation into the nursing curriculum. A Canadian study looked at nursing students’ perceptions of the implementation of a best practice guideline for integrating smoking cessation into daily nursing practice. Ritchie, Evans, and Matthews (2010) conducted the small study to examine the introduction of smoking cessation training into the nursing curriculum. The study examined the perceptions of nursing students and clinical instructors from a university in Ontario, Canada towards the implementing the Registered Nurses’ Association of Ontario best practice guideline on smoking cessation into the curriculum. However, the researchers only interviewed four student nurses and two clinical instructors for the study. From these interviews, general themes supporting the incorporation of the guideline into the curriculum were identified. The researchers commented that smoking cessation training could be one component of broader health promotion competencies in the nursing curricula (Ritchie et al., 2010).

Barriers to smoking cessation in the curriculum

As the largest group of health-care professionals, nurses have great potential to address the health issue of tobacco smoking. However, this opportunity to have a positive impact is limited by the inadequate education of nursing students in smoking prevention and cessation (Sarna, Bialous, Rice, & Wewers, 2009). Despite the efficacy of tobacco cessation programs and advice delivered by nurses, wider implementation of programs is limited by the lack of a workforce appropriately trained and skilled in tobacco control. The limited content and time dedicated to smoking prevention and cessation programs in current nursing curricula is a major factor in the inadequate preparation of nursing students (Sarna, Bialous, Rice, et
Barriers to the inclusion of adequate smoking cessation content in nursing curriculum include lack of time within existing curricula, competing content priorities, lack of trained faculty, lack of appropriate educational resources, lack of clinical training opportunities and lack of interest (Botelho, Wassum, Benzian, Selby, & Chan, 2009; Sarna, Bialous, Rice, et al., 2009). A major barrier to nurses offering smoking cessation advice is the limited availability of evidence-based education on smoking cessation programs in nursing curricula.

There is a lack of smoking cessation educational programs tailored to nursing practice (Shishani et al., 2012). A review of smoking cessation content and techniques taught in nursing programs in the United States found almost one third of the programs offered fewer than 3 hours teaching on the topic (Price, Mohamed, & Jeffrey, 2008). Insufficient time in the curriculum and inadequately trained staff were identified as the main barriers. The Global Health Professionals Student Survey of third year health professional students included 209 nursing schools in 18 countries. It identified a need to implement smoking cessation training programs for all health professionals (Sarna, Bialous, Wells, Kotlerman, Wewers, & Froelicher, 2009).

**Enablers of smoking cessation in the curriculum**

Nurses can be effective in delivering tobacco cessation interventions (Rice & Stead, 2008). More research and policy changes are needed to enable the integration of smoking prevention and cessation programs into nursing curriculum (Sarna, Bialous, Rice, et al., 2009). Some innovations in curriculum inclusion and delivery may become models for other programs. For example, the delivery of a simulation program to learn smoking cessation techniques has advantages over standard teaching (Shishani et al., 2012). The smoking cessation content is more accessible to both faculty and students. The portability of an online simulation program enables its use on a larger scale across campuses, other universities, nationally and internationally (Shishani et al., 2012). There is a need to develop more innovative, evidence-based smoking cessation programs that can be integrated into nursing curricula. All nursing programs should include skills development related to tobacco dependence treatment. Many nursing student programs provide content on the health consequences of smoking. However, education on nicotine addiction, withdrawal, treatment and the health benefits of cessation was lacking. Sarna, Bialous, Rice, et al. (2009) suggested
that core content should be integrated across the nursing curriculum. A more integrated approach would ensure that the key content is adequately covered (Sarna, Bialous, Rice, et al., 2009). This approach was supported by other research that adopted an integrated curriculum for nursing and other health students (Chan et al., 2008; Lowe et al., 2007; Shishani et al., 2012).

Sohn, Ahn, Park, and Lee (2011) stated that health professionals should offer smoking cessation advice to patients who smoke, as well as providing smoking cessation programs. However, the researchers found there was a lack of training in smoking cessation for most health professionals. Sohn et al. (2011) trialled simulation-based training, based on the 5-As smoking cessation intervention, with 21 nursing students. The study found that the simulation-based training was effective in improving the nursing students' self-efficacy in conducting smoking cessation interventions. Botelho, Wassum, Benzian, Selby, and Chan (2009) stated that professional organisational alliances have a role to play in supporting curriculum development related to smoking. The authors suggested that health professional organisations are in a good position to advocate for the systematic implementation of comprehensive smoking cessation training within undergraduate nursing programs. The training could utilise both evidence-based guidelines and experience-based learning methods (Botelho et al., 2009).

In 2000, in response to the need for consistent and effective methods for the assessment and treatment of tobacco use, the U.S. Agency for Healthcare Research and Quality (AHRQ) released “Treating Tobacco Use and Dependence”, the updated guideline on smoking cessation (Fiore, 2000). This guideline was updated most recently in 2008 (Fiore, 2008). The guideline contains a specific, brief 5-step intervention, called the “5 A’s”, that nurses can offer their patients. The 5 steps are: (1) ask the patient if he or she smokes, (2) advise him or her to quit, (3) assess the willingness to make a quit attempt in the next two weeks, (4) assist him or her in making a quit attempt, and (5) arrange follow-up contact to prevent relapse. This intervention requires three minutes or less of the nurse’s time, enabling brief, but effective, smoking cessation counselling to be conducted during routine consultations with patients (Fiore, 2008).

Although nurses have the potential to play a key role in smoking cessation interventions, they are not adequately prepared for health promotion activities, such as
smoking cessation counselling. The main reasons identified by nurses for not engaging in smoking cessation activities include limited training, insufficient skills and confidence, perceived lack of patient motivation, and a shortage of time (Sarna & Bialous, 2005). Part of Sarna et al.’s (2000) study of oncology nurses investigated whether nurses routinely offered smoking cessation advice to their patients who smoked. Although 68% of smokers in the study stated that they wanted to stop smoking; only 24% were offered smoking cessation advice by nurses in the hospital.

The lack of skills among nurses and other health professionals to implement tobacco cessation interventions has been highlighted in previous research (Chan et al., 2008; Durkin, 2007; Heath, Andrews, Thomas, Kelley, & Friedman, 2002; Price, Mohamed, & Jeffrey, 2008; Sarna, Bialous, Rice, et al., 2009; Wewers et al., 2004). The lack of content on tobacco control theories and strategies in their undergraduate programs may account for the lack of skills (Lenz, 2008; Sarna, Bialous, Rice, et al., 2009; Wewers et al., 2004). The inclusion in all undergraduate educational programs for health professionals of content on smoking cessation has been advised by the US National Cancer Institute (Heath et al., 2002). In the US, most undergraduate nursing programs include the health effects of tobacco in the curricula, but do not include content on smoking cessation techniques (Wewers et al., 2004).

The inadequate amount of time in the nursing curriculum allocated to smoking cessation training seems to be common to many countries (Chan et al., 2008; Heath et al., 2002; Wewers et al., 2004). In China, most of the nursing schools spent less than one hour teaching smoking cessation techniques. Almost half of the nursing schools did not teach smoking cessation techniques until the third year of training (Chan et al., 2008). Another Chinese study found that most of the nurses surveyed had not received any training for smoking cessation interventions (Chan et al., 2008). Wewers et al. (2004) found similar results in a study of undergraduate nursing programs in the United States. Other U.S. studies have shown sub-optimal delivery of comprehensive smoking cessation interventions by nurses (Sarna, Bialous, Wells, et al., 2009). A study of nurses in Spain found that more training was needed for these nurses to gain a better understanding of their role in smoking cessation (González, Bennasar, Pericàs, Seguí, & De Pedro, 2009). Sarna, Bialous, Rice, et al. (2009) suggested that more education of graduate nurses may be beneficial, however a higher priority needed to be placed on tobacco control programs in the nursing education curriculum.
Lenz (2008) stated that adequate time was needed to study the major public health risks such as smoking and to develop skills in the strategies to reduce smoking rates. Lenz (2008) suggested that a systematic, integrated and coordinated curriculum that included knowledge, skills and techniques for smoking cessation was needed in all nursing programs. These curriculum elements could be reinforced during clinical learning opportunities. However, Wewers et al. (2004) found the majority of undergraduate nursing programs in the United States did not provide clinical learning opportunities in smoking cessation counselling. This resulted in nursing students not having the appropriate skills, competence or confidence to help smokers who were willing to quit.

A study by Molina et al. (2011) used role play strategies in university courses to train students in tobacco control techniques. The researchers assessed the students’ attitudes and skills before and after receiving the training. The findings from the study showed that training in smoking prevention and control techniques resulted in positive changes in their attitudes and beliefs about the efficacy of these techniques. Smith (2010) reviewed tobacco control in the nursing curriculum. The researcher found that university and college programs needed to incorporate the use of evidence-based treatments for smoking cessation into training programs for nursing students. Sarna, Bialous, Rice, et al. (2009) identified a need for further research to determine the most effective strategies for the delivery of tobacco control education in the nursing curriculum.

**University campus smoking policies**

The type and scope of policies related to smoking vary between universities and countries. These policies may reflect the local, state, provincial or national laws that apply to the general populations in which the university was situated. In other cases, the university may have implemented more restrictive policies on the sale and use of tobacco products on campus. Some universities in Australia and in other countries have implemented smoke-free campus policies. This has meant either a total ban of smoking on campus or a restriction of smoking to designated areas only. In Australia, the advocacy group Action on Smoking and Health (ASH) has recommended that all university campuses adopt smoke-free policies (ASH Australia, 2009b). In the United States, the American College Health Association (ACHA) has stated that a smoke-free campus for universities and colleges is an important public policy area (American College Health Association, 2011).
There has been limited research into the effectiveness and student perceptions of smoke-free campus policies. A review of the literature found a gap in the research that specifically evaluates the perceptions of nursing students to campus smoking policies. However, there were some studies that assessed student perceptions or reactions to the introduction or enforcement of university smoking policies. One recent study from Australia evaluated a trial of a smoking in designated areas only policy over a seven week period during the second semester of 2010. The study also measured the students’ compliance to the new policy at Griffith University, Queensland (Sun, Prenzler, Buys, & McMeniman, 2012). The study used two of the university’s campuses as control sites and another as the intervention site. Data for comparison on smoking prevalence and acceptance of the policy were collected before and immediately after completion of the trial. Even though the focus of this study was on compliance, the findings included both a greater reduction in smoking prevalence among students and staff and a decrease in smoking on campus at the intervention site, compared to the control site. The results of the trial led to a decision to change the official university smoking policy to prohibit smoking to all but designated areas on campus (Sun et al., 2012).

A recent study from the United States evaluated the effectiveness of an anti-tobacco initiative at the University of Oklahoma that included a policy to totally ban smoking on campus (Lechner, Meier, Miller, Wiener, & Fils-Aime, 2012). The longitudinal study reported the smoking prevalence, behaviours, attitudes and beliefs before the introduction of the ban and followed up for three years after introduction. The study noted that findings could not be attributed to the smoking ban alone, as it was one element of a campus-wide program that included education and information campaigns (Lechner et al., 2012). However, it would appear appropriate that any move to implement a smoke-free campus would include a policy that integrates public awareness, consultation, information, education, and smoking cessation initiatives before and after the introduction of the ban on smoking. Findings from the study included a sustained reduction in student smoking rates over time. There were steady increases in the students’ attitudes towards the campus being smoke-free and the acceptance of the ban. Although, the reductions were not immediate, with the decline for more frequent smokers (smoked on at least 10 of the last 30 days) and less frequent smokers (smoked on between 1 and 9 days in the last 30) not statistically significant until one year and three years respectively after the introduction of the smoke-free policy (Lechner et al., 2012). This suggests that policy initiatives to reduce smoking prevalence among university and college
students may be effective and accepted by students, but need to be supported and monitored over a number of years (Lechner et al., 2012).

The introduction of further restrictions or smoke-free policies on university campuses may reduce the smoking prevalence of students, but the assumption of student objections has resulted in a reluctance to implement such policies. A study of students from 30 colleges and universities in Idaho, Washington and Oregon examined which campus smoking policies the students preferred. There were 14,234 participants in the randomised grouped controlled trial conducted over four years (Thompson et al., 2007). The study found that a high proportion of both smokers and non-smokers among the students accepted restrictive smoking policies on campus. There were 88% of non-smokers and 58% of smokers who supported indoor restrictions. However, the non-smokers were more than twice as likely to support indoor smoking bans, compared to outdoor restrictions, with only 43.3% support for outdoor restrictions among non-smokers. The smokers were even less willing to accept outdoor smoking bans, with only 6.9% of smokers in support of outdoor restrictions (Thompson et al., 2007).

There was further evidence to suggest the introduction of a total ban may change smoking behaviours among university students. Recently published results from a survey that assessed the willingness of students from a Western Australian university to accept a campus-wide ban on smoking found that 42% of the smokers among the respondents would smoke less or quit if they could not smoke on campus (Darby & Gausia, 2010). The survey also found a large proportion of the students supported campus-wide tobacco control. There were 45% of all respondents who were in favour of a total ban of smoking on campus and 60% supported the restriction of smoking to designated areas (Darby & Gausia, 2010). Another study from the United States used a novel approach to gaining student support for the introduction of a smoke-free policy. The researchers organised a series of clean up days on the campuses of two universities in San Diego to collect discarded cigarette butts (Sawdey, Lindsay, & Novotny, 2011). Student volunteers collected a large quantity of the cigarette litter, which was subsequently displayed at various events on the campuses, such as Earth Day, to educate students and the university administration and to advocate for policy change on environmental grounds. The authors suggested that highlighting the benefits of a smoke-free university policy to not only the health of the students, but also to the campus environment could enhance student support for a policy change (Sawdey et al., 2011).
The introduction of a smoke-free university campus policy may not guarantee a successful reduction in smoking prevalence or even smoking on campus. A small Canadian study investigated the perceptions and behaviours of students in response to campus smoking policies (Baillie, Callaghan, & Smith, 2011). The authors conducted a separate focus group for male and female students at each of the four Canadian universities in this study. There were a total of 33 females, consisting of smokers and non-smokers. This study followed up on previous research by the same authors into smoking policies across Canadian university campuses (Baillie et al., 2009). Findings from that study suggested university administrators were increasingly aware of tobacco control issues. However, implementation of smoking policies at Canadian universities in general were impeded by a lack of staff dedicated to tobacco control, inadequate funding and enforcement and monitoring issues (Baillie et al., 2009).

The follow up focus group study found a lack of adequate implementation and enforcement had resulted in only minimal changes to student smoking behaviours (Baillie et al., 2011). In general, there was a gap between the intent of the smoking policy and its outcome. The students perceived there were inconsistencies in the practical application and enforcement of a smoke-free policy. For example, one focus group participant commented that there were ash trays and bins for cigarette butts provided on campus, even though the university was supposed to be smoke-free, and there was no penalty for students who continued to smoke on campus (Baillie et al., 2011). It was also perceived by both smokers and non-smokers that a student who smokes could comply with the policy with little change to their smoking behaviour, with a short walk to smoke just outside the boundaries of the university campus (Baillie et al., 2011). This may reduce the potential impact of a campus wide smoke-free policy on smoking rates. The convenience to smoke outside of the campus boundaries would vary from campus to campus.

The authors suggested that the existence of a smoke-free campus policy did not automatically imply the achievement of increased tobacco control. The findings of the study suggested that when smoking policies were not consistently applied and enforced, students perceived that smoking on campus was accepted by university administrators and would have continued without any consequences (Baillie et al., 2011). The authors were particularly concerned with the perception from students and staff in both studies that smoking would
always occur on campus, regardless of policies or other tobacco control measures. This perception may undermine any future commitment towards the introduction of smoke-free university policies (Baillie et al., 2011). Comprehensive implementation of a smoke-free policy needs to be matched with the willingness by students and staff to comply with the policy and supported by university administrators with adequate resources to help students quit smoking (Baillie et al., 2011). The willingness of students and staff to accept and comply with a smoke-free policy can be enhanced with clear messages about the intent and application of the policy, consistency in messaging, signage and enforcement, and consequences for not complying with the policy (Baillie et al., 2011).

The smoking status of the students may also have an effect on the likelihood of accepting a ban on smoking on campus. A study from the United States used a randomised online survey and focus groups to examine the reactions to campus smoking policies of 2260 students aged 18–25 years, 748 of whom were from a two-year college and 1512 from a four year university (Berg et al., 2011). At the college, the campus policy prohibited smoking except for in designated outdoor areas. At the university, smoking was prohibited indoors and within 20 feet (approximately 6 metres) from building entrances. The study found that non-smokers were more supportive of smoke-free policies. There were also differences between the college and university students in the smoking prevalence and attitudes towards smoke-free policies. The college students were more likely to smoke and less supportive of smoking restrictions (Berg et al., 2011). However, there is a scarcity of such information published in the scientific literature within the context of Australian universities.

Despite decreases in the prevalence of smoking over recent decades, it remains the single most preventable cause of morbidity and mortality in Australia. Nurses have an important role to play in educating their patients on the health related consequences of smoking, the efficacy of smoking cessation programs and treatments, and the benefits of smoking cessation. To better equip the future nursing workforce in their smoking cessation professional practice, the current smoking behaviours, attitudes and beliefs of the nursing students need to be assessed and the current nursing student curricula needs to be explored in order to see how it could be improved. The education of nursing students may be enhanced by further research, development, implementation and evaluation of more comprehensive, integrated smoking cessation curriculum components. Providing nursing students with skills
in tobacco control and evidence based smoking cessation programs within a coordinated nursing curriculum may enhance the broader education preparation of nursing students.
Chapter 3: The Study

This chapter is divided into three subsections. First, the aims of the research are described. Second, the research questions for the study are stated, as well as ethical considerations for the study. Third, the methods used to conduct the study are discussed. This subsection includes a description of the study participants and setting, the study design, including the study instruments, pilot testing, and the recruitment process for the participants, limitations of the study design, and how the data were collected and analysed.

This research collected data through a complete cross-sectional survey of USC nursing students using a voluntary and anonymous self-reporting questionnaire. The entire study population were invited to participate in the survey. A high response rate was aimed for, however, participation was voluntary. A cross-sectional survey collects data from the study sample at one point in time. The survey was administered by the Principal Researcher (not part of the Nursing School) during nursing lectures, tutorials and workshops.

The Aims of the Research

The aim of this study was to explore the tobacco smoking habits, attitudes and beliefs among nursing students at the University of the Sunshine Coast. The study aimed to identify any significant differences in smoking habits between first, second and third year cohorts of USC nursing students. The study also explored if there were any significant differences in perceived attitudes and beliefs related to smoking, based on the smoking status of the students. This study adds to the limited tobacco research of Australian university students of nursing. This study also aimed to add to research into smoking related nursing curriculum, as it collected data on nursing students’ perceptions of curriculum elements related to smoking. For USC, this research provided baseline data on the smoking prevalence, attitudes and beliefs of nursing students. The study obtained data for the entire group and stratified it into the years of study and smoking status. This enabled the study to explore if any differences exist between yearly cohorts, smoking status and the possible reasons for the differences. The baseline data also enables future research to evaluate the impact of any smoking cessation interventions, education programs or tobacco control curriculum changes for these cohorts.
The specific aims of the study were:

1. To describe the smoking prevalence, attitudes and beliefs of USC nursing students,
2. To identify if there were any significant differences among the aforementioned variables between the first, second, and third year cohorts,
3. To examine nursing students’ perceptions of the role of nurse professionals in providing smoking cessation advice to their patients,
4. To examine nursing students’ perceptions of USC smoking related initiatives, including relevant university policies and curriculum elements of the USC Nursing program.

**Research questions**

The research questions were developed to address the aims for this study after a review of relevant research literature [see previous chapter]. In particular, a previous study of Australian nursing students (Smith & Leggat, 2007a) helped to define the scope of the following questions:

RQ1: What are the smoking prevalence, attitudes and beliefs among female nursing students at the University of the Sunshine Coast?

RQ1.1: Is there a difference among the above variables between the first, second, and third year nursing student cohorts?

RQ2: Do female nursing students at the University of the Sunshine Coast believe it is a nurse’s role to provide smoking cessation advice to their patients?

RQ2.1: What curriculum content on smoking cessation is in the USC Nursing program and when is it delivered?

RQ2.2: What are the female nursing students’ perceptions of USC smoking related policies and curriculum elements of the USC Nursing program?

The study received ethics approval from the USC Human Research Ethics Committee in May 2012, prior to conducting the pilot study. Approval was also granted by the USC Strategic Information and Analysis Unit in July, 2012 to survey the USC nursing students. The participants were provided with a verbal and written explanation of the aims and methods of the study. Return of the completed questionnaire implied informed consent. The privacy of each student was respected at all times. The data collected during the study cannot be used to identify students. All questionnaire responses have been stored securely to
Maintain complete confidentiality. Any publications arising from the study will be based on anonymous data, as this is the only information that will be made available to researchers.

**Methods**

Quantitative methods were used to collect data for this study. The researcher collected and analysed quantitative data to draw inferences on the smoking prevalence, attitudes and beliefs of nursing students and their perceptions of the nursing curriculum in their university program. Primarily, the study involved a cross-sectional survey of first, second and third year USC nursing students. The pen and paper questionnaire was voluntary, anonymous and self-reporting. It was administered to nursing students in pre-arranged nursing tutorials, lectures and workshops.

The cross-sectional survey collected data on the demographics of the nursing students and examined smoking prevalence, attitudes and beliefs among first, second, and third year USC nursing students. It also examined the students perceptions of curriculum content delivered in the nursing program related to smoking. In this cross-sectional survey design, all students who attended lectures, tutorials or workshops on campus were invited to complete the questionnaire. Participation was voluntary, with no exclusion criteria. The only criterion for eligibility was for the nursing students to be in attendance at the lectures, tutorials or workshops on the days the surveys were conducted.

A self-reporting questionnaire was selected as the most appropriate data collection tool. This form of data collection was the most common tool for determining an individual’s smoking status. The validity and accuracy of self-reported smoking surveys has been previously demonstrated in a variety of studies (Gorber, Schofield-Hurwitz, Hardt, Levasseur, & Tremblay, 2009; Patrick, Cheadle, Thompson, Diehr, Koepsell, & Kinne, 1994). Questionnaires are a cost-effective, convenient, well-received and useful method for researching large groups, such as nursing students. For these reasons, self-reporting questionnaire surveys were found to be the sole method for determining smoking prevalence rates among the studies reviewed by Smith and Leggat (2007b). Comparisons can be made between the smoking prevalence rates from self-reporting questionnaire surveys of nursing students. However, Smith and Leggat (2007b) noted that there was a general lack of standardisation regarding the definition of a ‘smoker’. While many authors referred to their
subjects as being either ‘smokers’ or ‘current smokers’, some researchers used other labels such as ‘regular smokers’ or ‘daily smokers’. In any case, the predominance of self-reporting smoking questionnaires suggested that these terms were of roughly equivalent meaning to the nurses they surveyed. As such, for the purposes of a comparative review across as wide a range of articles and countries as possible, Smith and Leggat (2007b) accepted that any of these four terms would have been equivalent in meaning.

There were four main reasons for selecting this research design. Firstly, in an international review of published literature on the smoking prevalence of nurses, Smith and Leggat (2007b) found that self-reporting questionnaires were the only method used by the researchers in each study. Secondly, the questionnaire enabled a large amount of data to be collected relatively quickly and at low cost (Yeboah, 2010). Thirdly, questionnaires offered the ability to pilot test the data collection instrument and methods before conducting the actual data collection for the study. The fourth reason for selecting this method was that previous research found the most accurate ‘snapshot’ of tobacco smoking prevalence was obtained by complete cross-sectional studies (Smith & Leggat, 2007b).

Compared to other data collection methods, questionnaires had the advantage of enabling the collection of a large amount of responses to a standardised set of items. They were cost-effective for the researchers and easy for participants to complete (Smith & Leggat, 2007b). Another advantage was the ability to pilot test the data collection instrument and methods before conducting the actual data collection for the study. As each respondent answered a standardised set of survey items, the data can be analysed both as a whole group and stratified into sub-groups, such as age, gender, year of study or smoking status. By surveying a large number of respondents and using standardised methods for data collection, the findings of this research may be generalised to the broader nursing student population, and the results compared to similar studies in this field of research (Yeboah, 2010).

In addition to the quantitative methods, a document analysis of course outlines for all 24 courses in the nursing program was conducted to identify smoking-related content in the nursing curriculum. The Course Coordinators were asked to verify that the information in the course outlines was complete, and also asked to provide any specific information on what content was included and the duration of content delivery. The combination of the self-
reported questionnaire for the nursing students and the audit of the nursing curriculum were considered by the researcher to be appropriate to address the research questions for this study.

**Participants and study setting**

The study population for this research were first, second, and third year full-time undergraduate nursing students enrolled in Semester 2 at the University of the Sunshine Coast (USC) in 2012. USC is a regional university in Queensland, Australia. All nursing students attending lectures, tutorials or workshops on campus at the University of the Sunshine Coast were invited to take part in the study. All nursing students who completed and returned the questionnaire were the participants for this study. The decision on who would be invited to be participants in this study and the recruitment process was determined by reviewing previous studies of nursing students in Australia. In particular, the similar cross-sectional studies conducted by Smith and Leggat (2007a) and Walsh et al. (2012) were used as a guide for the study design. Although participation was voluntary, conducting the survey during lectures, tutorials or workshops was anticipated to return a higher response rate. This was shown to be the case in the pilot study, where the response rate from those who attended when the survey was conducted was observed to be close to 100%. A high response rate for this study provided close to a complete cross-section of USC nursing students. From the 496 students included in the study population for this research, 82.5% of the nursing students participated in the survey. This resulted in a study sample of 409 students, of which 385 were female. As there were only a small number of male respondents, the researcher decided to focus the study on the female nursing students.

Power analysis was conducted during the data analysis stage to determine if the sample size was sufficiently large to determine any effects in relation to the female nursing students and the Sunshine Coast population. Based on a smoking prevalence of 18.2% among the 385 female nursing students and 11.8% among the local population of 158,266 females (ABS, 2012), a confidence interval of 0.05, a ratio between sample and population of 0.002 and statistical power of 0.80, a minimum sample size was calculated to be 274. Therefore, the sample size of 385 female nursing students was sufficiently large.
**Recruitment strategy**

To conduct as close as possible to a complete cross-sectional survey of all female nursing students, it was necessary to identify which courses were attended by all students in each yearly cohort. The aim was to survey all students in one course for each of the yearly cohorts, in which all students for that cohort were enrolled. That is, one course in which all first year students were enrolled, one course for all second year students and one course for all third year students. This avoided the potential of surveying any student more than once in multiple courses. After consulting with the Program coordinator for Nursing at USC, a suitable first, second and third year course was selected. All nursing students enrolled in NUR 103, Nursing Practicum 1, NUR 202, Nursing Practicum 3 and NUR 300, Nursing Internship, received an initial email to inform them of the research project and inviting them to participate. A written explanation of the aim and methods of the study was provided in a Research Project Information Sheet attached to the email. This research had the support of the USC nursing school for students to complete the questionnaire during lectures, tutorials or workshops. The students were informed that the principal researcher would be attending classes to conduct the survey.

**Limitations of the research design**

A cross-sectional study design can only provide an indication of the current situation at that one point in time among the group of study participants. Therefore, any relationships, association or correlations between the smoking-related variables can only be valid for that group at that point in time. A longitudinal study would be able to identify changes in smoking prevalence, attitudes and beliefs over time. However, longitudinal research was not possible over the limited time period for this study. Moreover, it is difficult to conduct longitudinal studies with nursing students, as they undertake clinical placements during the third year of the nursing program. This makes it difficult to conduct follow up surveys.

There were disadvantages to self-reporting questionnaires, such as self-reporting bias. Also, the voluntary nature of the study design meant that potential respondents in the target population were not compelled to participate (Smith & Leggat, 2007b; Yeboah, 2010). It was not compulsory for each of the sample group to complete the questionnaire. Another disadvantage was that no data were collected on those students who did not attend on the day
the surveys were conducted. To negate the potential for relatively low response rates, this study was designed to enable the distribution, completion and collection of questionnaires during lectures, workshops and tutorials. With the support of the nursing course coordinators, the principal researcher attended lectures, workshops and tutorials at pre-arranged times to facilitate the data collection process. By enabling students to complete the questionnaires during class time, and by collecting the questionnaires immediately after they had been completed, a high response rate was expected. A trial of this approach for the pilot study showed the effectiveness of this data collection method. For the pilot study, the questionnaire was handed out to every nursing student attending lectures, workshops or tutorials in Week 12 of Semester 1. Although response rates were not formally recorded, only seven blank questionnaires were returned. The relatively few incomplete or discarded questionnaires suggested close to a 100% response rate (N = 184). However, by conducting the pilot study among nursing students in Semester 1, 2012 at the same university as the actual study in Semester 2, 2012, there was a potential for a duplication of some participants for the pilot study and actual study. There was no exclusion criteria established to prohibit those students who had completed the pilot questionnaire from participating in the subsequent study. The anonymous collection of the survey data did not enable the researcher to identify and exclude any students who had completed the pilot questionnaire. Completion of the second survey, which essentially had the same questions as the pilot survey, may have been influenced by a student’s previous exposure to the survey questions.

**Study instruments**

The questionnaire for this study (see Appendix 3) included items on demographics (questions 1 and 2) and smoking status (questions 6-17) that were similar to previous surveys on the smoking behaviours of Australian nursing students (Clark et al., 2004; McCann et al., 2005; Smith & Leggat, 2007a). The questions on smoking status, the reasons for smoking, and the smoking status of family and friends were also from the California Adult Tobacco Survey (Californian Department of Public Health, 2007). The item on the students’ attitude to smoking policy at USC (question 18) was adapted for this study from the California Adult Tobacco Survey to specifically name USC as the setting. The item on the students’ attitude toward a policy that would totally ban smoking at USC was developed for this study. The items on attitudes and beliefs towards smoking cessation advice and the role of nursing in
smoking cessation (questions 20-25) were from the widely used Global Health Professions Student Survey (GHPSS) (Patelarou et al., 2011).

**Demographics**

Demographic items in the questionnaire included year of study (first, second and third year), age, and gender. As there was expected to be only a small proportion of male respondents to the survey, the question on gender enabled the exclusion of male data from the subsequent analysis of data for the female nursing students. Even though the survey was conducted in separate lectures, tutorials or workshops for each year of study, there could have been students from different years in each course. For example, a second year student may have been enrolled in the first year course. Having the student record in which year they were currently enrolled controlled for this variable. It also controlled for any post-graduate students studying undergraduate courses.

**Health status**

The participants were asked to respond to three questions related to their health. General health status was rated on a five point Likert Scale, from excellent to poor. The respondents reported on their physical health and mental health status by writing the number of days from 0 to 31 within the last month that their health was poor. The three questions on health status were sourced from the California Adult Tobacco Survey (Californian Department of Public Health, 2007), which has been regularly used to survey the Californian population for over twenty years.

**Smoking prevalence**

Smoking related items in the questionnaire included current smoking status, age of smoking initiation, number of cigarettes per week, prior smoking history, and attempts to quit. The categories for smoking status were based on the Australian Institute of Health and Welfare (AIHW) definitions for current smokers, ex-smokers, and never smoked (2012). A current smoker was defined as a person who smoked daily, weekly or monthly. An ex-smoker did not smoke now, but had smoked at least 100 cigarettes in their lifetime, the respondents answered Yes or No to two questions: “Did you smoke at least on. A person was deemed to
have never smoked if they had not smoked any cigarettes, or if they had smoked fewer than 100 cigarettes in their lifetime.

The next series of questions were designed to establish the nursing student’s smoking behaviours. The questions enabled the researcher to establish if the nursing students were deemed to have ever smoked (ex-smokers and current smokers). The age of smoking initiation for those students who had smoked at least one cigarette in their lifetime was then recorded. Those respondents who had smoked at least 100 cigarettes were then asked a series of questions to determine their current smoking status in the past month or week and whether they smoked every day, some days or not at all. These questions were selected from the California Adult Tobacco Survey (Californian Department of Public Health, 2007).

The students who had previously smoked, but who currently did not smoke at all were asked their age at the time they quit smoking. This enabled the duration of smoking and the number of years since quitting smoking to be determined for these respondents. The ex-smokers among the “Not at all” group were subsequently determined by comparing the responses to the smoked at least 100 cigarettes question. The number of years an ex-smoker had smoked was determined by measuring the difference between the age at which they reported smoking their last cigarette and their age of smoking initiation. The number of years a current smoker had been smoking was determined by measuring the difference between their current age and the age of smoking initiation. Current smokers were also asked to record the number of cigarettes smoked in the previous week.

Reasons for smoking

To establish the main reason why female nursing students smoked, the current smokers recorded the reasons for smoking in response to a question with seven possible reasons provided. The reasons provided were: because I cannot quit, to relieve stress, to relax, to stay awake, to help with my study, am afraid that I may gain weight if I quit, or out of habit without a particular reason. The respondents were also given the opportunity to specify any other reason for smoking.
Quit attempts

The current smokers were asked to report on quit attempts during the previous year. This enabled the analysis of how many female nursing students had quit smoking prior to, or during the course of their nursing studies.

Family and friends smoking status

There were two questions to assess the smoking status of the family (parents, siblings or partners) and friends of all respondents. Smoking among peers and family members increases the likelihood of smoking initiation.

Attitudes and beliefs

There were two questions to establish the students’ attitudes to bans on smoking in hospitals, clinics and at USC. In addition to the above, the respondents reported on their attitudes towards a policy that would totally ban smoking on the USC campus. The attitudes were measured using a five point Likert scale ranging from fully supportive to strongly against. Similarly, the respondents reported on their attitudes to providing smoking cessation advice and support. The attitudes were measured using a seven point Likert scale ranging from very comfortable to very uncomfortable.

To determine if the students believed that nurses and other health professionals were in a good position to provide smoking cessation advice and support, the students responded to a question in which six health professions were listed. A question was developed for this study to determine if nursing students believed that, if they were provided with more training and support, would they be more likely to help people quit smoking.

Role of nursing

There were four items in one question related to the nursing students’ attitudes towards the role of nursing in smoking cessation. These items were adapted from the Global Health Professions Student Survey (GHPSS) (Patelarou et al., 2011). The question was: “Nurses have a role in smoking cessation. Nurses should:” The four items were: nurses should receive special training; nurses should be role models; nurses should advise their patients to quit; and nurses should provide smoking cessation information. The nursing
students rated their responses on a 7 point Likert Scale that ranged from strongly agree to strongly disagree.

Nursing curriculum

There were thirteen items used to assess the curriculum content related to skills, training, smoking cessation techniques and the role of nurses. These items were adapted from the Global Health Professions Student Survey (GHPSS) (Patelarou et al., 2011). The items were: formal training on the dangers of smoking; the reasons why people smoke; the importance of asking about patients' smoking habits; smoking cessation techniques; the importance of counselling material on smoking cessation; nicotine replacement therapies; the use of antidepressants in smoking cessation; the health effects of tobacco-related diseases; the symptoms of second hand smoking; the symptoms of withdrawal from nicotine; a nursing student’s/nurse’s role in helping patients quit; preparing nursing students to help smokers quit; and an opportunity to practise cessation counselling skills during a clinical experience. Students reported whether or not they recalled these curriculum elements had been delivered in the nursing program by responding “Yes” or “No”.

Document analysis of smoking–related content in the nursing curriculum

To establish what knowledge, skills and training related to smoking was being delivered in the nursing curriculum, a document analysis was conducted of the course outlines for the 24 courses that were required to complete the USC nursing program. The researcher searched for nine key terms in the course outlines related to smoking (smoker, smoking, tobacco, nicotine, prevention, cessation, behaviour change, health promotion, and health promoting). The document analysis explored what elements were covered in the curriculum, when they were delivered and the total time devoted to delivery of the curriculum items. In addition, the program coordinator and coordinators for the nursing program courses were emailed by the principal researcher with a request to validate if the findings were complete. The results of the document analysis and the information supplied by the course coordinators were compared to the results of the survey data on the perceptions of what smoking-related content elements were taught for the first, second and third year cohorts.
Operationalisation of study items

The operationalisation of the abstract concepts and scale of measurement used for the variables derived from the study items in the questionnaire are presented in Tables 3.1 and Table 3.2. The first table relates to the study items used to address Research Question 1. The second table relates to the study items used to address Research Questions 2, 3, 4 and 5.
<table>
<thead>
<tr>
<th>Abstract Concept</th>
<th>Conceptual Definition</th>
<th>Variable Label</th>
<th>SPSS Variable Name</th>
<th>Operational Definition</th>
<th>Scale</th>
<th>Relevant Research Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking prevalence</td>
<td>Student had smoked at least one cigarette in the last month</td>
<td>Current smokers</td>
<td>Smoke_month</td>
<td>Question 8 coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R1</td>
</tr>
<tr>
<td>Smoking initiation</td>
<td>Age of first cigarette</td>
<td>Smoking init</td>
<td>Smoking_init</td>
<td>Question 7: age in years</td>
<td>Ratio</td>
<td>R1</td>
</tr>
<tr>
<td>Never smoked</td>
<td>Student had smoked fewer than 100 cigarettes in their lifetime</td>
<td>Never smoked</td>
<td>Never_smoke</td>
<td>Question 7: alternative response coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R1</td>
</tr>
<tr>
<td>Ever smoked</td>
<td>Student had smoked at least 100 cigarettes in their lifetime</td>
<td>100 cigs</td>
<td>100_cigs</td>
<td>Question 6 coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R1</td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>Student had smoked at least 100 cigarettes in their lifetime, but had not smoked in the last month</td>
<td>Ex-smoker</td>
<td>Ex-smoker</td>
<td>Derived from responses to Question 6: ever smoked and Question 11: age of last cigarette</td>
<td>Nominal</td>
<td>R1</td>
</tr>
<tr>
<td>Weekly smoking</td>
<td>Student had smoked at least one cigarette in the last week</td>
<td>Weekly smoking</td>
<td>Smoke_week</td>
<td>Question 9 coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R1</td>
</tr>
<tr>
<td>Daily smoking</td>
<td>Student smoked every day</td>
<td>Smoking status</td>
<td>Smoke_curr</td>
<td>Question 10 coded as: 0 = Not at all 1 = Some days 2 = Every day</td>
<td>Nominal</td>
<td>R1</td>
</tr>
<tr>
<td>Quit age</td>
<td>Age of last cigarette</td>
<td>Quit age</td>
<td>Last_cig</td>
<td>Question 11: age in years</td>
<td>Ratio</td>
<td>R1</td>
</tr>
<tr>
<td>Reasons for smoking</td>
<td>The students reported the reasons why they smoked</td>
<td>Reasons for smoking</td>
<td>Why_smoke1</td>
<td>Why_smoke2</td>
<td>Why_smoke3</td>
<td>Why_smoke4</td>
</tr>
<tr>
<td>Quit attempts</td>
<td>Current smokers had quit smoking for seven days or longer during the past year</td>
<td>Quit</td>
<td>Quit</td>
<td>Question 14: coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R1</td>
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<tr>
<td>Abstract Concept</td>
<td>Conceptual Definition</td>
<td>Variable label</td>
<td>SPSS variable name</td>
<td>Operational Definition</td>
<td>Scale</td>
<td>Relevant Research Question</td>
</tr>
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</tr>
<tr>
<td>Year of study</td>
<td>Students grouped into first, second or third year of the nursing program</td>
<td>Year of study</td>
<td>Year</td>
<td>Question 1 coded as: 1 = first year 2 = second year 3 = third year</td>
<td>Ordinal</td>
<td>R2</td>
</tr>
<tr>
<td>Beliefs about the role of nursing</td>
<td>Students level of comfort to provide smoking cessation advice to clients or friends</td>
<td>Advice</td>
<td>Advice</td>
<td>Question 20 coded as: five point Likert scale from very comfortable to very uncomfortable</td>
<td>Ordinal</td>
<td>R3</td>
</tr>
<tr>
<td>Attitudes towards the role of nursing</td>
<td>Students attitude to who is able to provide smoking cessation advice</td>
<td>Health Profess</td>
<td>HP_1, HP_2, HP_3, HP_4, HP_5, HP_6, HP_7</td>
<td>Question 21, seven items coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R3</td>
</tr>
<tr>
<td>Beliefs about the role of nursing</td>
<td>Students beliefs towards the role of nurses in smoking cessation (receive special training, be role models, provide advice and information to patients)</td>
<td>Nursing Role</td>
<td>Nurse_role1, Nurse_role2, Nurse_role3, Nurse_role4</td>
<td>Question 25, four items coded as: seven point Likert scale from strongly agree to strongly disagree</td>
<td>Ordinal</td>
<td>R3</td>
</tr>
<tr>
<td>Curriculum content</td>
<td>Students perceptions of smoking-related curriculum items</td>
<td>Nursing Studies</td>
<td>Studies1, Studies2, Studies3, Studies4, Studies5, Studies6, Studies7</td>
<td>Question 23, seven items coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R4</td>
</tr>
<tr>
<td>Curriculum content</td>
<td>Students perceptions of smoking-related curriculum items</td>
<td>Nursing Content</td>
<td>Content1, Content2, Content3, Content4, Content5, Content6</td>
<td>Question 24, six items coded as: 0 = No, 1 = Yes</td>
<td>Nominal</td>
<td>R4</td>
</tr>
<tr>
<td>Attitudes toward smoking policy</td>
<td>Students level of support for a total ban of smoking on campus</td>
<td>Smoking policy</td>
<td>Policy</td>
<td>Question 19 coded as: five point Likert scale from fully supportive to strongly against</td>
<td>Ordinal</td>
<td>R5</td>
</tr>
</tbody>
</table>
Pilot testing

A pilot study was conducted to determine the feasibility of the study, to gain feedback on the questionnaire and to practise the procedures for the collection of the data. The decision was made to pilot test the questionnaire at the end of Semester 1, 2012 when attendances at lectures and tutorials were low. This enabled the trial of the questionnaire and the methods for data collection in lectures or tutorials to be tested on a smaller sample of students.

The program coordinator for the nursing program was contacted to arrange permission to pilot the survey in lectures or tutorials for first, second and third year students. The program coordinator advised the principal researcher of the appropriate courses for each year of study and the course coordinators for each of these courses. The principal researcher then contacted the course coordinators to provide information on the study and to arrange a suitable time to attend either lectures or tutorials to conduct the pilot study. All students enrolled in each course were emailed an invitation to participate and the research project information sheet (See Appendices 1 and 2).

The questionnaire was distributed during Week 12 of Semester 1, 2012 to all students attending lectures for first and second year nursing students, and in tutorials for third year nursing students. The procedures for distribution and collection of the questionnaire followed the procedures described in Smith and Leggat’s (2007a) study. The lecturers or tutors introduced the principal researcher at the beginning of each class. The principal researcher then gave a verbal explanation of the purpose and methods for the research. The students were informed that participation was voluntary, anonymous and confidential. Each student was given a questionnaire and asked to either complete and return the form or return a blank form if the student did not wish to participate. For added privacy within the lecture or tutorial, the students were provided with envelopes in which to return the questionnaires. Return of a completed questionnaire by a student implied informed consent. Completed questionnaires were received from 184 nursing students. There were only seven blank questionnaires returned. A summary of the results from the pilot study is provided in Appendix 4.

The methods for explanation and distribution of the questionnaire at the beginning and collection at the end of lectures and tutorials appeared to be effective, based on the high response rate. It was observed that the time taken for the questionnaire to be handed out, for
the students to complete the 24 questions, and return the questionnaire in the envelopes provided was approximately ten minutes. The principal researcher had advised the course coordinators that this was the anticipated length of time needed to conduct the survey. It was agreed that this was a suitably brief time for the respondents to participate in the study, without impacting significantly on the teaching time for the lectures or tutorials. Feedback from the students indicated the wording of the questions was easy to understand. However, minor refinements were made to items of the questionnaire, based on the observations of the researcher and from feedback provided by the students. Due to an oversight by the researcher, the pilot study questionnaire did not ask the student to state their gender. This oversight was discovered by the researcher after the questionnaires were printed, but before the pilot survey was conducted. The students who participated in the pilot study were instructed to write their gender at the top of the questionnaire. A question on gender was added to the questionnaire for the final version of the cross-sectional survey.

The question on age was modified from age ranges to writing the age in years. This enabled analysis of age in years as a continuous variable and for later stratification into age ranges as a categorical variable. A question was added to indicate at what age the respondent had their last cigarette. This enabled the duration of smoking in years to be determined for ex-smokers, as well as the number of years since quitting. Some of the participants who reported to have never smoked or were not current smokers had completed the question on the reasons for smoking and the question on quitting smoking. These questions were to be answered by the current smokers only. To clarify this and to enable easier navigation by the participants throughout the questionnaire, some “Go to” instructions were added. The respondents who indicated in Question 7 that they had never smoked were instructed to go to Question 15, bypassing all other questions that did not apply to these respondents about their smoking history and current smoking. The respondents who had indicated in Question 10 that they currently do not smoke at all were asked to go to Question 11 to answer the question on when they stopped smoking. These respondents were then directed to go to Question 15, bypassing the questions 12-14 that were intended only for current smokers. The current smokers were asked to go to Question 12, after answering Question 10, not answering the question that did not apply on when they stopped smoking.

The changes to the questionnaire were submitted to the USC Human Ethics Committee for approval of the updated questionnaire. After the pilot study was conducted,
but before the cross-sectional survey was due to be administered, a new directive was issued for all surveys of students at USC to be coordinated and approved by the Strategic Information and Analysis Unit (SIAU). Approval was sought to conduct the cross-sectional survey of nursing students in Semester 2 of 2012. After approval was granted from both the ethics committee and the SIAU, the refined questionnaire was used to conduct the cross-sectional survey offered to the 496 full-time undergraduate students in the USC nursing cohort.

**Data collection**

The data were collected in Semester 2, 2012. The data collection tool was an anonymous, voluntary, self-reporting questionnaire adapted from previous surveys. Demographic items included age, gender and year of study (first, second or third year). Survey items included self–reported health status, current smoking status, age of smoking initiation, attitudes and beliefs in relation to smoking, the role of nursing, smoking policies and smoking cessation training in the nursing curriculum.

To obtain as close as possible to a complete cross sectional study, the principal researcher conducted the survey within the first four weeks of the semester. It was observed that students were more likely to attend classes during the first few weeks of the semester than toward the end of semester. Furthermore, when the pilot study was conducted in Week 12 of Semester 1 there were low attendance rates at lectures and tutorials. Before the beginning of the semester, the principal researcher contacted the program coordinator to determine which courses included all first, second and third year nursing students. The program coordinator informed the principal researcher of one course for each year of study in which all full-time students were enrolled. As with the pilot study, the coordinators for the three courses were contacted to arrange which lectures, tutorials or workshops to attend. It was agreed that the principal researcher could attend each of the pre-arranged classes to facilitate the data collection. The lecturers and tutors agreed to introduce the principal researcher to the students at the beginning of each class. The course coordinators were informed that the principal researcher would then read out the same instructions to all students in each class. The questionnaire would then be handed out, completed and returned at the beginning of each lecture, tutorial or workshop.
For the first year students, the survey was administered at eleven tutorial classes in Week 2 of the semester. At the request of the second year course coordinator, the second year students were administered the survey at a lecture in Week 4. The third year students were only on campus in Semester 2 for workshops in the first two weeks of the semester, before commencing a clinical placement. The survey was administered at the workshop in Week 2. The procedures for the distribution, completion and return of the questionnaires were the same as those tested in the pilot study.

**Data analysis**

Prior to conducting the analysis, the anonymous completed questionnaires were labelled with a reference number from 1 to 409. The questionnaires were then examined for missing items. The data were entered into the Statistical Package for the Social Sciences (SPSS) Version 19 for analysis. Frequencies for each variable were examined and compared to detect and correct any errors in data entry. The principal researcher consulted with a statistician for advice on conducting the data analysis. The statistician advised that since most of the respondents were female, the data for the female respondents (n = 385) should be used for the analysis. The small proportion of male respondents among the study participants reflected the small proportion of males in the USC nursing student population.

The data analysis was conducted for the female respondents. The mean age was calculated for the entire group, for each year of study, and by smoking status and analysed using independent samples t-tests. To conduct bivariate analysis, age was dichotomised into two distinct groups approximately around the mean age for the nursing students, under 30 years of age and 30 years and older. To compare smoking prevalence results with local, state and national populations, age was also stratified into four distinct categories which were similar to the age range categories for the population data (17-24, 25-34, 35-44, and > 45). The responses for how many days stressed or depressed were analysed as continuous data and grouped into four discreet categories (0 days, 1-3 days, 4-10 days and > 10 days). The responses for ‘how many of your five closest friends smoke’ were also categorised into three groups (0 friends, 1 or 2 friends, and 3-5 friends). The responses to all items were analysed as a group and stratified into first, second and third year cohorts. Descriptive statistics calculated the smoking prevalence by gender and yearly cohort. Chi Square tests explored differences in the categorical variables for smoking prevalence, attitudes and beliefs by yearly cohort and
the students’ demographic items. The continuous data were further explored using one-way analysis of variance (ANOVA) to examine for statistically significant differences between yearly cohorts in smoking prevalence, smoking initiation age, smoking intensity and smoking duration. ANOVA was also used to explore if any differences existed between the students’ attitudes and beliefs based on smoking status (daily smoker, smokes on some days, or not at all). In all cases, a probability value (P) of < .05 was considered statistically significant. The significant differences between the yearly cohorts, as well as the differences in smoking status, were identified and relationships between the variables were explored.
Chapter 4: Results

This chapter reports the results from the cross-sectional survey of female USC nursing students conducted in Semester 2 of 2012. The participants and their demographic data are described. This includes age, year of study and health status. The smoking status of the students is compared to the data for local, state and national populations. The students’ smoking history and the smoking status of their family and friends are reported. The attitudes and beliefs of the students towards smoking are reported. The students’ perceptions of the elements related to smoking in the nursing curriculum are reported and compared to the content delivered in the courses. The findings of the document analysis of the course outlines for the 24 courses in the nursing program and the information provided by the course coordinators on the smoking-related curriculum elements in the nursing program is reported. Finally, the results of the nursing students’ attitudes towards the university’s smoking policy are presented.

Participants

There were a total of 496 full-time undergraduate nursing students enrolled in the three courses that were surveyed on the days the questionnaires were distributed. There were 198 nursing students enrolled in the first year course, 150 in the second year course and 148 in the third year course. A total of 421 (84.5%) students attended the lectures, tutorials or workshops on the day the surveys were conducted for each course. Each of these students was invited to participate in the study and were handed a questionnaire. From the 421 students in attendance, 409 questionnaires were returned. This represented a participation rate of 97.1% of students who attended the lectures, tutorials or workshops having completed a questionnaire. The participation rates for each year of study were 98.9% (186 of the 188) for the first year students who attended the tutorials, 98.1% (102 of the 104) for the second year students who attended the lecture, and 96.8% (121 of the 125) for the third year students who attended the workshop returning a completed questionnaire. All of the respondents provided complete answers; except for three who did not answer the question on physical health and seven who did not answer the question on mental health (three of these respondents did not answer either of these questions). As these respondents had answered all of the other questions, they were included in the analysis.
The 409 respondents from the 496 students enrolled in the nursing program represented an overall response rate of 82.5%. The response rate from each year of study was 94.4% (186) for first year, 68% (102) for second year and 81.8% (121) for third year students. The lower rate of second year students who participated in the study may be explained by the declining attendance rates in Week 4, compared to the first three weeks of the semester. Even though the participation rate amongst the second year students who attended the lecture was high, the lower attendance rate had resulted in a lower response rate, compared to the first and third year students.

**Female nursing students**

**Age**

For the female students the mean ages of the group, first, second and third year students were 28.52 years (95% CI 27.45 – 29.6), 25.12 years (95% CI 23.78 – 26.47), 31.91 years (95% CI 29.54 – 34.29) and 31.06 years (95% CI 29.06 – 33.07) respectively. One-way ANOVA found a significant effect for the year of study \[F (2,382) = 18.45, p < .05\]. As with the mean age difference between years of study for the entire participant group, the first year female students remained significantly younger than the second and third year females in the post-hoc Tukey's HSD comparison.

For analysis purposes, the female students were stratified into four discreet age categories: 17-24, 25-34, 35-44, and 45+. These categories were in line with the age ranges used by Queensland Health, the Australian Institute of Health and Wellbeing and the Australian Bureau of Statistics. This enabled the data from this study to be compared to data for the local, state and national populations. The statistically significant difference between the first year students and the other two years of study remained after stratification into age groups, with a chi-square analysis finding a significant relationship between these two variables, \(X^2\) (DF = 6, \(n = 385\)) = 39.0, \(p < .05\). There were 64% of first year students aged between 17 and 24, compared to 36.2% of second year and 43.4% of third year students. By contrast, only 5.6% of first year students were aged 45 and over, compared to 23.4% of second year and 11.5% of third year students (see Table 4.1).
Table 4.1: Age ranges of female nursing students by year of study, n (%)

<table>
<thead>
<tr>
<th>Age Range</th>
<th>First year</th>
<th>Second year</th>
<th>Third year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-24</td>
<td>114 (64%)</td>
<td>34 (36.2%)</td>
<td>49 (43.4%)</td>
<td>197 (51.2%)</td>
</tr>
<tr>
<td>25-34</td>
<td>32 (18%)</td>
<td>22 (23.4%)</td>
<td>19 (16.8%)</td>
<td>73 (19%)</td>
</tr>
<tr>
<td>35-44</td>
<td>22 (12.4%)</td>
<td>16 (17%)</td>
<td>32 (28.3%)</td>
<td>70 (18.2%)</td>
</tr>
<tr>
<td>45+</td>
<td>10 (5.6%)</td>
<td>22 (23.4%)</td>
<td>13 (11.5%)</td>
<td>45 (11.7%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>178 (100%)</strong></td>
<td><strong>94 (100%)</strong></td>
<td><strong>113 (100%)</strong></td>
<td><strong>385 (100%)</strong></td>
</tr>
</tbody>
</table>

Chi square test: $\chi^2$ (DF = 6, n = 385) = 39.0, p < .05

**Demographics**

There were a total of 385 female nursing students who participated in this study. These students accounted for 94.1% of the total sample. There were 178 female first year students, accounting for 95.7% of the participants in this year of study, 94 (92.2%) in second year and 113 (93.4%) in third year. The mean age for the total sample of females was 28.52 years (95% CI 27.46 - 29.62). The mean age for first year students was 25.12 years (95% CI 23.82 - 26.51), 31.91 years (95% CI 29.55 - 34.45) for second year students and 31.06 years (95% CI 29.13 - 33.18) for third year students. The result of the one-way ANOVA found a significant difference in age by year of study, $[F (2,382) = 18.45, p < .05]$, with post-hoc Tukey’s HSD comparisons finding the first year female students significantly younger. There was no significant difference in the mean age of the second and third year students.

**Health status**

The participants were asked to rate their health status on a five point Likert Scale, from excellent to poor, in response to the question: Would you say that in general your health is……...? As a group, almost half of female nursing students (49.9%) rated their general health as very good. A further 30.9% reported good general health and 14.5% rated general health as excellent. More first year students rated in the very good category and more second year students in the excellent category, compared to the other years of study. However, a chi-square analysis found no significant difference between the self-reported health status of the students in each year of study, $\chi^2$ (DF = 2, n = 385) = 8.9, p > .05. Age was not a significant factor in the self-reported general health of the students, with a chi-square analysis finding no
significant difference between students in the under 30 years old and 30 years or older categories, \( \chi^2 (DF = 2, n = 385) = 7.4, p > .05 \).

The physical health status of the participants was reported in response to the question: For how many days during the previous month was your physical health fair or poor due to illness or injury? As a group, the female students reported an average of 3.7 days of poor or fair physical health (SD = 5.37). The female first year students reported an average of 4 days (SD = 5.39) of poor or fair physical health, compared to 4.13 days for the second year students (SD = 6.21) and 2.88 days for the third year students (SD = 4.52). A one-way ANOVA was conducted with year of study as the independent variable and self-reported physical health as the dependent variable. Levene’s test was not significant, \( F (2, 379) = 2.98, p > .05 \), and so the assumption of homogeneity of variances was judged to have not been violated. There were no significant differences between each year of study in the self-reported physical health of the students \( [F (2, 381) = 1.91, p > .05] \). The median was 2 days of poor or fair physical health for each year of study. There were 56 (31.6%) of the first year students, 33 (35.9%) of the second year students and 53 (46.9%) of the third year students who reported 0 days of poor or fair physical health. There was not a significant correlation between smoking and poor or fair physical health. Age was a factor in the self-reported physical health, with the post-hoc Tukey’s HSD comparisons from the one-way ANOVA finding that the students aged 25-34 reported a significantly higher average days of fair or poor health (M = 5.19, SD = 7.20) compared to the 35-44 (M = 2.49, SD = 4.46) age group \( [F (3, 378) = 3.16, p < .05] \).

The participants mental health status was reported in response to the question: “For how many days during the last month did you feel stressed or depressed?” Overall, the students reported more days of feeling stressed or depressed than being in fair or poor physical health. As a group, the female students reported an average of 6.99 days of feeling stressed or depressed (SD = 8.37). There was a significant difference between the years of study in the self-reported mental health of the students, with the post-hoc Tukey’s HSD comparisons from the one-way ANOVA finding the second year students more likely to feel stressed or depressed than the first or third year students, \( [F (2, 375) = 6.68, p > .05] \). The first year students reported an average of 5.73 days (SD = 7.67), compared to 9.60 days for the second year students (SD = 8.97) and 6.83 days for the third year students (SD = 8.52). The median number of days was 2, 6.5 and 4 for each year of study. There were only 51 (29%) of
the first year students, 10 (10.9%) of the second year students and 23 (20.9%) of the third year students who reported 0 days of feeling stressed or depressed.

The smoking status of the students was found to be significantly correlated with feelings of stress or depression. There was a significant, but weak, positive correlation between smoking and the number of days during the previous month the students’ felt stressed or depressed, $r = .12$, $p < .05$. A one-way ANOVA was conducted with smoking status (not at all, on some days, or every day) as the independent variable and self-reported number of days of feeling stressed or depressed as the dependent variable. Levene’s test was not significant, $F (2, 375) = 1.56$, $p > .05$, and so the assumption of homogeneity of variances was judged to have not been violated. The one-way ANOVA found there was a significant difference between the smoking status of the students and the mean number of days of feeling stressed or depressed [$F (2, 375) = 3.31$, $p < .05$]. The students who did not smoke at all were less likely to feel stressed or depressed ($M = 6.52$, $SD = 8.08$) than the students who smoked on some days ($M = 8.24$, $SD = 9.00$) and the students who smoked every day ($M = 10.56$, $SD = 9.94$).

There was also a positive correlation between feeling stressed or depressed and the number of cigarettes consumed by those students who smoked in the previous week, $r = .28$, $p < .05$. Age was also a factor in the self-reported mental health of the group, with the post-hoc Tukey’s HSD comparisons from the one-way ANOVA finding students aged 25-34 years reported a significantly higher average days of feeling stressed or depressed (9.49) compared to the 17-24 (6.47) and 45+ (4.14) age groups [$F (3, 374) = 4.21$, $p < .05$].

**Smoking prevalence**

The overall smoking prevalence among the female nursing students in this study was 18.2%, as 70 of the 385 students reported having smoked in the last month. In addition, 64 (15.6%) of the participants were ex-smokers. The smoking prevalence of the female nursing students is compared with the smoking rates of females in the local, state and national populations in Table 4.2. The most recently published smoking prevalence data for the local Sunshine Coast population is from 2009-10 (Queensland Health, 2011a). There was no data available for the females in the 18-24 years old category. The data were for daily smokers only. It did not include current smokers who did not smoke every day. The most recently
published smoking prevalence rates for the general population of Queensland is from 2011 (Queensland Health, 2011b). The data were also for daily smokers only. The smoking prevalence rate has been declining in Queensland over time, with the daily smoking rate of 21.1% in 2001 falling to 14.3% in 2012 (Queensland Health, 2012). The smoking prevalence for females on the Sunshine Coast and in Queensland are similar to the national smoking rates for females, with 16.0% of the Australian population estimated to be current smokers (see Table 4.2). This estimate is comprised of 14.4% daily smokers and another 1.6% categorised as other smokers (ABS, 2012). By definition, the “other smokers” would have smoked in the previous week or month. The smoking rates in Table 4.2 indicate that the female nursing students had a higher overall smoking prevalence than the local, state and national rate.

Table 4.2: Comparison of smoking among female populations

<table>
<thead>
<tr>
<th>Age</th>
<th>USC nursing students 2012 %</th>
<th>SCHSD 2009-10 %</th>
<th>Queensland 2011%</th>
<th>Australia 2011-12 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>18.2</td>
<td>11.8</td>
<td>13.0</td>
<td>16.0</td>
</tr>
<tr>
<td>18-24 years</td>
<td>*16.2</td>
<td>n/a</td>
<td>13.6</td>
<td>17.1</td>
</tr>
<tr>
<td>25-34 years</td>
<td>19.2</td>
<td>10.6</td>
<td>14.3</td>
<td>21.1</td>
</tr>
<tr>
<td>35-44 years</td>
<td>22.9</td>
<td>21.4</td>
<td>16.3</td>
<td>16.8</td>
</tr>
<tr>
<td>45-55 years</td>
<td>^17.8</td>
<td>12.2</td>
<td>16.1</td>
<td>20.5</td>
</tr>
<tr>
<td>55-64 years</td>
<td>n/a</td>
<td>11.5</td>
<td>12.0</td>
<td>13.5</td>
</tr>
</tbody>
</table>

* 17-24 years for this category
^ 45 and over for this category

Smoking status of female nursing students

The classifications for smoking status used in this study are presented in Table 4.3. The table describes the categories for students who had never smoked, smoked less than 100 cigarettes, never smoked as defined by the AIHW, smoked more than 100 cigarettes, ex-smokers and current smokers.
### Table 4.3 Smoking Status Category definitions

<table>
<thead>
<tr>
<th>Abstract concept</th>
<th>Conceptual definition</th>
<th>Source</th>
<th>Relevant study item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never smoked</td>
<td>A person who has never smoked in their lifetime</td>
<td>Responded Yes to “Never smoked”</td>
<td>Q. 7</td>
</tr>
<tr>
<td>Smoked less than 100 cigarettes</td>
<td>A person who has smoked fewer than 100 cigarettes in their lifetime</td>
<td>Responded No to “Have you smoked at least 100 cigarettes in your lifetime?”</td>
<td>Q. 6</td>
</tr>
<tr>
<td>AIHW never smoked</td>
<td>A person who has never smoked, or has smoked fewer than 100 cigarettes in their lifetime</td>
<td>AIHW: Combined Never smoked and Smoked less than 100 cigarettes</td>
<td>Q. 6 and Q. 7</td>
</tr>
<tr>
<td>Smoked more than 100 cigarettes</td>
<td>A person who has smoked at least 100 cigarettes in their lifetime</td>
<td>Responded Yes to “Have you smoked at least 100 cigarettes in your lifetime?”</td>
<td>Q. 6</td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>A person who had smoked at least 100 cigarettes in their lifetime, but had not smoked in the last month</td>
<td>AIHW: Responded Yes to “Have you smoked at least 100 cigarettes in your lifetime? and reported age of last cigarette</td>
<td>Q. 6 and Q. 11</td>
</tr>
<tr>
<td>Current smoker</td>
<td>A person who had smoked at least one cigarette in the last month</td>
<td>AIHW: Responded Yes to “Did you smoke at one cigarette in the past month?”</td>
<td>Q. 8</td>
</tr>
</tbody>
</table>

The results for the smoking status of the female nursing students are presented in Table 4.4. Current smokers were classified as students who had smoked at least 100 cigarettes and had smoked at least one cigarette in the last month. Ex-smokers were students who had responded “Yes” to smoking at least 100 cigarettes, but had not smoked in the last month. These students had also written the age at which they smoked their last cigarette. The students who had never smoked and those who had smoked fewer than 100 cigarettes in their lifetime were categorised separately and as an AIHW combined never smoked category.
### Table 4.4: Smoking status of female nursing students by year of study, n (%)

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>First year</th>
<th>Second year</th>
<th>Third year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never smoked</td>
<td>78 (43.8%)</td>
<td>54 (57.4%)</td>
<td>61 (54.0%)</td>
<td>193 (50.1)</td>
</tr>
<tr>
<td>Smoked &lt;100 cigarettes AIHW defined never smoked</td>
<td>38 (21.3)</td>
<td>11 (11.7)</td>
<td>13 (11.5)</td>
<td>62 (16.1)</td>
</tr>
<tr>
<td>Smoked &gt;100 cigarettes Ex-smoker</td>
<td>116 (65.2)</td>
<td>65 (69.1)</td>
<td>74 (65.5)</td>
<td>255 (66.2)</td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>62 (34.8)</td>
<td>29 (30.9)</td>
<td>39 (34.5)</td>
<td>130 (33.8)</td>
</tr>
<tr>
<td>Current smoker</td>
<td>27 (15.2)</td>
<td>15 (16.0)</td>
<td>18 (15.9)</td>
<td>60 (15.6)</td>
</tr>
</tbody>
</table>

Chi-square test for never smoked: $X^2 (DF = 2, n = 385) = 5.5$, $p = .063$
Chi-square test for smoked <100 cigarettes: $X^2 (DF = 2, n = 385) = 0.48$, $p > .05$
Chi-square test for AIHW never smoked: $X^2 (DF = 2, n = 385) = 3.18$, $p > .05$
Chi-square test for Smoked >100 cigarettes: $X^2 (DF = 2, n = 385) = 4.8$, $p > .05$
Chi-square test for Ex-smoker: $X^2 (DF = 2, n = 385) = 0.48$, $p > .05$
Chi-square test for Current smoker: $X^2 (DF = 3, n = 385) = 0.96$, $p > .05$

### Never smoked

There were 193 (50.1%) females who reported that they had never smoked. There were differences in the number of students who had never smoked depending on the year of study. There were 78 (43.8%) of the first year students, compared to 54 (57.4%) of the second year students and 61 (54.0%) of the third year students. However, these differences were just outside the .05 level of significance in a chi-square analysis [$X^2 (DF = 2, n = 385) = 5.5$, $p = .063$]. Age was a significant factor in whether or not the students had ever smoked. A chi-square analysis found the students aged under 30 more likely to have never smoked [54.7% compared to 42.3%, $X^2 (DF = 1, n = 385) = 5.6$, $p < .05$]. To further explore the differences in age for those who had never smoked, an independent – samples $t$ test was conducted with “never smoked” as the independent variable and age as the dependent variable. Levene’s test was not significant, $F (2, 382) = .94$, $p > .05$, and so the assumption of homogeneity of variances was judged to have not been violated. The mean age of the students who had never smoked, $M = 27.21$, $SD = 11.15$, was found to be significantly younger than those who had tried at least one cigarette, $M = 29.84$, $SD = 10.07$.

### Smoked less than 100 cigarettes in their lifetime

There were a total of 192 (49.9%) females who had smoked at least one cigarette in their lifetime. Of these students, 62 (32.3%), or 16.1% of the total female sample, did not go
on to smoke 100 cigarettes or more. Among the first year female students, 100 (56.2%) had
smoked at least one cigarette, but 38 (38.0%) of these did not go on to smoke 100 cigarettes
or more. This compares to 40 (42.6%) of second year students, with 11 (27.5%) not going on
to smoke 100 cigarettes, and 52 (46.0%) of females in third year, with 13 (25.0%) of these
not smoking 100 cigarettes. Once again, the differences between the years of study were not
significant, with a chi-square analysis finding no significant relationship between these two
variables, $X^2 (DF = 2, n = 385) = 0.48, p > .05$.

The AIHW (2012) categories for smoking status deem a person to have never smoked
if they have smoked fewer than 100 cigarettes in their lifetime. The combined total for female
nursing students in the study sample who have never smoked, or are deemed to have never
smoked was 255 (66.2%). By year of study the combined totals were 112 (65.2%) for first
year female students, 65 (69.1%) for second year students and 74 (65.5%) for third year
students. These differences were not significant, with a chi-square analysis finding no
significant relationship between these two variables, $X^2 (DF = 2, n = 385) = 3.18, p > .05$.

**Smoked more than 100 cigarettes**

There were a total of 130 (33.8%) female nursing students who reported that they had
smoked at least 100 cigarettes in their lifetime. Of these students, 60 (46.2%) had stopped
smoking. This meant that 15.6% of the female students in the total study sample were ex-
smokers. The number of first year students who had smoked 100 cigarettes or more was 62
(34.8%), with 27 (43.5%) of these having stopped smoking. This accounts for 15.2% of
female first year students being classified as ex-smokers. Among the second year students, 29
(30.9%) had smoked 100 cigarettes or more, with 15 (51.7%), or 16% of all the second year
students classed as ex-smokers. There were 39 (34.5%) third year students who had smoked
100 cigarettes or more, with 18 (46.2%) of these students, or 15.9% of all the third year
students reported as ex-smokers. However, these differences were not significant, with a chi-
square analysis finding no significant relationship between year of study and having smoked
at least 100 cigarettes, $X^2 (DF = 2, n = 385) = 0.48, p > .05$.

Age was a factor in the students having smoked at least 100 cigarettes in their
lifetime. A significant positive correlation was found between the age of the female students
and having smoked 100 cigarettes or more, $r = .23, p < .05$. The students aged 30 or more
were more likely to have smoked 100 cigarettes in their lifetime (47.9% compared to 25.5%), $X^2 (DF = 2, n = 385) = 20.1, p < .05$. In particular, a chi-square analysis found a significantly higher proportion of students in the 17-24 years age group had smoked fewer than 100 cigarettes (79.2%), compared to just over half of the students in the other age groups, $X^2 (DF = 4, n = 385) = 30.35, p < .05$. The results stratified into four discreet age groups for the number of female nursing students who reported that they had smoked at least 100 cigarettes in their lifetime are presented in Table 4.5.

### Table 4.5: Smoked 100 cigarettes, by age category, n (%)

<table>
<thead>
<tr>
<th>Age category</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-24 years</td>
<td>41 (20.8)</td>
<td>156 (79.2)</td>
</tr>
<tr>
<td>25-34 years</td>
<td>34 (46.6)</td>
<td>39 (53.4)</td>
</tr>
<tr>
<td>35-44 years</td>
<td>34 (48.6)</td>
<td>36 (51.4)</td>
</tr>
<tr>
<td>45+ years</td>
<td>21 (46.7)</td>
<td>24 (53.3)</td>
</tr>
<tr>
<td>Total</td>
<td>130 (33.8)</td>
<td>255 (66.2)</td>
</tr>
</tbody>
</table>

Chi-square test: $X^2 (DF = 4, n = 385) = 30.35, p < .05$

### Smoking prevalence by year of study

The overall smoking prevalence among all the female nursing students in this study was 70 (18.2%). There were differences in the smoking prevalence of female students in each year of study, with 35 (19.7%) of the first year students, 14 (14.9%) of the second year students, and 21 (18.6%) of the third year having smoked at least one cigarette in the last month (see Table 4.6). However, these differences were not significant, with a chi-square analysis finding no significant relationship between year of study and smoking prevalence. A greater proportion of the students aged 30 or more were current smokers, but a chi-square analysis found the difference was not significant [20.4% compared to 16.9%, $X^2 (DF=2, n = 385) = 0.80, p > .05$].

### Table 4.6: Smoking prevalence (last month), n (%)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>70</td>
<td>255</td>
</tr>
<tr>
<td>First year</td>
<td>35</td>
<td>14</td>
</tr>
<tr>
<td>Second year</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Third year</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Chi-square test: $X^2 (DF = 3, n = 385) = 0.96, p > .05$

The smoking prevalence for the female nursing students stratified into four discreet age categories is presented in Table 4.7. The students in the 35-44 years age category reported the highest smoking prevalence. However, a chi-square analysis found no significant
relationship between each age group and smoking prevalence, \( X^2 (DF = 3, n = 385) = 1.58, p > .05 \). The nursing students reported a higher overall smoking prevalence and higher in each age category than the smoking rates reported for the Sunshine Coast and Queensland female populations presented in Table 4.2. The overall smoking prevalence (18.2%) was higher than for the Australian female population (16.0%) presented in Table 4.2. However, there were a higher proportion of female smokers in each age group for the Australian female population, except for the 35-44 years age category.

<table>
<thead>
<tr>
<th>Age category</th>
<th>Female nursing students</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-24 years</td>
<td>32 (16.2)</td>
</tr>
<tr>
<td>25-34 years</td>
<td>14 (19.2)</td>
</tr>
<tr>
<td>35-44 years</td>
<td>16 (22.9)</td>
</tr>
<tr>
<td>45+ years</td>
<td>8 (17.8)</td>
</tr>
<tr>
<td>Total</td>
<td>70 (18.2)</td>
</tr>
</tbody>
</table>

Chi-square test: \( X^2 (DF = 3, n = 385) = 1.58, p > .05 \)

**Weekly smoking**

There were 57 (14.8%) female nursing students who reported smoking in the last week (see Table 4.8). A chi-square analysis found no significant differences among the students who smoked weekly, based on the different years of study, with 27 (15.2%) of the first year students, 13 (13.8%) of the second year students and 17 (15.0%) of the third year students having smoked in the last week \([X^2 (DF = 2, n = 54) = .095, p > .05]\). However, a significant positive correlation was found between the age of the female students who smoked weekly and the number of cigarettes smoked in the previous week, \( r = .37, p < .05 \).

| Total          | 57 (14.8)               |
| First year     | 27 (15.2)               |
| Second year    | 13 (13.8)               |
| Third year     | 17 (15.0)               |

Chi-square test: \( X^2 (DF = 2, n = 54) = .095, p > .05 \)

**Daily smoking**

The total number of daily smokers was 25 (6.5%), with 10 (5.6%) of the first year students, 4 (4.3%) of the second year students and 11 (9.7%) of the third year students.
smoking every day (see Table 4.9). Once again, these differences were not significant, \(X^2\) (DF = 2, n = 22) = 4.7, p > .05. The 14 students aged 30 years or older who smoked daily represented a higher proportion of the daily smokers (9.9%), compared to the 11 daily smokers aged less than 30 years old (4.4%). However, this difference was not significant, \(X^2\) (DF = 2, n = 22) = 4.3, p > .05.

<table>
<thead>
<tr>
<th>Table 4.9: Smoking prevalence (daily)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
</tr>
<tr>
<td>First year</td>
</tr>
<tr>
<td>Second year</td>
</tr>
<tr>
<td>Third year</td>
</tr>
</tbody>
</table>

Chi-square test: \(X^2\) (DF = 2, n = 22) = 4.7, p > .05

**Smoking rate**

The mean number of cigarettes smoked per week among the 57 female nursing students who smoked weekly was 48.58, with a range from 1 to 175. Age was a factor, with the older students smoking more cigarettes on average. A significant difference was found in the mean number of cigarettes smoked in the previous week between the 22 students aged 17-24 years old (M = 25.32), the 8 students aged 25-34 years old (M = 57.25), the 11 students aged 35-44 years old (M = 59.09), and the 16 students aged 45 years and older (M = 69.00), \(F (3, 53) = 3.0, p < .05\).

**Smoking initiation age**

For those who had smoked more than 100 cigarettes in their lifetime, the mean age when the female nursing students began smoking was 15.16 years. For current smokers, the mean age of smoking initiation was 15.17 years for females. Among the female smokers, the 45 students who smoke only on some days had a mean smoking initiation age of 15.62 years. The 25 daily smokers had a lower mean age of smoking initiation at 14.36 years. However, this difference was not significant \(F (2,189) = 2.3, p > .05\). There was not a significant difference in the smoking initiation age for the female students in each year of study, with first year students starting smoking at 15.28 years of age, 15.78 years for the second year students and 15.21 years for the third year students \(F (2,189) = 0.67, p > .05\).
**Smoking duration**

The current smokers among the female students began smoking on average at 15.16 years of age (range = 8–22 years of age), with an average smoking duration of 14.43 years (range = 1–39 years). The average smoking duration was longer for daily smokers (18.48 years), than for those current smokers who do not smoke every day (11.67 years). Only 1 (4%) of the daily smokers had smoked less than five years, 6 (24%) had smoked for between 5 and 10 years, and 18 (72%) had smoked for more than 10 years. These categories for smoking duration were more evenly divided for the other current smokers, with 12 (26.7%) smoking less than five years, 13 (28.9%) between 5 and 10 years, and 20 (44.4%) more than 10 years.

The ex-smokers were classified as having smoked at least 100 cigarettes in their lifetime and had not had a cigarette within the month prior to the survey. There were 60 (15.6%) of the female nursing students in this category. The average age of initiation for the female ex-smokers was 15.18 years (range = 8–22 years). The ex-smokers had not smoked for as long as the current smokers, with an average smoking duration of 10.99 years (range = 1–27 years). A with the current smokers, more of the ex-smokers, 26 (43.3%), had smoked for more than 10 years prior to quitting, 22 (36.7%) had smoked for between 5 and 10 years, and 12 (20%) had smoked for less than five years.

**Smoking intensity**

To explore the intensity of the nursing students smoking habits, the data for the number of cigarettes smoked in the last week were stratified into five discrete categories (1 to 35, 36 to 70, 71 to 105, 106 to 140, and 141 to 175). These categories were chosen to equate to an average daily consumption rate of up to 5, 10, 15, 20 and 25 cigarettes. More than half of the 57 female students who smoked weekly (n = 31, 54.4%) were smoking less than 35 cigarettes per week. A further 12 (21.1%) female students smoked between 36 and 70 cigarettes per week, while 5 (8.8%) smoked between 141 and 175 per week.
**Attitudes and beliefs**

**Reasons for smoking**

Current smokers were asked to report on why they smoked (see Table 4.10). The participants could choose from seven reasons and could also specify any other reason for why they smoked. The most common reasons among all current smokers were to relieve stress (n = 32, 45.7%), to relax (n = 30, 42.9%) and out of habit (n = 30, 42.9%). There was not a significant difference between the years of study. However, age was a significant factor in the reasons for smoking. Current smokers aged 30 or more were more likely to smoke because they believe they cannot quit (7.0% compared to 2.1%, $X^2 = 5.9, p < .05$) or out of habit for no particular reason (12.7% compared to 4.9%, $X^2 = 7.5, p < .05$). Of the 19 current smokers that specified other reasons, smoking while drinking alcohol (social smoking) was the reason reported by 18 of the students. Age was significant for this variable, with current smokers under the age of 30 more likely to be social smokers (7.0% compared to 2.1%, $X^2 = 4.3, p < .05$).

Table 4.10: Reasons for smoking, n (%)

<table>
<thead>
<tr>
<th>Reasons for smoking</th>
<th>Female smokers</th>
<th>Daily smokers</th>
<th>Other smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I cannot quit</td>
<td>15 (21.4)</td>
<td>9 (36)</td>
<td>6 (13.3)</td>
</tr>
<tr>
<td>To relieve stress</td>
<td>32 (45.7)</td>
<td>17 (68)</td>
<td>15 (33.3)</td>
</tr>
<tr>
<td>To relax</td>
<td>30 (42.9)</td>
<td>15 (60)</td>
<td>15 (33.3)</td>
</tr>
<tr>
<td>To stay awake</td>
<td>2 (0.5)</td>
<td>2 (8)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>To help with my study</td>
<td>4 (1%)</td>
<td>3 (12)</td>
<td>1 (2.2)</td>
</tr>
<tr>
<td>May gain weight if I quit</td>
<td>10 (14.3)</td>
<td>5 (20)</td>
<td>5 (11.1)</td>
</tr>
<tr>
<td>Out of habit</td>
<td>30 (42.9)</td>
<td>15 (60)</td>
<td>15 (33.3)</td>
</tr>
<tr>
<td>Other (social smoking)</td>
<td>19 (27.1)</td>
<td>3 (12)</td>
<td>16 (35.6)</td>
</tr>
</tbody>
</table>

**Smoking status and self-reported mental health**

There was a significant relationship between the smoking status and the self-reported mental health of the students. Smokers were more likely than non-smokers to report more than 10 days of feeling stressed or depressed in the past month [$F (2, 375) = 3.31, p < .05$]. The mean number of days of feeling stressed or depressed in the past month for non-smokers (never smoked and ex-smokers) was 6.52, compared to 8.24 for students who smoked on some days and 10.56 for daily smokers. The data for self-reported mental health were grouped into four discreet categories (0 days, 1-3 days, 4-10 days and > 10 days). The number...
and percentage of students in each category and grouped by smoking status are presented in Table 4.11. The students who had never smoked had a similar proportion in each category. There were 68% of the students who smoked every day in the two upper categories.

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>Number of days stressed or depressed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 days</td>
<td>1-3 days</td>
</tr>
<tr>
<td>Never smoked</td>
<td>66 (26.5)</td>
<td>64 (25.7)</td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>10 (16.9)</td>
<td>16 (27.1)</td>
</tr>
<tr>
<td>Some days</td>
<td>5 (11.1)</td>
<td>15 (33.3)</td>
</tr>
<tr>
<td>Every day</td>
<td>3 (12.0)</td>
<td>5 (20.0)</td>
</tr>
<tr>
<td>Total</td>
<td>84 (22.2)</td>
<td>100 (26.5)</td>
</tr>
</tbody>
</table>

Family smoking status

The nursing students reported on the smoking status of their family (parents, siblings, partners and children). There were only a small number of students who reported having a child who smokes, so that result has been omitted. The results for the smoking status of the parents, siblings and partners of the nursing students are presented in Table 4.12. A significant negative correlation was found between those students who smoked and having none of their family members who smoked, \( r = -0.29, p < .05 \). Of the respondents who did not smoke, 60.6% reported that none of their family members smoked. The not at all category was separated further into never smoked and ex-smokers. Of the students who had never smoked, 64.3% had no family members who smoked. There were 45% of the ex-smokers who reported that none of their family members smoked. This compares to 26.7% of those who reported smoking on some days and only 16% of those who smoked every day.

A significant positive correlation was found between those students who smoked and having a partner who smoked, \( r = 0.29, p < .05 \). The respondents who had never smoked were less likely to have a partner who smoked, with only 3.1% of these students reporting to have a smoking partner, compared to 22.2% of those who smoked on some days and 28% of those who smoked every day. There were also weaker, but significant positive correlations between smoking and having a sibling \( r = 0.14, p < .05 \) or a parent \( r = 0.11, p < .05 \) who smoked. Age was also a significant factor, with students aged under 30 more likely to not have had any of their family members smoking (58.0% compared to 48.5%, \( X^2 = 4.8, p < .05 \)).
Table 4.12: Family smoking status compared to nursing students smoking status, n (%)

<table>
<thead>
<tr>
<th>Family member</th>
<th>Never smoked</th>
<th>Ex-smokers</th>
<th>Daily smokers</th>
<th>Some day smokers</th>
<th>Significant p-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>164 (64.3)</td>
<td>27 (45)</td>
<td>4 (16)</td>
<td>12 (26.7)</td>
<td>0.018</td>
</tr>
<tr>
<td>Parent</td>
<td>53 (20.8)</td>
<td>16 (26.7)</td>
<td>10 (40)</td>
<td>14 (31.1)</td>
<td>-</td>
</tr>
<tr>
<td>Sibling</td>
<td>50 (19.6)</td>
<td>22 (36.7)</td>
<td>9 (36)</td>
<td>18 (40)</td>
<td>0.023</td>
</tr>
<tr>
<td>Partner</td>
<td>8 (3.1)</td>
<td>5 (8.3)</td>
<td>7 (28)</td>
<td>10 (22.2)</td>
<td>0.044</td>
</tr>
</tbody>
</table>

Friends smoking status

There was a significant difference between current smokers and non-smokers with regards to having friends who smoke ($X^2 = 54.2, p<.05$). Of the respondents who do not smoke, 61% reported that none of their five closest friends smoked. This compares to 17.8% of those who reported smoking on some days and only 12% of those who smoke every day. A significant positive correlation was found between those students who smoked and the number of their five closest friends smoked, $r = .36, p < .05$. The respondents who did not smoke were less likely to have all of their five closest friends as smokers, with only 1.9% of these students reporting to have five smoking friends, compared to 4.4% of those who smoked on some days and 24% of those who smoked every day (see Table 4.13).

Table 4.13: Number of closest friends smoking, n (%)

<table>
<thead>
<tr>
<th>Smocking status</th>
<th>How many of your five closest friends smoke?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Not at all</td>
<td>192 (61)</td>
</tr>
<tr>
<td>Some days</td>
<td>8 (17.8)</td>
</tr>
<tr>
<td>Every day</td>
<td>3 (12.0)</td>
</tr>
<tr>
<td>Total</td>
<td>203 (52.7)</td>
</tr>
</tbody>
</table>

To enable further comparisons, the categories for the number of close friends who smoked were consolidated from six to three discreet groups: 0 friends who smoked; 1 or 2 friends and 3-5 friends. In addition, the non-smokers, those in the ‘not at all’ category, were separated into never smoked and ex-smoker categories. The results for the closest friends groups who smoke classified by the smoking status of the nursing students is presented in Table 4.14. The results show that nearly half (48%) of the daily smokers have 3-5 friends who smoked. Almost two thirds (65.5%) of the students who had never smoked and 41.7% of the ex-smokers had no friends who smoked. The significant differences in the number of friends who smoke depending on the nursing students’ smoking status remained ($X^2 =19.1, p < .05$).
Table 4.14: Number of closest friends smoking (grouped), n (%)

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>How many of your five closest friends smoke?</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1 or 2</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Never smoked</td>
<td>167 (65.5)</td>
<td>72 (28.2)</td>
<td>16 (6.3)</td>
<td></td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>25 (41.7)</td>
<td>26 (43.3)</td>
<td>9 (15.0)</td>
<td></td>
</tr>
<tr>
<td>Some days</td>
<td>8 (17.8)</td>
<td>28 (62.2)</td>
<td>9 (20.0)</td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>3 (12.0)</td>
<td>10 (40.0)</td>
<td>6 (24.0)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>203 (52.7)</td>
<td>136 (35.3)</td>
<td>46 (11.9)</td>
<td></td>
</tr>
</tbody>
</table>

Attempts to quit smoking

Current smokers were asked to report if they had quit smoking for at least seven days in the past twelve months. Among the 70 female students, 46 (65.7%) had attempted to stop smoking. This was comprised of 31 (68.9%) of those who smoke on some days and 15 (60%) of daily smokers. Age was not found to be a significant factor in attempts to quit.

Role of nursing in smoking cessation

The nursing students reported on their attitudes to four statements related to the role of nursing in smoking cessation: nurses should receive smoking cessation training; be role models; advise their patients to quit and provide smoking cessation information. Age was not a significant factor in the students’ attitudes to the role of nursing. Overall, the majority of students strongly agreed or agreed to each statement, but there were significant differences between the years of study for the statements that nurses should receive special training and that nurses should advise patients to quit (see Table 4.15). The smoking status of the students was also significant for two of the statements. A significant negative correlation was found between those students who smoked and the attitude to nurses being role models, $r_s = -.27$, $p < .05$. There was also a weaker, but significant, negative relationship between smoking and advising patients to quit, $r_s = -.17$, $p < .05$.  


### Table 4.15: Strongly agreed or agreed to the role of nurses in smoking cessation n (%)

<table>
<thead>
<tr>
<th>Nursing role</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Special smoking cessation training</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>160 (41.6%)</td>
<td>150 (39.0%)</td>
<td>0.018</td>
</tr>
<tr>
<td>first year</td>
<td>60 (33.7%)</td>
<td>71 (39.9%)</td>
<td></td>
</tr>
<tr>
<td>second year</td>
<td>47 (50.0%)</td>
<td>36 (38.3%)</td>
<td></td>
</tr>
<tr>
<td>third year</td>
<td>53 (46.9%)</td>
<td>43 (38.1%)</td>
<td></td>
</tr>
<tr>
<td><strong>Be role models</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193 (50.1%)</td>
<td>106 (27.5%)</td>
<td>0.594</td>
</tr>
<tr>
<td>first year</td>
<td>86 (48.3%)</td>
<td>47 (26.4%)</td>
<td></td>
</tr>
<tr>
<td>second year</td>
<td>48 (51.1%)</td>
<td>31 (33.0%)</td>
<td></td>
</tr>
<tr>
<td>third year</td>
<td>59 (52.2%)</td>
<td>28 (24.8%)</td>
<td></td>
</tr>
<tr>
<td><strong>Advise their patients to quit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>151 (39.2%)</td>
<td>113 (29.4%)</td>
<td>0.020</td>
</tr>
<tr>
<td>first year</td>
<td>62 (34.8%)</td>
<td>49 (27.5%)</td>
<td></td>
</tr>
<tr>
<td>second year</td>
<td>44 (46.8%)</td>
<td>33 (35.1%)</td>
<td></td>
</tr>
<tr>
<td>third year</td>
<td>45 (39.8%)</td>
<td>31 (27.4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Provide smoking cessation information</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25 (6.5%)</td>
<td>219 (56.9%)</td>
<td>0.140</td>
</tr>
<tr>
<td>first year</td>
<td>10 (5.6%)</td>
<td>87 (48.9%)</td>
<td></td>
</tr>
<tr>
<td>second year</td>
<td>4 (4.3%)</td>
<td>60 (63.8%)</td>
<td></td>
</tr>
<tr>
<td>third year</td>
<td>11 (9.7%)</td>
<td>72 (63.7%)</td>
<td></td>
</tr>
</tbody>
</table>

**Smoking cessation training**

Most of the respondents strongly agreed (41.6%) or agreed (39%) that nurses should receive smoking cessation training. However, there was a significant difference between the years of study in those students who strongly agreed (p < .05). While only 33.7% of first year students strongly agreed, there were 46.9% of third year students who reported this attitude. There were differences based on the smoking status of the students, with those who smoked every day less likely to strongly agree or disagree with the statement. Among those students who did not smoke at all, the majority (81%) either strongly agreed (42.9%) or agreed (38.1%), compared to 82.3% of those who smoked on some days, 46.7% of whom strongly agreed and 35.6% agreed, and 72% of those who smoked every day, 36.0% of whom strongly agreed and 36.0% agreed.
Be role models

There were 50.1% of students who strongly agreed and 27.1% who agreed that nurses should be role models. There was a slight, but not significant, increase between the years of study, with 48.3%, 51.1% and 52.2% respectively of the yearly cohorts strongly agreeing. There were differences based on the smoking status of the students, with those who smoked every day less likely to strongly agree or agree with the statement. Among those students who did not smoke at all, the majority (82.3%) either strongly agreed (55.6%) or agreed (26.7%), compared to 68.9% of those who smoked on some days, 26.7% of whom strongly agreed and 42.2% agreed, and only 36% of those who smoked every day, 24.0% of whom strongly agreed and 12.0% agreed.

Advise their patients to quit

Of all the students, 39.2% of the respondents strongly agreed that nurses should advise their patients to quit. There was a significant difference in attitudes between students in the three years of study (p < .05). There were 34.8% of first year and 39.8% of third year students who strongly agreed with the statement. However the strongest support came from the second year students, with 46.8% strongly agreeing. There were differences based on the smoking status of the students, with those who smoked every day less likely to strongly agree or disagree with the statement. Among those students who did not smoke at all, the majority (71.7%) either strongly agreed (42.2%) or agreed (29.5%), compared to 64.4% of those who smoked on some days, 40.0% of whom strongly agreed and 29.5% agreed, and only 36% of those who smoked every day, 28.0% of whom strongly agreed and 8.0% agreed.

Provide smoking cessation information

There were 56.9% of the respondents who strongly agreed that nurses should provide smoking cessation information. However, the first year students had a different attitude to this statement compared to the second and third year cohorts. Among first year students, only 48.9% strongly agreed, while a similar proportion of the second (63.8%) and third year (63.7%) of students reported this attitude. There were differences based on the smoking status of the students, with nonsmokers more likely to have either strongly agreed or agreed that nurses should provide smoking cessation information. However, those who smoked every
day were more likely to strongly agree, but less likely to agree with the statement. Among those students who did not smoke at all, the majority (89.8%) either strongly agreed (58.4%) or agreed (31.4%), compared to 84.4% of those who smoked on some days, 44.4% of whom strongly agreed and 40.0% agreed, and 80% of those who smoked every day, 60.0% of whom strongly agreed and 20.0% agreed.

Confidence in providing cessation advice and support

The majority of the respondents were either very comfortable (30.9%) or comfortable (38.4%) providing smoking cessation advice and support to a client or a friend. However, the level of comfort was greater among the second and third year students than in the first year students. There was a significant difference (p < .05) between first year students (23%) who were very comfortable providing advice and the second (43.6%) and third (32.7%) year students. Age was also a significant factor, with students aged 30 or over more likely to be very comfortable providing advice and support (41.5% compared to 24.7%, $X^2 = 20.5$, p < .05). There were differences based on the smoking status of the students, with the majority (75.6%) of those who only smoked on some days more likely to be either very comfortable (37.8%) or comfortable (37.8%) providing smoking cessation advice and support to a client or a friend. Among those students who did not smoke at all, 69.5% were either very comfortable (42.9%) or comfortable (26.6%), compared to 56.0% of those who smoked every day, of whom only 16.0% were very comfortable and 40.0% were comfortable.

Comparison with other health professionals

The students were asked who was in a good position to provide smoking cessation advice and support. There were six health professions and “other” health professionals listed as possible choices. Almost all (96.4%) of the respondents believed that nurses were in a good position. However, this belief was stronger among second (98.9%) and third year (98.4%) students than in the first year (93.8%) students (p < .05). Nurses was the highest rating response, followed by physicians (88.3%), personal trainers (74.3%), psychologists (66.5%), other health professionals (52.7%), occupational therapists (52.5%) and paramedics (48.6%). The only profession which showed a significant difference in the beliefs between the yearly cohorts of nursing students in this study was psychologists (p < .05). Only 59% of
first year students believed psychologists were in a good position to provide smoking cessation advice and support, compared to 81.9% of second year and 65.5% of third year students.

The smoking status of the students was significant for the attitude towards one of the health professions. The nursing students who smoked every day were less likely to believe that paramedics were in a good position to provide smoking cessation advice and support (24.0%), compared to those students who did not smoke at all (50.8%) and those who smoked on some days (46.7%). The smoking status of the students was not significant for the other health professions. However, it was noted that more of the students who smoked every day believed that nurses (100%) and physicians (96.0%) were in a good position to provide smoking cessation advice and support, compared to those students who did not smoke at all (96.2% for nurses and 87.9% for physicians) and those who smoked on some days (95.6% for nurses and 86.7% for physicians). Age was a significant factor for some health professions, with the students aged 30 or over more likely to believe physicians (58.0% compared to 48.5%, \( X^2 = 4.8, p < .05 \)), occupational therapists (58.0% compared to 48.5%, \( X^2 = 4.8, p < .05 \)) and psychologists (58.0% compared to 48.5%, \( X^2 = 4.8, p < .05 \)) were in a good position to provide advice.

**Willing to do more**

The majority (83.6%) of the respondents would be willing to do more to help patients quit smoking if provided with resources and tools. Neither the differences between the first (83.7%), second (78.7%) and third (87.6%) year students, nor the age of the students were significant. There were differences based on the smoking status of the students, with those who smoked every day less likely to strongly agree or disagree with the statement. Among those students who did not smoke at all, the majority (71.7%) either strongly agreed (42.2%) or agreed (29.5%), compared to 64.4% of those who smoked on some days, 40.0% of whom strongly agreed and 24.4% agreed, and only 36% of those who smoked every day, 28.0% of whom strongly agreed and 8.0% agreed.
Perceptions of smoking-related content in the nursing curriculum

The nursing students reported on thirteen items related to curriculum content. The respondents were asked to recall if they had been taught these elements as part of their nursing program. There was a significant difference ($p < .05$) reported on all thirteen curriculum content items. As expected, the second and third year students were more likely than the first year students to have received exposure to each of the curriculum items. However, for seven of the items, such as “have you ever been told about smoking cessation techniques”, more of the second year students had received the content than the third year students (See Table 4.16). There were differences based on the smoking status of the students, with those who smoked every day more likely to report that the content was delivered. A higher proportion of the daily smokers, compared to those who smoked on some days or had not smoked at all, perceived that most of the content items were in the nursing program. The only item for which the daily smokers reported lower than the other students was for opportunities to practise cessation skills during a clinical setting.

<table>
<thead>
<tr>
<th>Content</th>
<th>First year</th>
<th>Second year</th>
<th>Third year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal training on the dangers of smoking</td>
<td>15.2%</td>
<td>66.0%</td>
<td>61.1%</td>
</tr>
<tr>
<td>Reasons why people smoke</td>
<td>31.5%</td>
<td>68.1%</td>
<td>58.4%</td>
</tr>
<tr>
<td>Asking about patients' smoking habits</td>
<td>56.2%</td>
<td>93.6%</td>
<td>88.5%</td>
</tr>
<tr>
<td>Smoking cessation techniques</td>
<td>15.2%</td>
<td>83.3%</td>
<td>66.9%</td>
</tr>
<tr>
<td>Counselling material on smoking cessation</td>
<td>21.3%</td>
<td>76.6%</td>
<td>58.4%</td>
</tr>
<tr>
<td>Nicotine replacement therapies</td>
<td>20.8%</td>
<td>87.2%</td>
<td>79.6%</td>
</tr>
<tr>
<td>Use of antidepressants in smoking cessation</td>
<td>7.3%</td>
<td>22.3%</td>
<td>33.6%</td>
</tr>
<tr>
<td>Health effects of tobacco-related diseases</td>
<td>39.3%</td>
<td>100%</td>
<td>92.9%</td>
</tr>
<tr>
<td>Symptoms of second hand smoking</td>
<td>24.7%</td>
<td>58.5%</td>
<td>72.6%</td>
</tr>
<tr>
<td>Symptoms of withdrawal from nicotine</td>
<td>15.7%</td>
<td>67.0%</td>
<td>74.3%</td>
</tr>
<tr>
<td>My role in helping patients quit</td>
<td>25.3%</td>
<td>83.0%</td>
<td>74.3%</td>
</tr>
<tr>
<td>Prepare me to help smokers quit</td>
<td>13.5%</td>
<td>56.4%</td>
<td>56.6%</td>
</tr>
<tr>
<td>Clinical experience in cessation counselling skills</td>
<td>5.6%</td>
<td>18.1%</td>
<td>35.4%</td>
</tr>
</tbody>
</table>

(P < .05 for the differences between the years of study in all thirteen items)

To assist in the interpretation of the results from the survey, an analysis of the course outlines for all undergraduate nursing courses was conducted. There were nine key terms related to smoking (smoker, smoking, cigarette, tobacco, nicotine, prevention, cessation, behaviour change, health promotion, and health promoting) that were included in the search. The findings of the document analysis of the course outlines for the 24 courses that constitute the USC undergraduate nursing program found no reference to the terms smoker, smoking,
cigarette, tobacco, nicotine, prevention, cessation, behaviour change. The general terms health promotion or health promoting were included in the course outlines for three of the first year courses, in one second year and one third year course.

The course coordinators were asked to clarify what content was included, when and for how long it was delivered. The findings were that no specific content on smoking was delivered as a discrete module. Rather, smoking was incorporated as a consideration when planning individual care or as an example of an issue suitable for health education or health promotion interventions. In the first year course, NUR 111 Practice Foundations, the students looked at health promotion material, which included a pamphlet from the QUIT program. In another first year course, NUR103 Nursing Practicum 1, the students had not considered health promotion in relation to smoking, but had considered the effects of smoking in relation to collecting a respiratory assessment. In another first year course, NUR142 Holistic Health Assessment, the students discussed how smoking was one risk factor for certain diseases. It was one of the risk factors considered over six tutorials that looked at the holistic assessment of different body systems. Smoking was discussed in more detail during the Week 10 lecture and tutorial on respiratory assessment.

In the second year course, NUR 231 Drug Therapy, smoking was considered from a health education perspective in relation to the safe administration of drug therapies. The emphasis was placed on the role of nurses in educating patients or clients in the safe use of nicotine replacement therapies. The students read about the dangers and health impacts of smoking. In particular, the students considered smoking in relation to respiratory and cardiac health. A two hour tutorial in Week 7 of the semester covered content and activities related to smoking. In another second year course, NUR 241 Health Alteration, and the corresponding third year course, NUR 331 Acute Health Alteration, the effects of smoking on the body were discussed in tutorials related to cardiac and respiratory health. Smoking was used as an example of risk factors in both of these courses. An example was provided by one of the course coordinators that for hypertension and heart disease, smoking would be listed as a risk factor. In the tutorials for these courses it was discussed how a nursing student or nurse would communicate with a patient the options for giving up smoking and where to refer patients for further help.
The combined duration of smoking related content delivered in the three first year courses was estimated at two hours. The estimated time for the two second year courses was two and a half hours. For the third year course it was approximately half an hour. A summary of the curriculum content items related to smoking that were delivered in lectures or tutorials for each year of study is presented in Table 4.17. It was based on the information provided by the course coordinators for the USC nursing program and matched to the thirteen curriculum items that the students responded to in the questionnaire. During clinical placements, the students did not routinely engage in any smoking cessation interventions. These may have occurred on an opportunistic basis for some students. For this reason, the thirteenth item on clinical placements has been marked as not delivered, as it was not routinely delivered to all students on placement. The first year students received five of the thirteen content items surveyed in the questionnaire. The second year students received six content items and the third year students received seven of the content items. However, the students were provided with limited content for these items. For example, for the item on counselling material on smoking cessation, the first year students were given and briefly discussed one brochure from Quitline.

Table 4.17: Curriculum content delivered in the USC nursing program

<table>
<thead>
<tr>
<th>Content / Year of Study</th>
<th>First year</th>
<th>Second year</th>
<th>Third year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal training on the dangers of smoking</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reasons why people smoke</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Asking about patients' smoking habits</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Smoking cessation techniques</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Counselling material on smoking cessation</td>
<td>✓</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Nicotine replacement therapies</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Use of antidepressants in smoking cessation</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Health effects of tobacco-related diseases</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Symptoms of second hand smoking</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Symptoms of withdrawal from nicotine</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>My role in helping patients quit</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Prepare me to help smokers quit</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Clinical experience in cessation counselling</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

**Attitudes towards smoking policy**

The majority of respondents were fully supportive (40%) or somewhat supportive (22.9%) of a policy to totally ban smoking on the USC campus. The year of study did make a difference to the students attitude towards the ban, with 38.8% and 20.2% of first year students, 50% and 26.6% of second year and 33.6% and 23.9% of third year students
respectively either fully supportive or somewhat supportive of a ban. Only 5.6%, 2.1% and 8% respectively of students in each year of study were strongly against a total ban of smoking on campus. However, statistical significance could not be determined, due to the small number of responses in some categories. Age did not make a significant difference to the students’ attitudes. As might be expected, smoking status did make a difference as to whether a student agreed with the smoking ban. There was a significant negative correlation between smoking and support for the total ban of smoking on campus, \( r_s = -.36, p < .05 \). Most of the daily smokers were either strongly against (52%) or somewhat against (32%) the ban. Among the students who smoked on some days, only 6.7% were strongly against a total ban and 17.8% were somewhat against. A significant positive correlation was found between those students who had never smoked and support for the ban, \( r_s = .31, p < .05 \). For the students that did not smoke at all, only 1.6% were strongly against a total ban and 4.8% were somewhat against. There were 45.7% of the students that did not smoke at all who were fully supportive of the total ban on smoking at USC.

These finding correspond with the results from the related question on whether smoking should be prohibited at USC. A significant positive correlation was found between smoking and the belief that smoking should not be prohibited at USC, \( r_s = .21, p < .05 \). Although the majority of non-smokers (73.7%), some day smokers (88.9) and every day smokers (76.0%) believed that smoking should be restricted to designated areas, there were differences in the range of responses between these groups. The daily smokers among the students either believed that smoking must not be prohibited (24%), or should be restricted to designated areas (76%). This compares to the 21% of students who did not smoke at all who believed that smoking should be completely banned.
Chapter 5: Discussion of thesis findings

This study has added to the limited cross-sectional data on the smoking habits of nursing students in Australia. There were only two previous studies of this nature identified in the literature review (Smith & Leggat, 2007a; Walsh et al., 2012). There has been a scarcity of research over the past two decades into the smoking behaviours of nursing students. A systematic international review by Smith and Leggat (2007b) found 35 studies published between 1990 and 2005. Of these, only five studies were conducted after the year 2000 in English speaking countries. This study went beyond an exploration of the smoking prevalence, knowledge, attitudes and beliefs of nursing students to also analyse if there was any significant change in those variables that could be attributed to the students’ exposure to elements of the nursing curriculum related to smoking. Due to the small proportion of male students in the study population, the reporting of the results focussed on the female students in the study. Although the male students reported a higher smoking prevalence, the small number of males in the study meant that no meaningful comparisons could be made between the male and female students. Previous studies have included a higher proportion of male students and have therefore been able to make comparisons between genders. More than 10% of the study population were males in the two other cross-sectional studies of Australian nursing students reviewed for this study.

Smoking prevalence

The 18.2% rate for female smokers among the nursing students in this study would seem to support the hypothesis that the smoking prevalence of nursing students at USC is higher than the general population. By comparison, for the local Sunshine Coast population, in which the majority of this study’s sample of nursing students resides, the smoking prevalence for females was 11.8% in 2010 (Queensland Health, 2011b). A review of the results for the smoking prevalence of the female nursing students shows that about half of the students have never smoked. The other half of the female sample had smoked at least one cigarette in their lifetime. Approximately a third of the female students had gone on to smoke 100 cigarettes or more and just over 18% were currently smoking. However, only 6.5% of the students smoked every day. This suggests that although the prevalence of smoking among this cohort is higher than the local female population, the smoking intensity is relatively low.
The majority of the female nursing students who currently smoke were not smoking every day.

Most of the current smokers in this study started smoking before the commencement of their nursing studies. This is consistent with findings from other studies of nursing students from Australian universities (Clark et al., 2004; Smith & Leggat, 2007a; Walsh et al., 2012). The group of nursing students in the study by Clark et al. (2004), on average, started smoking at the age of 15.41 years. Among the USC nursing students in this study, there was no difference between the average age of smoking initiation for the current smokers and ex-smokers. This suggests that amongst this cohort of students, an earlier initiation age does not make it more likely for an individual to be a current smoker. This finding is different to other studies that have found current smokers to have had either a significantly earlier or later smoking initiation age, compared to ex-smokers. Among the current female smokers, the daily smokers had a lower, not statistically significantly, smoking initiation age than the students who smoked on some days. The average age of smoking initiation among the nursing students in this study was similar to the average smoking initiation age of 15.8 years for the Queensland population (ABS, 2012). This means that the majority of the nursing students who smoke engaged in the behaviour before they commenced their university studies. In addition, the average smoking initiation age was younger than the legal age for smoking in Australia. From a theoretical perspective, this suggests that an individual’s intention to engage in a new behaviour of smoking is not diminished by contemplating the legality of the behaviour. The social acceptance of smoking among an individual’s family and friends may also counter any negative attitudes towards taking up smoking at an early age.

The finding that the majority of current smokers had attempted to quit smoking for at least seven days in the previous twelve months indicates there was willingness among the nursing students who smoke to change this unhealthy behaviour. It also reinforced that nicotine is a highly addictive and therefore quitting smoking is difficult (DiClemente, Delahanty, & Fiedler, 2010). Most ex-smokers take several attempts to quit before successful cessation is achieved. Research has suggested around half of all smokers will attempt to quit each year. Of these smokers, some making multiple quit attempts in a year, only around 5% of attempts will succeed (Fiore, 2000). DiClemente et al. (2010) suggested that achieving sustained cessation was a learning process through a cycle of multiple cessation attempts.
The likelihood of successful cessation will also depend on which of the five stages of change (pre-contemplation, contemplation, preparation, action, or maintenance) applied to individual smokers (DiClemente et al., 2010).

There was little difference between the proportion of daily smokers and the students who smoked on some days in relation to having attempted to quit smoking at least once in the past year. It may be reasonably expected that the majority of females (68.8) who only smoked on some days had quit smoking for at least seven days in the previous year. However, it was unexpected to find that 60% of daily smokers (all females) in this study had sustained a quit attempt for seven days or longer. It was uncertain if this desire to quit can be attributed to the respondents’ exposure to smoking-related curriculum elements. There was not a significant difference between quit attempts of current smokers in each year of study. Nevertheless, the large proportion of nursing students that had unsuccessfully attempted to quit smoking during the previous year suggested that there was a need to provide greater encouragement and support to these students. The provision of comprehensive and targeted smoking cessation programs for nursing students who were motivated to stop smoking may enhance the probability of a successful, sustained cessation for smoking before the students enter the nursing workforce. Smoking cessation guidelines suggest that quit attempts have increased and medication use has been more effective after receiving advice from a health professional. This has resulted in double to triple the rate of successful cessation, compared to no intervention from a health professional (Fiore, 2000).

The study found that a higher, although not statistically significant, proportion of students aged 30 or more were current smokers and that this age group was almost twice as likely to have smoked 100 cigarettes in their lifetime. These findings reflect the higher prevalence of smoking among the older age groups in the Sunshine Coast, Queensland and Australian populations. In particular, females aged 35-44 on the Sunshine Coast and throughout Queensland had the highest smoking rate. The higher proportion of older smokers in this study also influenced the relatively high average smoking duration, compared to studies of nursing students from other countries where the average ages of the participants were lower (Smith & Leggat, 2007b). The older demographic and corresponding longer average smoking duration among the nursing students in this study was also noted in another Australian study with a wide range of ages among the students (Smith & Leggat, 2007a). However, the average smoking duration among the USC nursing students was just over
double the reported smoking duration among the nursing students in Smith and Leggat’s (2007a) study. This suggests that age may be a factor in smoking rates. The nursing students in the older age groups who currently smoke have had a smoking habit over many years. These students may not be at a stage of change where they are able to quit, even though they may have contemplated and attempted to quit in the previous year or earlier. Fewer nursing students in the younger age groups have engaged in smoking in the past or are currently smoking. This may reflect the increased knowledge on the dangers of smoking and the increasingly negative attitudes towards smoking in general over recent decades. Smoking rates among nursing students may continue to fall in the future as fewer young adults smoke, however the smoking prevalence was relatively high among the cohort of students in this study.

The higher rate of smoking among the female nursing students compared to females in the general population, combined with the relatively high smoking prevalence reported in recent Australian studies (Smith & Leggat, 2007b; Walsh et al., 2012) suggests that smoking remains a significant issue among nursing students. In an Australian context, where smoking is increasingly becoming socially unacceptable and more restrictive laws apply to the marketing and sale of tobacco products, persistently high smoking rates for Australian nursing students are in contrast to the decline in the overall smoking prevalence in Australia. The main reasons given by the female nursing students for smoking were to relieve stress and to relax. From the Theory of Planned Behaviour perspective, there is an attitude and socially accepted norm that smoking relieves stress. These factors influence the students’ smoking behaviour. The daily smokers were approximately twice as likely to have given these reasons, compared to the students who smoked on some days. These findings were consistent with previous studies which concluded that stress was a major factor in the smoking habits of both nursing students and nurses (Clark & McCann, 2008). However, just as Rowe and Macleod Clark (2000) found that female nurses do not suffer from significantly different stressors to females in other professions, it would seem that the stress on female nursing students is similar to that of female students in other fields.

Only a small proportion of the students who smoked on some days and just over a third of the daily smokers responded that they cannot quit as a reason for smoking. This reinforced the notion that there was a willingness among the current smokers in this study to quit smoking. This was consistent with research that has reported a high proportion of
smokers who desire to quit (Clark & McCann, 2008). However, another main reason for smoking that was reported in this study was smoking out of habit. The willingness to quit among some students may be negated by the difficulty in changing behaviour once a habit is formed (Clark & McCann, 2008). This is particularly difficult in changing addictive behaviours, such as smoking. As discussed previously, social smoking was another main reason given. Breaking the apparent link between smoking, alcohol consumption and other social activities with friends and peers would seem to be a persistent problem in smoking cessation efforts. It was a surprise that very few of the students responded that a fear of gaining weight if I quit was a reason for smoking. However other studies have also reported low response rates to this reason (Clark & McCann, 2008)

There has been a steady decline in the smoking prevalence of nursing students in Australia over time. There were 25% of the female nursing students classified as current smokers in an earlier cohort (Clark & McCann, 2008; Clark et al., 2004; McCann et al., 2005), compared to the 21% in the recent study by Walsh et al, (2012) and the 18.2% rate in this current study. This has corresponded with falling smoking rates in the general population. The reported smoking rates of nursing students have decreased at around the same level as the general population, but the overall smoking prevalence for nursing students remains higher. For example, in Queensland the rates of daily smoking have decreased by 6.8% between 2001 and 2012. This is similar to the reductions for all of Australia, with the rate of daily smoking falling from 30% in 1985, to 15% in 2010 (Australian Institute of Health and Welfare, 2012). The smoking prevalence in Australia is expected to continue to decline, due to the decrease in daily smoking among younger people and the increasing number who have never smoked (Australian Institute of Health and Welfare, 2012). These declines in daily smoking and fewer young people initiating smoking are reflected in the data for the participants of this study. The participants who had never smoked were significantly younger than the current and ex-smokers. The increased restrictions on tobacco, including the plain packaging laws, may be contributing to the increasing number of young people who have never smoked.

It may be difficult to compare the results of this study with the smoking prevalence of nursing students from studies conducted in other countries. Smith and Leggat (2007b) noted there was considerable variation in the smoking rates of nursing students from different countries. For example, only 3% of participants were reported as current smokers in an
Iranian study (Ahmadi et al., 2004), compared to a 36% smoking rate from a Greek study published in the same year (Krommydas, 2004). This variability among countries may reflect the different cultural attitudes towards smoking in the general populations of each country. For example, in countries such as Iran, where relatively fewer females in the general population smoke and females make up the majority of nursing students in that country, the smoking rates for nursing students have been low (Ahmadi et al., 2004).

Nevertheless, reported smoking prevalence varies among recent cross-sectional studies of Australian nursing students. The smoking rate of 18.2% in this study and the 21% rate reported in the study by Walsh et al. (2012) were both higher than the 15.9% smoking rate reported in the earlier study by Smith and Leggat (2007a). This suggests that despite the sizeable reductions in smoking across Queensland and Australia, the nursing students in this country continue to smoke at a higher rate. However, a comparison of the smoking intensity data for the different studies and the general population indicates that fewer of the nursing students classified as current smokers were daily smokers. The majority of the 18.2% of current smokers in this study did not smoke daily, with only 6.5% of the sample reporting that they smoked every day. The daily smoking rates among the nursing students in this study were much lower than in a previous study of Australian nursing students. The findings in the study by Walsh et al. (2012) were considerably different to the current study, with the majority (63.8%) of current smokers, or 13.4% of the nursing students in the Walsh et al. study, having reported that they smoked daily. The percentage of daily smokers was not published in the other recent study of Australian nursing students (Smith & Leggat, 2007a).

The proportion of daily smokers was also very low compared to the daily smoking rates for the general population. The current smoking prevalence for females in Australia comprised of 14.3% daily smokers and 1.6% other smokers (ABS, 2012). The analysis of the reasons given for why the nursing students smoked may explain the higher proportion of smokers that do not smoke every day. Of the 19 respondents who specified ‘other’ reasons for smoking, 18 stated some form of social smoking, such as “only on weekends” or “smoking when I am drinking (alcohol)”. This represents just over a quarter of the current smokers in this study who classified social smoking among the reasons for why they smoke. This would suggest that many of the students classified as current smokers, because they had at least one cigarette in the last month, were social smokers. Many of the ex-smokers in the study by Clark and McCann (2008) had associated smoking with socialising, with 46% of
these nursing students responding that breaking the link between these two behaviours as the greatest barrier to quitting. The Theory of Planned Behaviour would associate attitudes and norms that link smoking with socialising and alcohol consumption. The low intensity smokers among the female nursing students may only smoke when they are in social situations. The Trans-Theoretical Model would help to explain why these social smokers may have contemplated quitting, prepared to quit, attempted to quit and relapsed.

The average number of cigarettes smoked in the previous week was also relatively low. The majority of the respondents who had smoked in the last week reported smoking less than 35 cigarettes, an average of five cigarettes a day. Combined with the finding that social smoking was one of the main reasons given for smoking, it reinforced the notion that many of the nursing students were smoking for social reasons. The number of cigarettes smoked was not recorded for those smokers who had not smoked in the previous week. However, it may be reasonable to expect that if the student was a current smoker, but had not smoked in the previous weeks, then the smoking intensity for these students would have been low. The majority of current smokers who responded with social reasons for smoking had not smoked in the previous week.

More of the daily smokers had friends who smoked compared to the students who smoked on some days, the ex-smokers and the non-smokers. The students who smoked on some days were more than twice as likely to have one friend who smokes. However, the daily smokers were more than five times as likely to have all five of their closest friends as smokers. These findings were consistent with previous research that found that peers and friends had a significant influence on the smoking behaviours of nursing students (Biraghi & Tortorano, 2010). The same proportion of daily smokers and students who smoked on some days had a sibling who smoked. These findings were supported by the research conducted by Pagan and Najman (2005). This longitudinal study of 376 pairs of siblings who were each interviewed at fourteen years of age found that siblings had more of an influence on an individual’s intention and decision to smoke than parents. There were slightly more, but not a significant difference in the proportion of daily smokers with a parent who smokes. From a Theory of Planned Behaviour perspective, family and friends affect a person’s perception of subjective norms about behaviours. In this case, peers and family, particularly siblings, have an influence on the smoking behaviour of the nursing students. From a Trans-Theoretical Model perspective, the willingness to engage in behaviour, in this case to initiate or quit
smoking, depends on the nursing student’s readiness for change and with what stage of change the person can identify.

**Differences by year of study**

The findings on the smoking rates for the first, second and third year students did not support the hypothesis that smoking prevalence among nursing students will change with the year of study. There were changes, but they were not significant. The prevalence rates did not show a linear increase or decrease. The highest proportions of smokers were the first year students. The second year students were less likely to smoke than the first year students, but the smoking rate increased again for the third year students. However, the smoking prevalence for third year students was not as large as among the first year nursing students. These findings are different to those from previous studies of Australian nursing students. In the group of nursing students studied by Smith and Leggat (2007a), more of the second year students smoked, compared to the first and third year students. The study by Walsh et al. (2012) differed again, reporting the same prevalence for first and second year nursing students, and an increase for the third year students.

The lower, but not significant, smoking prevalence among the third year students compared to the first year cohort may indicate that the rate of smoking decreases as the students complete the three years of the undergraduate nursing program. This also emerged as a potential pattern in a similar Australian study (Smith & Leggat, 2007a). However, the fact that the second year students reported the lowest smoking prevalence may confound this potential trend. The lower attendance rate for the second year lecture on the day the survey was conducted compared to the attendance rates for the first and third year surveys may have influenced the reported smoking rates. It was possible that there was a higher proportion of smokers among the students who were absent from the lecture, compared to the second year respondents in the survey. Smoking is a risky behaviour. Smokers are more likely to engage in other risky behaviours, such as not attending lectures. The timing of the survey, with the second year students completing the questionnaire in the Week 4 lecture, two weeks after the first and third year students were surveyed, may have resulted in the much lower response rate for the second year students compared to the other two groups. To maintain a consistent data collection method and to achieve a higher response rate, it would have been preferable to survey all three years of students in the same week (Week 2). However, at the request of the
course coordinator for the second year course, the researcher was unable to conduct the survey until Week 4. There was a significant decline in attendance by the fourth week of the semester. This indicates the value of conducting surveys of university students in lectures, tutorials or workshops as early as possible in the semester. Nevertheless, the participation rate for a voluntary questionnaire by the students who attended the classes on the days the survey was conducted was high. This suggests there was willingness by the students to participate and that the data collection methods used during the lectures, tutorials or workshops were sound.

The lower proportion of smokers in the final year of study than in the first year may suggest that the increased knowledge related to smoking and health promotion may influence a change in smoking prevalence. That is, increased knowledge of the health impacts of smoking may lead to negative attitudes and beliefs about smoking, which may lead to a decrease in smoking. This would be consistent with the elements of the Theory of Planned Behaviour and the Trans-Theoretical Model. The proportion of third year students who quit smoking during the course of their nursing studies also supported this potential trend. Smith and Leggat (2007a) also suggested this possibility, after noting that smoking rates decreased between the first and third year students in their study. However, the opposite finding of higher smoking rates among third year students in the other Australian study by Walsh et al. (2012) shows the link between decreased smoking prevalence as a result of increased knowledge from the nursing program remains uncertain. This cross-section of data on nursing students that was collected at one point in time cannot account for all the factors that contribute to nursing students smoking behaviours and any changes to that behaviour over the three years of the nursing program. Similarly, the behaviour change theories can only give a limited explanation for nursing students’ behaviours.

Attitudes and beliefs

The findings from the survey may support the hypothesis that the attitudes and beliefs towards smoking among nursing students may change with each year of study. There were differences in the attitudes and beliefs of the students from each year of study. The second and third year students were more likely than the first year students to believe that nurses should receive specialised smoking cessation training; advise patients to quit smoking and were more comfortable with providing smoking cessation advice and support. These
differences can only be suggested as a potential trend identified from this cross-section of students. Individual nursing students would need to be followed in a longitudinal study for the duration of the three year nursing program to determine if there is an actual trend to indicate changes in attitudes and beliefs.

Although there appears to be differences between the years of study, it was unclear if these differences in attitudes and beliefs can be attributed to the content delivered in the nursing program. The results of the document analysis of the course outlines for the program, and the information provided by the course coordinators revealed only a limited amount of content related to smoking included in the nursing curriculum. Although it appears that students were exposed to most of the thirteen curriculum items in the audit by their third year of study, the total amount of time spent on smoking cessation training was minimal. It was unclear as to whether such limited content by itself could result in such changes. Wewers et al. (2004) conducted a review of nursing programs in the United States and also found limited exposure to smoking-related content in the curriculum. Nursing students cite a lack of training and knowledge for having negative attitudes towards tobacco control (Barta & Stacy, 2005; Chalmers et al., 2002). It may be that personal factors outside of the nursing program, and not surveyed in this study, could have more of an influence on changes in attitudes and beliefs. The increased regulation, taxation and restriction of tobacco sales over recent years are examples of external factors which may influence nursing students’ smoking behaviours. Social factors, such as having fewer peers, friends and family members who smoke, may also influence a nursing student’s decision to start smoking or to quit.

The experience the nursing students gain from the clinical placements in second and third year may account for some of the changes in attitudes and beliefs. There were only minimal differences between the second and third year students in the reported perceptions of what smoking-related content had been delivered in the nursing curriculum. These small differences between the second and third year nursing students for some of the curriculum items may be explained by the timing of the survey. The third year students were surveyed in the second week of the semester. This was the last time they would be on campus, before completing a clinical placement for the remainder of the semester. Clinical placement provides the students with opportunities to practise giving smoking cessation advice to their patients or clients (Whyte et al., 2006). This final placement may have given the third year students more experience in a clinical setting with added exposure to patients and clients who
smoke, further opportunities to provide smoking cessation advice and receive extra training. It was possible that the third year students could have had more significant changes in attitudes and beliefs by the end of the placement. The second year students were also undertaking a clinical placement during the semester. The survey was conducted in the fourth week of the semester, two weeks after the third year students. It was possible that the second year students had already received additional opportunities and experience in smoking cessation training and advice during the clinical placement, which could have influenced their attitudes and beliefs towards smoking and the role of nurses in smoking cessation. The Theory of Planned behaviour would suggest that this additional knowledge gain on placement may influence attitudes and norms, increase perceived behavioural control and increase the likelihood of adopting the behaviour, whether it is quitting smoking or taking on a smoking cessation role as a nurse or student.

The role of nursing in smoking cessation

The four items relating to the students’ attitudes to the role of nurses in smoking cessation provided some additional findings. The majority of students in each year of study either agreed or strongly agreed to each statement on the role of nurses in smoking cessation. However, the differences between the first and third year students may suggest there was a potential for a change in attitudes over time. A higher proportion of third year students either agreed or strongly agreed to all four statements, compared to the first year students. There was a significant difference in two of the statements: nurses should receive special smoking cessation training and nurses should advise their patients to quit. A higher proportion of second and third year students agreed or strongly agreed with these statements, compared to the first year cohort. Previous research has suggested that attitudes towards smoking cessation programs and the need for nursing students to receive special training had an influence on the likelihood of conducting smoking cessation programs and offering counselling or advice to smokers when in professional practice as a nurse (Chalmers et al., 2002; Warren, Jones, Chauvin, & Group, 2008; Wewers et al., 2004).

It was expected that more of the second and third year students than the first year students had positive attitudes to the role of nursing in smoking cessation. This may suggest that, as a student progresses through the nursing studies, the perception that nurses have a role to play and have the confidence to perform that role increases. However, it was an
unexpected finding that a higher proportion of second year than third year students agreed or strongly agreed to the nurses should receive special smoking cessation training, be role models and advise their patients to quit statements. Although the cross-sectional nature of this study does not confirm this as an actual trend, it is notable that the extra year of study for the third year students may not result in an increased awareness and acceptance of the role of nursing in smoking cessation. The higher prevalence of smokers in the third year of the nursing program may help explain the differing attitudes towards the role of nursing. Nursing students who smoked were less likely to support tobacco control as part of a nurse’s role (Berkelmans et al., 2011; Lenz, 2008). As there were more smokers in the third year of the program, compared to the second year, it was more likely for the third year cohort to have negative attitudes towards tobacco control.

The fourth statement regarding the role of nursing, that nurses should provide smoking cessation information to their patients, received a positive response. Almost half of the first year students and the majority of second and third year students agreed with the statement. However, the statement received significantly fewer strongly agreed responses from each year of study than the other three statements related to the role of nursing. This suggests that the students were less confident in the role of providing health education and information regarding smoking cessation. This may be due to a lack of skills in smoking cessation techniques and how to provide information for patients and clients. It may also suggest a lack of opportunities to practise the provision of information on smoking cessation. There was limited content in the curriculum on this topic, with the focus of smoking-related curriculum items being on the dangers of smoking as an unhealthy behaviour and risk factor for certain diseases. This may explain why more students strongly agreed with the nurses should receive special training statement. The nursing students may recognise that to be more skilled and confident in providing smoking cessation information, more special training was needed. These attitudes are consistent with the Theory of Planned Behaviour. If an individual does not have perceived control over behaviour, such as a lack of confidence in engaging in tobacco control, then they are less likely to engage in that behaviour. The lack of skills is smoking cessation may lead to a lack of confidence, which may lead to not performing in a smoking cessation role. This possible explanation was supported by a study that investigated the provision of opportunistic health education and smoking cessation advice (Whyte et al., 2006). The researchers found there was a willingness from the nurses in the study to provide
education and advice. However, the nurses generally lacked the skills to confidently provide smoking cessation advice (Whyte et al., 2006).

There were a large proportion of the nursing students in this study who believed that nurses have a role to play in helping patients and clients to quit smoking. Previous studies of nursing students have also reported positive attitudes and beliefs towards the nursing role in smoking cessation. However, studies of nurses suggest that this belief as a student does not always result in fulfilling this role in professional practice after graduating as a qualified nurse (Barta & Stacy, 2005; Chalmers et al., 2002; Chan et al., 2008; González et al., 2009; Leitlein, Smit, de Vries, & Hoving, 2012; O'Donovan, 2009). Nurses in these studies have suggested that a lack of time, lack of training and not being part of the routine caring responsibilities as the main reasons in not assisting patients to quit smoking. It is likely that the USC nursing students from this study will face similar pressures on time and resources after commencing professional practice. The apparent intention to act on tobacco control, recorded in this snapshot of nursing students attitudes and beliefs, may not translate into actual behaviour as a nurse. It would be interesting to explore if the current willingness of this group of students to play an active role in smoking cessation will be sustained in their future nursing roles.

It would appear that the smoking status of the nursing students had more of an influence than the year of study on the reported attitudes and beliefs towards smoking. There were significant differences in attitudes towards the role of nursing in smoking cessation, with daily smokers less inclined to see nurses as role models for their patients. Daily smokers were also less likely to believe that nurses should receive special training and less likely to advise their patients to quit. However, it was unexpected to find that the daily smokers were more likely to strongly agree that nurses should provide smoking cessation information. It may be that smokers are willing to provide information to patients and clients and leave the choice up to each individual to quit smoking. However, smokers may not be as willing to actively engage in providing smoking cessation advice to patients and clients. The finding that current smokers were significantly less likely to consider nurses as role models has been reported in previous studies (Baron-Epel et al., 2004; Sejr & Osler, 2002). As might be expected, the smokers in this study, particularly the students who smoked daily, were likely to have more negative attitudes and beliefs in general towards the role of nursing in smoking cessation and towards smoking policies. Smoking among the students was also related to
smoking among friends and family members. This was consistent with previous studies which found peer, friend and family smoking predicted smoking among nursing students (Biraghi & Tortorano, 2010).

The smoking status of the students also accounted for differences in mental health and wellbeing. Smokers reported more days of feeling stressed or depressed than the non-smokers. This was supported in this study by the smokers reporting stress relief and relaxation as the main reasons for smoking. This finding is also consistent with previous studies of nursing students in which stress was identified as one of the main barriers to quitting (Clark & McCann, 2008). The intensity of smoking was also linked to poorer mental health, with daily smokers more likely to report feeling stressed or depressed on more days than those students who smoked on some days.

Curriculum content in the USC Nursing program

One of the research questions for this study asked what curriculum content on smoking cessation was in the USC Nursing program and when was it delivered. It was hypothesised that the USC Nursing program prepares nursing students to provide smoking cessation advice to their patients. The findings of this study do not support this hypothesis. The 24 courses that constitute the USC undergraduate nursing program do not contain a specific module related to smoking. The content analysis of the course outlines for all of these courses searched for nine key terms related to smoking, smoking cessation and health promotion. Results from the analysis found no mention of seven of the key terms. Only the general terms health promotion or health promoting, which could include smoking prevention or cessation, were found. These terms were referred to in three of the first year courses, in one second year and one third year course.

From the information provided by the Course Coordinators, there appears to be only limited content on the health effects of smoking and training in smoking cessation. This content was delivered as part of tutorials for some of the courses, but smoking was not the focus of these lectures or tutorials. The inclusion of smoking was limited to a brief discussion of some of the health effects, or listing smoking as one risk factor for particular diseases that the students were studying. Smoking was used as an example of risky health behaviours and
smoking cessation as a health promoting behaviour. This may be seen as a holistic way of integrating smoking into the nursing curriculum with the study of other pathologies, instead of having discreet modules on diseases, smoking and other risk factors. However, it would seem that the time devoted to smoking was too brief to be considered comprehensively integrated into the core curriculum. Wewers et al. (2004) had previously identified a lack of time within existing curricula, competing content priorities and a lack of appropriate educational resources as some of the barriers to the inclusion of adequate smoking cessation content in nursing curriculum. However, the literature review provided several examples of comprehensive, integrated smoking curriculum for nursing and other health students (Chan et al., 2008; Lowe et al., 2007; Shishani et al., 2012).

Nursing students may be expected to perform health promotion functions as part of their future roles as nurses (Casey, 2007). There has been an increased demand for nurses to take on these roles. However, there was inadequate health promotion training within the USC curriculum to adequately prepare the students to effectively use and extend their skills in this discipline. It would appear that the health promotion or health promoting elements related to smoking that were referred to in the course outlines for some of the nursing subjects were limited to brief mentions of health promotion materials, such as Quitline brochures. The limited content in the USC nursing program was consistent with the findings from Wewers et al.’s (2004) review of nursing programs in the United States. Wewers et al. (2004) found the majority of nursing programs devoted less than one hour on the teaching of smoking cessation techniques. The nursing program at USC and other universities need to continually review the amount and duration of smoking-related curriculum content to best prepare nursing students for their role in smoking cessation.

**Perceptions of USC smoking related policies**

**USC Smoking Policy**

The current USC smoking managerial policy prohibits smoking in all buildings at the University campus, and any other buildings operated by the University. Smoking was also prohibited within ten metres of the entrances to buildings, “in any signed non-smoking area within any University vehicle; and in all outdoor areas where food is served” (USC, 2009).
Smoking was allowed in all other outdoor areas on the University campus. No tobacco products were sold on campus. This study did not ascertain if this was part of a formal policy banning tobacco sales on campus, or an operational decision by the University to discourage smoking, as the University operates all retail outlets on campus. The University also provided smoking cessation programs for staff and students who wish to quit. In addition, there was information about the dangers of smoking on the University website and displayed on electronic notice boards around the campus. It was within this policy context that the USC nursing students reported their perceptions towards smoking on campus.

**Attitudes towards a total ban of smoking at USC**

The hypothesis that USC nursing students support a total ban of smoking on campus was partially supported. While not all respondents were in favour of a total ban, the majority of respondents were fully supportive (40%) or somewhat supportive (22.9%). This finding was fairly consistent with the results from the pilot study of 184 of the nursing students, where slightly more (45.7%) of the students were fully supportive and a similar percentage (22.3%) were somewhat supportive. This was consistent with findings from previous studies in the literature review which suggested broad support among students for more restrictive smoking policies, including campus-wide bans (Darby & Gausia, 2010).

The finding of no significant difference between first, second, or third year students’ attitudes towards the ban may suggest that neither a students’ time at university, nor the smoking-related curriculum that is delivered to the students, has an influence on this attitude. As this was a cross-sectional survey, it can only be suggested as a possible indication, rather than an actual longitudinal trend for each cohort of nursing students. There were some students in each year of study who were strongly against a total ban of smoking on campus. Although statistical significance could not be determined, it was not surprising that the students’ current smoking status made a difference to whether or not a student agreed with the smoking ban. Smokers in general were more likely to oppose a total ban. As expected, more of the students who reported that they smoked daily were strongly against the ban than the students who smoked on some days and those who currently did not smoke at all. This finding was supported by previous research which reported that non-smokers were more likely to accept a total ban of smoking on campus (Berg et al., 2011).
The wording of this question may have caused confusion for some of the respondents. As this was self-reported data, it was unclear if the term ‘total ban’ was interpreted the same way by each respondent. A total ban could mean that smoking was not allowed on all areas of a university campus, or it could be perceived by some to be banned in all places, except for designated smoking areas on campus. However, the feedback from students in the pilot study suggested that the participants understood a total ban to mean no smoking at all on campus. The preceding question in this survey asked the students about their attitude toward prohibiting smoking at USC. Almost three quarters of the students, regardless of their smoking status, responded that smoking should be restricted to designated areas. Almost a quarter of the daily smokers responded that smoking should not be prohibited. Not as many students responded that smoking must be completely prohibited, compared to those who were fully or somewhat supportive of a total ban in the next question. Of the university campuses in Australia which have been declared as ‘smoke-free’, some have implemented total bans and others have restricted smoking to designated outdoor areas. Further research into student support for a total ban of smoking on campus may need to better explain, clarify and distinguish the students attitudes towards prohibiting smoking across all of the university campus and allowing smoking only in designated outdoor areas.

These finding correspond with the results from the related question on whether smoking should be prohibited at USC. The majority of non-smokers, some day smokers and every day smokers believed that smoking should be restricted to designated areas. However, it was not surprising that almost a quarter of the daily smokers among the students believed that smoking must not be prohibited and that none of the daily smokers believed that smoking should be completely banned at USC. This compared to the 21% of students who did not smoke at all who believed that smoking should be completely banned.

The wording of this question and the related question on smoking in hospitals and clinics may have affected the validity of the responses. The students were given a choice of four possible responses to the questions: smoking is already prohibited, smoking must be completely prohibited, smoking should be restricted to designated areas, or smoking should not be prohibited. As smoking is already restricted in and near USC buildings, on Queensland Health campuses and inside medical clinics, the students who responded that smoking is already prohibited to either question may have believed they were stating a fact, rather than responding with their attitude or belief as to whether smoking should be prohibited, restricted
or permitted. The other three possible responses represented an attitude or belief. This may have presented more of a problem for the hospital or clinics question, as smoking has been prohibited inside these facilities for many years and the bans are well known and complied with by the general population. There were some respondents among the non-smokers and smokers who reported that smoking is already prohibited at hospitals and clinics. However, for the question regarding smoking at USC, where smoking is not completely prohibited, the responses indicate that they are mostly valid attitudes or beliefs. As previously stated, all of the daily smokers responses were in the smoking should be restricted to designated areas, or smoking should not be prohibited categories. Only a small number of respondents who were either non-smokers or only smoked on some days reported that smoking is already prohibited at USC.

These findings in response to the question of a total ban of smoking indicate a reasonable level of support among the nursing students at USC. There was broader support among both smokers and non-smokers in the cohort of female nursing students for a restriction of smoking to designated areas. However, it is unknown if this level of support is shared across the entire student body. The cohort of nursing students represent a small proportion (approximately 7%) of the entire USC student population. However, the attitudes of nursing students may be significantly different to students in other disciplines. The attitudes of USC staff towards a total smoking ban are also unknown at this point in time. The views of both students and staff would need to be considered in any consultation and consideration of a change in USC smoking policy to a total ban. Further research is needed in order to establish the attitudes of all USC students and staff on this issue.

In the United States, 774 college and university campuses have smoke-free policies, with 562 of these having a total ban on smoking and tobacco sales (ASH Australia, 2012). Seo, Macy, Torabi, and Middlestadt (2011) conducted research at two universities in Indiana, USA to study the effect of a smoke-free campus policy on the smoking habits and attitudes of the university students. One of the universities had introduced the policy; the other was used as a control site. The findings suggested there was a reduction in the intensity of smoking among those students who smoked after the implementation of the policy. The students at the campus where the policy was introduced also reported an increase in favourable attitudes towards tobacco control. The authors commented that the findings may
indicate that over time a smoke-free campus policy may lead to students having less favourable perceptions of smoking.

Universities in Australia and in other countries have implemented smoke-free campus policies. In some cases this has meant a total ban of smoking of campus, or a restriction of smoking to designated areas only. The advocacy group, Action on Smoking and Health (ASH), recommends all universities adopt a smoke-free campus policy, with smoking restricted to designated areas, no tobacco sales on campus and providing support for staff and students to quit smoking (ASH Australia, 2009b). USC currently meets two of these criteria, with limited smoking cessation programs and no tobacco sales. However, USC has not fully implemented a smoke-free policy in relation to designated areas. To provide a healthier environment for nursing students and to discourage smoking, USC should consider adopting ASH’s recommendation. This could be achieved by transitioning USC’s smoking policy to a designated areas only campus, before implementing a smoke-free campus policy. This transition would benefit from broader evidence of support from students and staff, either through further consultation, research or anecdotal evidence. The changes to smoking policy should also be accompanied by further information, education and support for students and staff who smoke, outlining the reasons for the policy change and providing cessation programs for those who are contemplating quitting. All nursing students could be involved in conducting smoking cessation programs, as part of their training. This could help the students prepare for their role in tobacco control as graduate nurses.

In 2009, ASH surveyed the smoking policies of all Australian universities. Responses were received from 36 of the 39 universities (ASH Australia, 2009b). The research found that most universities did not have comprehensive tobacco-free policies, but progress was being made to improve this policy area (ASH Australia, 2009b). Since then several Australian universities have become, or have announced the intention to become, smoke-free campuses. Notre Dame has a total indoor and outdoor ban on smoking. The University of South Australia has a total ban at two of its campuses. The Australian Catholic University has only one designated outdoor smoking area at each campus (ASH Australia, 2012). Griffith University has recently trialled and evaluated the compliance to a designated areas policy at one of its campuses (Sun et al., 2012). All West Australian university campuses will be smoke-free by January 2013. The University of Sydney, Macquarie and James Cook universities have policies restricting smoking to outdoor designated areas (ASH Australia, 2012). The University of Western
Sydney has banned tobacco sales on campus from July, 2012 and will ban smoking in all but designated outdoor areas from 2013. Prior to the introduction of this policy, a survey of over 6000 students and staff showed that 70% of respondents supported the policy (ASH Australia, 2012). ASH has produced a guide for a tobacco-free campus to assist universities in implementing smoke-free campus policies (ASH Australia, 2009a). A summary of the ASH guide is presented in Appendix 5.

**Limitations of the study**

There were several limitations to this study which need to be acknowledged. This study did not establish a baseline for the students’ previous smoking-related knowledge, such as the negative health effects of smoking, prior to commencing their nursing studies. Furthermore, the study did not ascertain if the students had previously trained or studied to be a nurse. Previous experience as a nursing student may have exposed some of the participants to smoking-related curriculum elements and to a nursing culture where smoking is still prevalent. The study did not ask if the students had completed some of their nursing studies at a different university. Other Australian universities may provide more or less knowledge, skills and training related to smoking and smoking cessation in the nursing curriculum. The study did not establish if the students had worked as nurses before commencing their nursing studies. Historically, nurses were trained in hospitals. The higher smoking prevalence and culture of smoking among nurses and nursing students during the period of hospital trained nurses may have influenced the attitudes and beliefs of students in this study who had previously trained in the hospital environment. Another limitation arose from conducting the pilot study with USC nursing students. There was a possible overlap between the pilot sample and the research study sample. This overlap was not controlled for in selecting the samples. So some participants may have been exposed to the questionnaire in the pilot study and then completed it for a second time in the research study. This may have affected their responses.

The cross-sectional survey research design for this study was also a limitation. The survey took a snapshot of the smoking prevalence, knowledge, attitudes and beliefs of this group of nursing students for one point in time. However, it did not enable this study to establish actual smoking trends between the years of study. Future research could use a longitudinal design to accurately monitor trends over time. A first year cohort of nursing
students could be followed over the three years of the nursing program to establish if there were actual changes in the smoking prevalence, knowledge, attitudes and beliefs among those students. In addition to collecting quantitative data, researchers in this area may also consider using qualitative data to obtain a more detailed explanation of the reasons for smoking, the reasons for quitting and whether the knowledge derived from the nursing program influenced the nursing students’ attitudes and beliefs towards smoking.

Despite the identified limitations, this study has added to the research literature on the smoking prevalence, knowledge, attitudes and beliefs of nursing students. In particular, the study has provided findings from a regional Australian university where a large proportion of students were the first in their family to attend university. This research has established the smoking prevalence among the nursing students at USC and explored the reasons for smoking. There has been a scarcity of research related to smoking and nursing students in Australia. This study may have helped address some knowledge gaps in this field of research.
Chapter 6: Conclusions

This study indicated that smoking remained a common behaviour among nursing students. The study obtained a reasonable snapshot of how many students currently smoked, how much they smoked and the reasons for smoking. The study also examined the students’ attitudes and beliefs regarding smoking, smoking policy and the role of nursing in smoking cessation. The study also audited the smoking-related items in the USC nursing curriculum. As one of only two nursing programs in the region, the findings of this study may be a reasonable indicator for the smoking prevalence, attitudes and beliefs among nursing students across the Sunshine Coast region.

The smoking prevalence of the nursing students in this study was higher than the general population. However, only a small proportion of the students were daily smokers. This was the opposite for the general population where the majority of smokers reported smoking on a daily basis. Most of the smokers among the nursing students only smoked on some days and many cited social reasons for smoking. There was also a correlation between feeling stressed or depressed and smoking, particularly among the daily smokers. The year of study in the nursing program appeared to have minimal influence on the smoking behaviours of the nursing students in this study. Even though the second year students smoked the least, and there was a slight decrease between the smoking prevalence of the first and third year students, the smoking rates across the three years of study were high compared to the local, state and national populations. Future research may consider in more depth the link between stress and smoking in nursing student populations. Stress management could be incorporated and evaluated as part of smoking cessation programs for nursing students and considered as part of nursing curriculum design. The link between socialising and smoking in nursing student culture is another area worthy of further research.

The increased exposure to smoking-related curriculum items did not translate into a significant change in smoking prevalence, attitudes and beliefs between the three years of study. The nursing students in general had positive attitudes and beliefs towards the role of nurses in providing smoking cessation advice to their patients. However, as with other studies, the smokers among this group were less inclined to believe that nurses should actively participate in helping patients to quit smoking. As these intentions have been shown
in other studies to predict future behaviour, there is a need to provide extra support to help nursing students who smoke to quit smoking before they graduate as nurses. This support could be integrated into the nursing curriculum by incorporating training in smoking cessation techniques and skills. This would enable the smokers who were willing to quit to be supported in a quit attempt by the nursing faculty and their fellow students. This would also give all nursing students the opportunity to receive the specialised training in smoking cessation they believed nursing students and nurses should receive.

The nursing curriculum may not contain sufficient information to adequately prepare the students to provide smoking cessation advice. There was only limited coverage of the thirteen smoking-related curriculum items assessed in this study. Of the items covered, providing smoking cessation information to patients was the least reported by the students in each of the three years of study. The nursing curriculum lacked specialised training in smoking cessation techniques and other health promotion interventions. The sub-optimal provision of smoking cessation interventions during clinical placements has resulted in limited opportunities to practise smoking cessation techniques in a clinical setting. The integration of more curriculum content related to tobacco control is recommended to enhance the preparation of nursing students to engage in a tobacco control in their professional practice.

The majority of nursing students support a total ban on smoking at the USC campus. However, the daily smokers among the group did not support a total ban, but supported the restriction of smoking on campus to designated areas. The participants in this study represent a small proportion of the total number of students on campus. The attitudes of a cross-section of the entire USC student body would need to be considered to determine if the support for a total ban on smoking shown by the nursing students is more widely shared. Any future move to introduce a policy to further restrict or totally ban smoking at USC would need to consider how students and staff were consulted and informed, as well as providing extra support for smokers to quit, before the policy was introduced.

This study has found the smoking prevalence among nursing students was higher than the general population. The limited smoking-related content in the nursing curriculum may not adequately prepare nursing students and appeared to have minimal effect on the smoking prevalence, attitudes and beliefs of the students. The smoking status of the students may have
had more influence on the students’ attitudes and beliefs towards the role of nurses in smoking cessation and towards more restrictive smoking policies. Although, most of the nursing students reported positive attitudes and beliefs, the students who smoked were less likely to support the notion that nurses have a role to play in tobacco control. The smokers were also less likely to support further restrictions to smoking on campus. However, a large proportion of the nursing students in the study supported either a total ban of smoking on campus or a restriction to designated areas. Smoking remains as a common behaviour among nursing students. A more comprehensive integration of smoking-related content and health promotion training into the nursing curriculum, along with targeted cessation interventions for nursing students who smoke may decrease the smoking prevalence and positively influence the attitudes and beliefs of nursing students.
References


ASH Australia. (2009b). Tobacco-free university campuses in Australia: Progress and best practices: ASH Australia


Board of Directors of Royal College of Nursing, A. (2005). *Smoking and health (position statement)* Deakin, Australia: Royal College of Nursing, Australia.


Appendices

Appendix 1: Invitation to participate

Dear student,

You are invited to participate in a study investigating the smoking habits, knowledge, attitudes and beliefs among nursing students at the University of the Sunshine Coast. It is hoped that all nursing students will participate in order to gain a full understanding across the program. The study aims to analyse the prevalence of smoking and any significant differences in smoking characteristics between first, second, third year and postgraduate USC nursing students.

The study is being undertaken as a part of a Master of Science. The supervisors for this program are Dr Florin Oprescu, Prof. John Lowe and Prof. Margaret McAllister.

As a participant, you will complete an anonymous questionnaire. It is hoped that findings from this study will inform the future curriculum, training and smoking cessation programs for USC students.

The questionnaire will take approximately 5-10 minutes. Participation is voluntary and all responses are anonymous. A research project information sheet explaining the study and your participation is attached. Your participation is greatly appreciated.

Kind regards,

David Duncan,
Bachelor of Health (Health Promotion)
Master of Science Candidate
Email: dduncan2@usc.edu.au
Appendix 2: Research Project – Information Sheet

Research Project – Information Sheet

“Smoking prevalence, knowledge, attitudes and beliefs of nursing students at the University of the Sunshine Coast (2012)”
Ethics approval number: HREC: S/12/397

Voluntary Participation
This project is intended for all first, second, third year and postgraduate USC nursing students. Participation in this research project is voluntary. There are no consequences for choosing not to participate in the research.

Student Researcher
David Duncan,
Bachelor of Health (Health Promotion)
Candidate, Master of Science
Email: dduncan2@usc.edu.au

Supervisors
Dr Florin Oprescu
Prof. John Lowe
Prof. Margaret McAllister

Details of the Research Project
This research study seeks to analyse the smoking habits, knowledge, attitudes and beliefs among nursing students at the University of the Sunshine Coast, including the role of the nursing profession in smoking cessation. This research may help to inform curriculum, training and smoking cessation programs for USC nursing students. As a participant in this research study you will complete an anonymous questionnaire. It is anticipated that this should take a maximum of 15 minutes to complete.

Risks
It is possible that you may experience some emotional distress when considering your health status, stress and smoking habits. To minimise this risk, the questionnaire is anonymous, confidential and voluntary.

Concerns about conduct of research
If you have any complaints about the way this research project is being conducted you can raise them with either the Student Researcher (dduncan2@usc.edu.au), the supervisor (foprescu@usc.edu.au), or if you prefer an independent person, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast: (c/- the Research Ethics Officer, Office of Research, University of the Sunshine Coast, Maroochydore DC 4558; telephone (07) 5459 4574; facsimile (07) 5430 1177; email: humanethics@usc.edu.au).

Confidentiality and use of data
The information collected from the questionnaire will be anonymous and only used to help address the aims of this research project. Return of the survey will be considered as consent to participate in the study. Your name will not be collected and therefore the researchers will not be able to identify your personal data. Only the principal researcher will hold access to the anonymous information collected. Only total group data will be referred to in the disseminated research results.
Feedback
As data collected will be anonymous, it will be impossible to directly inform and provide feedback to participants of the research findings. The overall research will be presented in the form of a thesis. If you wish to receive a summary of the research findings, please contact the Principal Researcher (dduncan2@usc.edu.au).

Incentives
No incentive/payback or reimbursement is being offered to participants.

Disclosure of funding sources
No financial or in-kind support has been sought for this research project.

Involvement in the research
You are able to take your time to think about whether you wish to participate in this study. If you do wish to participate, please return the survey for analysis. If you require additional information before making a decision please contact the Principal Researcher at dduncan2@usc.edu.au.

Appreciation
The University of the Sunshine Coast, the Principal Researcher and Research Supervisors sincerely appreciate your assistance with this research project.
Appendix 3: Nursing Students Questionnaire

Ethics approval: __HREC: S/12/397

1. In which year of the nursing program are you currently enrolled?
   - First year  
   - Second year  
   - Third year  
   - Post-graduate

2. What is your age? _______   Gender: ______________

3. Would you say that in general, your health is?
   - Excellent  
   - Very good  
   - Good  
   - Fair  
   - Poor

4. For how many days during the last month was your physical health fair or poor due to illness or injury?
   Number of days: _______ (write 0 for none)

5. For how many days during the last month did you feel stressed or depressed?
   Number of days: _______ (write 0 for none)

6. Have you smoked at least 100 cigarettes (approximately five packs) in your entire life?
   - Yes  
   - No

7. At what age did you have your first smoke?   Age _________  Never smoked  
   - Go to Q. 15

8. Did you smoke at least once during the last month?
   - Yes  
   - No

9. Did you smoke at least once during the last week?
   - Yes  
   - No

10. How often do you currently smoke?
    - Every day  
    - Some days  
    - Not at all  
    - Go to Q. 11

11. At what age did you have your last smoke?   Age ________  Go to Q. 15

12. How many cigarettes did you smoke last week?
    Number of cigarettes ____________

13. Why do you smoke? (Tick all that applies)
    - because I cannot quit
    - to relieve stress
    - to relax
    - to stay awake
    - to help with my study
    - am afraid that I may gain weight if I quit
    - out of habit without a particular reason
    - other - please specify  
    ____________________________________________________
14. During the past 12 months, have you quit smoking for 7 days or longer?
   Yes ☐ No ☐

15. Are any of your family members using tobacco? (Tick all that applies)
   None ☐ Parent ☐ Brother or Sister ☐ Partner ☐ Son or Daughter ☐

16. How many of your five closest friends are currently smoking?
   Number of friends________________

17. Do you think that smoking should be prohibited in hospitals and clinics?
   - Smoking is already prohibited ☐
   - Smoking must be completely prohibited ☐
   - Smoking should be restricted to designated areas ☐
   - Smoking should not be prohibited ☐

18. Do you think that smoking should be prohibited at USC?
   - Smoking is already prohibited ☐
   - Smoking must be completely prohibited ☐
   - Smoking should be restricted to designated areas ☐
   - Smoking should not be prohibited ☐

19. Would you be supportive of a policy which mandates a total ban of smoking on the USC campus?
   - fully supportive ☐
   - somewhat supportive ☐
   - neutral ☐
   - somewhat against ☐
   - strongly against ☐

20. How do you currently feel about providing advice and support for smoking cessation to a client or a friend?
   - Very comfortable ☐
   - Comfortable ☐
   - Neutral ☐
   - Uncomfortable ☐
   - Very uncomfortable ☐

21. Which of the following health professionals are in a good position to provide smoking cessation advice and support? (Tick all that applies)
   - Physicians ☐
   - Nurses ☐
   - Occupational therapists ☐
   - Paramedics ☐
   - Personal trainers ☐
   - Psychologists ☐
   - Other health professionals ☐
22. Would you be willing to do more to help consumers quit smoking if you were provided resources and tools?  
Yes ☐ No ☐

23. During your nursing studies have you ever ........ (Circle yes or no)  
Received formal training on the dangers of smoking? Yes No
Discussed the reasons why people smoke? Yes No
Been told about the importance of asking about patients' smoking habits? Yes No
Been told about smoking cessation techniques? Yes No
Been told about the importance of counselling material on smoking cessation? Yes No
Been told about nicotine replacement therapies? Yes No
Been told about the use of antidepressants in smoking cessation? Yes No

24. Up to this stage in your studies, the nursing program has contained..... (Circle yes or no)  
Content about the health effects of tobacco-related diseases Yes No
Content about the symptoms of second hand smoking Yes No
Content about the symptoms of withdrawal from nicotine Yes No
Content about my role in helping patients quit Yes No
Content that prepares me to help smokers quit Yes No
An opportunity to practise cessation counselling skills during a clinical experience Yes No

25. Nurses have a role in smoking cessation. Nurses should:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Agree somewhat</th>
<th>Undecided</th>
<th>Disagree somewhat</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive special training</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Be role models</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Advise their patients to quit</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Provide smoking cessation information</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>

Thank you for completing this questionnaire. Your assistance is greatly appreciated.
Appendix 4: Summary of pilot study results

The aim of this pilot study was to test the data collection tool and gain baseline data from a sample of USC nursing students before conducting a cross-sectional survey of the larger USC nursing cohort in the second half of 2012. Questionnaires were distributed to all nursing students who attended lectures on campus in Week 12 (May 2012). An explanation of the aim of the study was provided and return of the form implied informed consent.

Sample:
Total N: 184
Female: 174 (94.6%)
Male: 10 (5.4%)
first year nursing students: n = 46 (25%)
second year nursing students: n = 68 (37%)
third year nursing students: n = 70 (38%)

Table 1: Age range of respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequencies</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-24</td>
<td>78</td>
<td>42.4%</td>
</tr>
<tr>
<td>25-34</td>
<td>36</td>
<td>19.6%</td>
</tr>
<tr>
<td>35-44</td>
<td>41</td>
<td>22.3%</td>
</tr>
<tr>
<td>45-54</td>
<td>25</td>
<td>13.6%</td>
</tr>
<tr>
<td>55+</td>
<td>4</td>
<td>2.2%</td>
</tr>
<tr>
<td>Total</td>
<td>184</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 2: Smoking status (%) by year of study

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>first year</th>
<th>second year</th>
<th>third year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current smokers</td>
<td>10.9%</td>
<td>13.2%</td>
<td>11.4%</td>
<td>12%</td>
</tr>
<tr>
<td>Ex-smokers</td>
<td>6.5%</td>
<td>19.1%</td>
<td>21.4%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Average age of smoking initiation</td>
<td>16.86</td>
<td>15.96</td>
<td>15.41</td>
<td>15.77</td>
</tr>
<tr>
<td>Never smoked*</td>
<td>82.6%</td>
<td>67.6%</td>
<td>67.1%</td>
<td>71.2%</td>
</tr>
</tbody>
</table>

*Includes students who have smoked less than 100 cigarettes in their lifetime

In total, 12% of students reported smoking in the previous month, 9.2% in the previous week, but only 3.3% smoked every day. Second year students reported the highest smoking rate (13.2%). However, there was not a statistically significant relationship between smoking prevalence and year of study, $X^2 (DF = 2, n = 184) = 0.176, p > .05$.

Knowledge, Attitudes & Beliefs

The majority of respondents agreed that their nursing studies included the following knowledge components:

- the dangers of smoking (53.3%)
- the reasons why people smoke (57.6%)
- smoking cessation techniques (62.5%)
- nicotine replacement therapies (67.9%)
- importance of asking about patients’ smoking habits (81.5%)

However, only 30.4% reported knowledge of the use of antidepressants as a smoking cessation treatment. The majority of students reported the nursing program contained content on five smoking related curriculum elements. Only 34.2% of students reported the nursing program provided an opportunity to practise cessation counselling skills during a clinical experience (see Figure 1)
Role of Nursing in smoking cessation

Students reported attitudes to smoking-related nursing roles.

- 65.8% of the respondents strongly agreed that nurses should receive smoking cessation training
- 51.6% of the respondents strongly agreed that nurses should be role models
- 64.7% of the respondents strongly agreed that nurses should advise their patients to quit
- 51.1% of the respondents strongly agreed that nurses should provide smoking cessation information
- The majority of the respondents were very comfortable (36.4%) or comfortable (37.5%) providing smoking cessation advice and support to a client or a friend
- 96.2% of the respondents believed that nurses are in a good position to provide smoking cessation advice and support
- 88.6% of the respondents would be willing to do more to help patients quit smoking if provided with resources and tools

USC Smoking policy

The majority of respondents were fully supportive (45.7%) or somewhat supportive (22.3%) of a policy to totally ban smoking on the USC campus (see Figure 2)
Figure 2: Nursing students’ attitudes towards a policy to ban smoking on the USC campus

Would you be supportive of a policy which mandates a total ban of smoking on the USC campus?
Appendix 5: Summary of the ASH guide for a tobacco-free campus

The Guide includes:

- Tobacco facts;
- Elements of a tobacco-free policy;
- Benefits;
- Step-by-step guide to developing and implementing policy;
- Australian and overseas examples of effective policies; and
- Questions and answers.